

# The East Midlands in 2010: Full Document

A report prepared by *emda*

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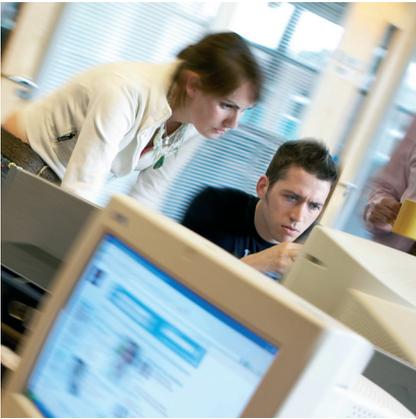
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# The East Midlands in 2010



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# The East Midlands in 2010: Executive Summary

## Introduction

The East Midlands in 2010 is the updated evidence base that supports the Regional Economic Strategy (RES), 'A Flourishing Region'. It presents a statistical portrait of the East Midlands that identifies key challenges and issues that the RES must address in order to create and sustain a 'flourishing region'. The East Midlands in 2010 reflects the latest data and research available to East Midlands Development Agency (*emda*).

The recent recession presents a particular challenge for a publication of this sort. Lags in the production of official statistics inevitably mean that many key data series do not yet reflect the full impact of the recession. For this reason, official data series are supplemented by more qualitative sources of economic intelligence where appropriate.

In developing this updated evidence base, *emda* has tried to be as comprehensive as possible in describing the condition of the East Midlands, while maintaining a strong focus on material of direct relevance to the RES and the policy levers available to regional partners. In all cases we have tried to use the most robust official data available to us, supplemented where appropriate by credible research and evaluation evidence from elsewhere. Wherever data availability has allowed, we have presented the performance of the East Midlands in a national and international context. It is our firm belief that a comparative perspective is essential if we are to truly understand the condition of the East Midlands and the magnitude of the challenges to be faced as we strive towards the ambitious vision articulated in the RES.

In analysing a region as sizeable and diverse as the East Midlands, a difficult balance must always be struck between presenting a coherent regional picture and satisfying legitimate demands for local detail. For the first time this year, we include sub-regional profiles produced in collaboration with county and unitary authorities within the region. These give The East Midlands in 2010 a more spatial character. We have also introduced new content that seeks to describe the 'spatial economy' of the region.

In light of the complex and interrelated economic, social and environmental challenges that the region will face, the evidence base is necessarily broad in its scope – with many elements providing essential context for the analysis of these challenges. Throughout, the focus is on factors that either influence or are influenced by the economic sphere, but our working definition of this sphere is broad and encompasses many factors relating to wellbeing, quality of life and the environment.

## Demography

The East Midlands has a relatively small population (4.4 million, or 8.6% of the total English population), but has experienced significant population growth, both in recent years and over the longer term. In fact, since 1981 the East Midlands population has increased each year, irrespective of economic conditions. Between 1998 and 2008 the population of the East Midlands increased by approximately 300,400 residents.

This represents a 7.3% increase, compared to a 5.4% increase in England. The East Midlands is the only one of the northern or midlands regions to have experienced population growth in excess of the national average.

The region remains one of the most sparsely populated regions in England, and much of the recent population growth has been in more rural areas. For example, the population of Lincolnshire grew by 11.5% while that of Northamptonshire grew by 11.3%. The most densely populated areas of the region have only experienced modest rates of growth (Derby City grew by 3.6% whilst Leicester City grew by only 1.6%).

In the future, the East Midlands is projected to experience the fastest population growth of any English region. Between 2006 and 2016 the population of the East Midlands is projected to increase by 10.5%, to 4.8 million. This compares to average projected growth for England of 7.8%. This growth is expected to be concentrated in the south and east of the region and in the more rural areas. Northamptonshire and Lincolnshire are both projected to grow by more than 12%. Significant growth in rural areas to the south and east, and slower growth in the cities and the more urbanised north of the region suggests that the region's population could become increasingly dispersed.

Although areas in Northamptonshire are projected to experience significant growth in their working age population, much of the growth in Lincolnshire and other more rural areas will be driven by the pensionable age group. The age profile of the East Midlands is already slightly older than in England, but because the East Midlands is projected to experience the fastest growth of all English regions in the pensionable age group (15.6% compared to 10.1% in England overall between 2006 and 2016), this difference will become more significant over time. However, the region is also projected to experience the fastest population growth of all English regions in the working age group (10.1% compared to 7.7% in England).

Between 2006 and 2016 the aged dependency ratio will increase significantly, from 30.8 to 32.3 in the East Midlands. This compares to an increase from 29.9 to 30.6 in England. At the same time, changes in child and total dependency ratios will be very slight in the region. However, it is important not to overstate the ageing population as a region-wide phenomenon. Strong growth in the working age population means that aged dependency ratios will fall in the three cities and in the south of the region. Population ageing is therefore a challenge that is likely to affect coastal Lincolnshire and parts of Derbyshire much more than the rest of the region.

In other parts of the region, the consequence of recent and forecast population changes is increased ethnic diversity. Overall, numbers of people who would categorise themselves as belonging to Black and Minority Ethnic (BME) groups have grown faster than people who would categorise themselves as 'White'. In 2001, the number of East Midlands residents in BME groups was 276,100. In 2007, this was estimated to have increased to 398,700, a growth rate of 44.4% over the five year period (compared to an average growth of 5% for the population as a whole). Growth in the ethnic minority population has accounted for the largest share of overall population growth in some parts of the region, such as Leicester. Ethnic minority groups tend to have a much younger age profile than average.

Migration has contributed to a more diverse and younger population in the East Midlands, and international migration has acted to slow population ageing in areas such as Lincolnshire. In most cases, internal migration from elsewhere the UK significantly exceeded the volume of international migration. However in a small number of districts with large resident student populations, such as Nottingham, Leicester, Derby and Broxtowe, the reverse is true, with international migration accounting for the largest share of net-migration. According to the most recent data, growth in international migration appears to be levelling off. In their projections, the ONS suggest that international in-migration will equal out-migration by 2012. There will be an increasing contribution of natural change to overall population growth. As the region's birth rate has increased, and the number of deaths has fallen year-on-year, natural change has accounted for an increasing share of population growth compared to migration, and is forecast to continue to do so. However, the two components cannot be separated, as migrants, being younger and thus more likely to start families, are a key driver of the increasing positive contribution of natural change.

These trends will have implications for economic activity, service provision, the kinds of dwellings required, and the kind of infrastructure required to support this growing population in the region.

## **Housing**

Over the long-term, trends in the number of households in the region have closely followed demographic trends, growing year-on-year, and have shown little sign of being affected by changes in the economic cycle. In terms of projections for household trends, as in the case of population, the East Midlands is projected to experience the fastest rate of growth in the number of households of the nine English regions between 2006 and 2016, at a rate of 15.6% compared to 12% nationally. This is equivalent to 289,000 households and increases the number of households in the region to 2,138,000 households by 2016, or 8.9% of the total for England. The fastest rates of growth in the number of households will be in the south of the region, in central Lincolnshire, and in other more rural districts, such as South Derbyshire. The number of households is projected to increase by over 20% in the West Northamptonshire Housing Market Area (HMA), and by 19% in the Central Lincolnshire and North Northamptonshire HMAs. This is likely to result in a significant increase in the demand for housing – especially as a larger majority of stock in the East Midlands is owner-occupied compared to the national average.

Migration is an important factor in driving the increase in the number of households, but the changing balance of household composition will also become increasingly important. Linked with an ageing population in some areas, there will be an increasing number of one-person households. By 2031, one person households are expected to account for 36.6% of all households, whilst married couple households will continue to fall, also to 36.6%. The number of one person households is expected to equal the number of married couple households by 2031, and this will have significant implications for the type and size of housing required in the region. Moreover, recent data suggests that, although the East Midlands is experiencing relatively rapid rates of growth in the number of households, it is currently achieving below average rates of increase in the number of new dwellings built each year.

Although trends in the number of households do not appear to have been affected by past recessions, the number of dwellings has been far more sensitive to the economic cycle. Between 1998 and 2008, the rate of growth in East Midlands dwelling stock was the second fastest of the nine English regions, but in the final year of this period, dwelling stock increased by only 0.7%, the smallest annual increase for the period 1991-2009. This suggests that the recession has had an impact on additions to the region's dwelling stock, due to the collapse in the housing market and associated fall in construction activity.

House prices have been consistently lower in the East Midlands than nationally, but recent data suggests that they have fallen more rapidly than elsewhere during the recession, and are now recovering more slowly. Regional house prices increased year-on-year until 2007, before falling in 2008. This decrease was faster in the East Midlands than in England overall, at -3.3% compared to -1%. Quarterly data from the Nationwide Building Society show that prices in the fourth quarter of 2009 were 2.5% higher than the first quarter in the East Midlands, but this increase is below the UK average rate of increase, of 3.4%.

In the East Midlands, affordability ratios have almost doubled over the 10 years for which data is available. In 1997, the average house price in the lower quartile of the house price range was 3.3 times average lower quartile earnings. By 2001 this had increased to 3.7, and then the year-on-year changes increase markedly, with the region's affordability ratio reaching 7 by 2007, before decreasing to 6.6 in 2008 as house prices began to fall. However, although the house price data may suggest that affordability issues may have eased, increasing difficulties in accessing finance in the last two years means that housing has remained out of reach for many. Affordability remains a significant challenge for those parts of the region that are forecast to experience the most rapid growth in demand – principally in the south of the region.

However, high house prices are not always the principal cause of poor affordability. In East Lindsey, poor affordability is due to low wages, linked to a poor supply of quality jobs. In this case, improvements in the labour market are required to address affordability pressures – illustrating the importance of addressing housing market issues through economic development as well as housing supply.

Housing stock in the East Midlands is less likely to be overcrowded than elsewhere in England, and residents are more likely to be satisfied by their accommodation. However, achieving 'decent' homes remains a challenge. 'Non-decent homes' are a particular problem in the private rented sector in the East Midlands as 58% of households in private rented accommodation are living in 'non-decent' dwellings, compared to 47% nationally. In addition, residents in older houses (of which the region has a higher than average number) are considerably more likely to be in 'non-decent' dwellings than in England, at 45% compared to 39%. Older dwellings are more likely to be 'non-decent' in the East Midlands, with 65% of dwellings built before 1919 classed as 'non-decent' in the region compared to 58% nationally. Households already in a vulnerable situation, such as lone parent families and unemployed households, are also more likely to live in 'non-decent homes'. Improvements in the condition as well as the size of the region's housing stock are key priorities for tackling social exclusion.

The Government have put significant emphasis on the need to improve the design quality of new housing, in order to support low carbon, community cohesion and regeneration objectives. The Centre for Architecture and the Built Environment (CABE) found that 55% of new developments in the East Midlands demonstrated 'poor' design standards, compared to 29% nationally. No new development was assessed as 'good', whilst only 3% were assessed as 'very good'. This was the worst assessment of the nine English regions, and represents a significant challenge for policy in the future.

## **Economy and productivity**

The global economy entered recession in 2008, following the contraction in activity in the money markets that began in August 2007. The UK has experienced the worst recession for more than 30 years, but recovery is underway with growth of 0.4% reported in the final quarter of 2009. Overall, the UK economy contracted by -4.8% in 2009. The recovery has continued into 2010 and the UK economy grew by an estimated 0.3% in the first quarter.

These developments in the global economy have had, and will continue to have, an impact on the English regions. The impacts of the recession have not been uniform across the English regions. Data from the Purchasing Managers' Index (PMI) suggests that the East of England was the first region where output began to contract and the first region to reach its low point in October 2008. This data suggest that other regions reached the low point of the cycle in the first quarter of 2009. Since then the PMI suggests that all of the English regions were growing again at the start of 2010.

Raising productivity is a key objective of policy makers in developed economies. Productivity in the UK has improved in recent years and the gap closed on key competitors. Productivity in the UK, as measured by Gross Domestic Product (GDP) per hour worked, has surpassed that in Japan but remains behind Germany, the USA and France.

Productivity in the East Midlands is below the UK average and close to the EU average. Whether measured by output per filled job or output per hour worked, productivity in the region is around 7.5 percentage points below the national average.

In addition to comparisons of output, attempts have been made to quantify regional wellbeing. It has been noted that whilst most developed nations have experienced increases in GDP there has been little discernable increase in overall reported levels of wellbeing. This can be partly attributed to the role of expectations, whereby if people expect a certain level of growth then they are only able to maintain their level of wellbeing if the pace of growth is maintained. The Regional Index of Sustainable Economic Wellbeing (RISEW) is a tool developed to measure economic wellbeing in the UK. The most recent data shows that in 2007 RISEW per capita in the East Midlands was £11,700. This is above the average of £11,300 for England.

Levels of investment remain relatively high in the East Midlands. In 2006, the level of investment by UK owned companies was 0.3 percentage points higher than in 2002

but 0.3 percentage points below the UK average. There has been less volatility in the level of investment by foreign owned companies than by UK owned companies. In 2006, the level of investment by foreign owned companies was 2.2% of gross value added (GVA), which is the highest level of investment recorded. The East Midlands is currently ranked second on this demonstrating that the region is able to offer a favourable business environment. In line with national trends the region has experienced an increase in investment in the service sector and a fall in investment in the manufacturing sector. The global nature of the recent recession is affecting levels of investment and this is expected to be reflected in future data releases.

In terms of innovation, the East Midlands performs relatively well. Universities in the East Midlands have a tradition of scientific excellence and research breakthroughs. Research strengths in the region include biological sciences at Leicester and the built environment at Loughborough. In the private sector, Business Enterprise Research and Development (BERD) has been consistently higher in the East Midlands than the UK average between 1997 and 2007, but this is concentrated in a few large multinational firms. In 2007, BERD in the East Midlands was equal to 1.4% of GVA and it is 0.1 percentage points greater than the national average. It is unclear how the recession will impact on R&D expenditure. For some it will be viewed as an item of expenditure that can be cut back, while for others it is an essential means of competing in their markets.

Co-operation agreements are a key part of the innovation process allowing information on innovative activities to be shared, developed and used more widely. The East Midlands, at 12.2%, has the highest level of co-operation agreements of any region. Although the region has high levels of innovative activity and co-operation agreements between economic agents it still struggles to turn this activity into commercial gain as measured by turnover. In the East Midlands the proportion of turnover generated in firms who introduced products or processes that were new to market, new to the firm or significantly improved was 34%. This is 7 percentage points below the leading region of the South East.

Innovation and enterprise are both facilitated by entrepreneurs who are able to create new products and processes, helping drive economic growth. Entrepreneurship, as measured by Total Entrepreneurial Activity (TEA), in the East Midlands was 5.3% in 2008, 0.2 percentage points below the UK average, though this is not a statistically significant difference. In the East Midlands there were 47 business births per 10,000 population in 2008, below the UK average of 54. However, the three year survival rate of businesses in the East Midlands is 65.4%, 0.7 percentage points higher than the UK average.

Survey evidence suggests that the recent recession has had a large and negative impact on the ability of firms and individuals in the UK to access finance. Banks' ability and willingness to lend has been reduced significantly and the cost of many types of finance has increased. This will have an impact on the rate of business births.

The East Midlands is home to around 148,000 businesses, 6.9% of all businesses in the UK. The manufacturing sector accounts for a relatively large proportion of the East Midlands economy, at 20.5% of regional GVA compared to the UK average of

13.7%. Manufacturing sub-sectors such as Transport Equipment and Food & Drink are significantly more productive in the region than nationally. This regional specialism in production activities has been in decline over the past two decades and the service sector has generally grown more quickly. This is in line with national trends. In the past two decades the service sector has been both the largest and fastest growing sector in the UK and East Midlands. In the East Midlands 69% of regional GVA can be accounted for by the service sector, compared to 76% in the UK.

Whilst the East Midlands has experienced relatively strong economic growth over the last decade, the recent recession has had a large negative effect on many industries that are more significant to the East Midlands economy than nationally e.g. construction and manufacturing. Some commentators believe that manufacturing, and high tech manufacturing in particular (in which the East Midlands performs well) will experience a relatively strong recovery, and there are some signs of this. In the first quarter of 2010 it is estimated that the manufacturing sector grew much more quickly than the service sector. The economic landscape will become clearer as published official statistics begin to capture the effects of the recession.

## **Labour market**

The East Midlands is the only region out of the five northern and midlands regions to exceed the national average employment rate and to have a lower unemployment rate. This is despite the impacts of the recession, which has meant that unemployment has increased and employment decreased in every English region. In January-March 2010 the employment rate in the region was 73.3%, compared to 72.0% for the UK. However, there are pockets of severe employment deprivation in the three cities, coalfield and coastal areas of the region. The East Midlands unemployment rate is below the national average, at 7.4% compared to 8.3% in the UK for January-March 2010. The claimant count rate in the East Midlands is also slightly lower than the UK figure, at 4.0% compared to 4.1% in April 2010.

The East Midlands is ranked sixth out of the nine English regions in terms of the proportion of the adult population qualified to Level 4 and above, at 27.0% compared to the English average of 30.5% in 2008. The proportion of the working age population without a Level 2 qualification is the second highest out of the nine English regions, at 33.0% compared to 30.6% in England. However, the scale of the up-skilling of the East Midlands workforce in recent years has been significant. The proportion of the East Midlands workforce qualified to Level 4 and above increased by 6.4 percentage points between 2001 and 2008. The national figure increased by 5.5 percentage points over the same period. However, the demand for these higher level skills appears to be lagging behind the increased supply. It is still the case that almost two-fifths of employees in the region think that their highest qualification was above that required for the job they do and this proportion has increased over time in line with the trend for England.

The higher the qualification level, the more employable an individual becomes. However, in the context of a higher regional employment rate compared to the UK, higher qualifications appear to have less impact on employability in the region than nationally. The employment rate of those with a Level 4 and above qualification was 11 percentage points higher in the East Midlands than the average of all qualification

levels. In the UK, the difference was 12.2 percentage points. In addition, it appears that those without any formal qualifications are more likely to be employed in the East Midlands than in the UK. The employment rate of those without any formal qualifications was 51.7% in the East Midlands and 47.4% in the UK.

Employer demand for low level qualifications suggests that in the East Midlands – and this may be more the case in some sub-regions than others – a number of businesses tend to compete on the basis of price and even though the qualification level of the workforce has increased, employers' demand for skills lags behind. This is especially challenging in those peripheral areas where the concentration of low-skilled labour may have a stronger negative effect on productivity, such as the coastal areas of Lincolnshire.

The occupational composition of the region shows that the proportion of employees in upper tier occupations (managers, professionals and associate professionals) is 39.1% in the East Midlands, 3.9 percentage points below the UK figure of 43.0% in 2008. At the same time, the proportion of employment in lower tier occupations associated with lower skill requirements (elementary occupations and process, plant and machine operatives) is 21.8% in the East Midlands, 3.3 percentage points above the UK figure (18.5%). Although upper tier occupations are expected to grow more significantly in the region than in the UK, these are projected to account for a lower share of regional employment compared to the national average in the next decade.

The earnings profile for the region appears more evenly distributed than in the UK, which is principally due to the more depressed earnings of those in the top deciles of the earnings distribution. The reasons for this are interrelated, covering a range of factors that include the different sectoral and industrial composition of the regional economy. Although the average earnings of higher skilled occupations is lower in the region than in the UK, the median weekly pay for elementary occupations is slightly higher in the East Midlands.

Residents in rural districts of the East Midlands tend to perform better on measures of employment and workforce qualifications. The employment rate of the most rural districts was 79.3% in 2008, 3.4 percentage points above the regional average. The Rural 50 districts have a significantly higher proportion of the workforce qualified to Level 4 and above at 31.2%, compared to the regional average of 27.0%. Earnings of residents living in rural districts are also higher compared to their urban counterparts. This suggests that many better paid, higher skilled individuals choose to live in rural districts and commute to work elsewhere. In contrast, many local labour markets in rural districts provide comparatively low paid, low skilled employment such as the Lincolnshire coast and the coalfield areas.

There is a danger that the recent economic downturn may put some businesses under pressure to retain low cost, low value-low skill business models. This would further constrain opportunities to move towards high skill and high value added business strategies which ultimately may mean the region does not fully benefit from economic recovery later. Therefore, it is important that employment and skills strategies are joined up with innovation and enterprise policies to achieve sustainable economic growth.

## Deprivation and economic inclusion

Area-based analysis shows that the most deprived areas of the East Midlands (as measured by the Index of Multiple Deprivation) are concentrated around the three cities of Leicester, Derby, and Nottingham, the former coalfield districts of Mansfield, Ashfield, Bassetlaw, Chesterfield and Bolsover, and the Lincolnshire coast.

The economic challenge facing the former coalfield areas is well established. Communities in the coalfield areas tend to have higher numbers of people on incapacity benefit and in other forms of inactivity. In addition, due to the recession, some groups where intergenerational unemployment is already an issue may face further difficulties in getting into work or maintaining their labour market position.

Deprivation in the Lincolnshire coastal areas is partly related to access to services and employment. The problems of deprived localities in inner-city areas (Nottingham, Leicester) and former coalfield areas (Mansfield, Bolsover, Chesterfield) are different. The labour market challenges posed by a highly stable, largely homogeneous population experiencing intergenerational unemployment in a former coalfield area are quite different from those of an ethnically diverse, younger and more transient population living in an inner-city area.

The extent of labour market participation varies significantly by gender, age, ethnicity and disability. Labour market participation of young people, women, ethnic minorities and disabled people are below average. The employment rate for women in the East Midlands is considerably lower than that for men, at 72.3% compared to 79.2% in 2008. The employment rate for those with a disability is 38.6%, which is less than half the rate reported for those without a disability (80.8%). The working age employment rate for ethnic minorities in the East Midlands is 63.4%, significantly below the rate for those who are white (77.2%).

Educational attainment is one of the routes which leads to sustainable employment. However, participation in education and educational achievement varies significantly not only by the ethnic background of pupils but also by local area. In the East Midlands educational attainment of pupils from Mixed and Black ethnic minority groups is generally lower than average. In addition, comparing the East Midlands to England as a whole, educational attainment is weaker in every ethnic group (White, Mixed, Black and Chinese) apart from pupils with an Asian background, who perform relatively better in the region than in England. Participation and achievement is generally lower in the cities.

Although moving into work has been identified as the main factor associated with movement out of income poverty, concerns about “in-work” poverty have been raised because of the low-skill, low-pay nature of much employment. This highlights the challenges of the quality of jobs, depressed earnings, the generally skewed employment toward the lower end of the occupation scale, and its long lasting social impact on the life chances of the regional population. It may be the case that some sub-regions are more affected than others, such as Lincolnshire where the concentration of low-skilled, low-paid labour may have a stronger negative effect on the wellbeing of its residents.

The spatial pattern of child poverty shows that the proportion of children living in households receiving out-of-work benefits is highest in Nottingham, Leicester and some wards in Derby. The labour market participation of parents is crucial in avoiding intergenerational poverty, but many parents work in low paid employment. In 2006, 51% of poor children lived in working households (i.e. lone parent who worked, couples where one or both worked) in the East Midlands compared to 53% in England. The corresponding figures for the East Midlands and England in 2003 were 30% and 40%. The recession is likely to have an impact on these figures. The Government has set a target to end child poverty by 2020, which is a challenging target for both the East Midlands and UK as a whole.

Health status has a reciprocal relationship with employability as healthy individuals are more likely to seek, obtain and remain in employment. In addition, work can also have a valuable social role and beneficial consequences for health. Health deprivation and health inequalities are the result of complex interactions between a wide range of social, environmental and biological factors. Parts of Nottingham, Mansfield and Bolsover are the most health deprived areas in the region, where wider determinants of health such as poverty, poor educational outcomes, unemployment, poor housing, and the problems of disadvantaged neighbourhoods are also concentrated.

The difficulties of reconciling family and work pose another barrier to employability. Access to childcare services and flexible working arrangements are the main instruments by which these barriers can be reduced. Barriers to childcare may hinder labour market participation, especially for lone parents. In the East Midlands, 10% of non-working parents reported that they could not find free or affordable childcare which would make working worthwhile. In the East Midlands, 6% of non-working parents reported that they could not find childcare for the hours or days when they would need to go out to work. Barriers to transportation and key services can be an issue for those living in remote rural areas and the Lincolnshire coast.

Crime has a damaging effect on the quality of life of people living in a community. Recorded crime related to offences against property and possession is higher in the East Midlands than the English average, at 63 recorded offences per 1,000 population in the East Midlands compared to the English average of 60 in 2008-2009. These crimes are concentrated in Nottinghamshire and in Northamptonshire while violence against the person was the highest in Leicestershire. In spite of this, the East Midlands is a place where people generally like to live.

Active and cohesive communities are more likely to reach consensus on their local problems and the sense of belonging to the neighbourhood is greater. In 2007 the proportion of residents participating in formal voluntary help, informal help and civic activities in the East Midlands was 43%, 64% and 38%, similar to the English averages. In addition, the proportion of East Midlands residents who had a strong sense of belonging to their community increased from 65% to 78% between 2003 and 2007.

## Transport and infrastructure

The East Midlands has developed and maintained its transport infrastructure over the last decade, which has helped to support growth in the resident population and business stock. The East Midlands remains well connected to surrounding regions facilitating personal travel as well as trade. Key infrastructure, such as East Midlands Airport (EMA) and strategic road and rail links, mean the East Midlands remains at the centre of the UK's transport network and linked to the wider global economy.

The East Midlands experiences net out commuting with around 198,000 people commuting out of the region to work, greater than the estimated 108,000 people who commute into the region. The region continues to experience a relatively low use of public transport as a method of travelling to work compared to other regions and a relatively high dependency on private transport (mainly private car). The dependency on private vehicles is largely a function of the region's rural nature.

Although commuting accounts for just 15% of all trips by purpose in the East Midlands, the concentration of these journeys causes many of the disbenefits associated with congestion. It is estimated that congestion costs the East Midlands £935 million per annum, a significant cost to the regional economy. Whilst it is not cost effective to eliminate congestion there are substantial savings to be made through strategic planning and policy decisions that can alleviate the worst of the impacts.

The East Midlands is ranked fifth out of the nine English regions in terms of the number of cars owned per household. Car ownership per household in the East Midlands was 1.3 in the period 2007-2008, which is above the national average. Whilst this, in itself, is not particularly noteworthy it holds more significance when viewed in conjunction with the traffic increase on major roads. Between 1998 and 2008 the region has experienced the third highest (behind the South West and North East) increase in traffic on major roads of any English region, an increase of around 11%. This, together with the greater projected increase of the population in rural areas over the next decade, leading to an increasingly dispersed population in the region, is likely to increase the demand for use of the road network further.

The freight industry continues to play an increasingly important role in the East Midlands economy, supported by a strong road, rail and air transport network. Whilst this brings many economic benefits, there are significant environmental impacts which arise from the freight industry. East Midlands Airport has developed its capacity in recent years helping support the region's freight industry and is now the UK's primary freight hub outside London. Developments at EMA have also supported the business and resident population of the region. EMA will continue to play a key role in the economy of the East Midlands.

Around four fifths of businesses in the East Midlands use computers and 94% of these have a broadband connection. This puts the East Midlands in a strong position to benefit from the economic potential that Information and Communications Technology (ICT) brings to both businesses and individuals. Developments in ICT have increased the opportunity of working from home, which brings a number of economic benefits. Currently, around 18% of the population has the ability to work from home if required,

the highest percentage of any northern or midlands region. The region, like the UK, has moved from almost no broadband to near universal availability of first generation broadband in less than five years. However, the situation regarding investment in Next Generation Access (broadband available through fibre optic cables) is much less clear with no firm plan for when this investment will take place.

There is little up to date regional data on utilisation of employment land and this is an area where further work is clearly required. There are wide discrepancies in land values and property rents across the region. These values are invariably higher in the region's major urban areas. The region is a key distribution centre, with a significant share of the country's warehouse space. This is a function of the region's location at the heart of the country's transport infrastructure.

Recent economic conditions will inevitably put pressure on funding for transport and infrastructure. This issue will affect all regions in the short to medium-term.

## **Environment**

Global and national evidence presents a compelling case for the contribution of economic activity to climate change. The Stern Review suggests that even if current rates of emissions are stabilised, the world is still likely to experience a temperature increase of at least 2°C by 2050.

Recent projections suggest that climate change outcomes in the East Midlands will be quite close to the national average, with mean summer temperatures increasing by 1.4°C and winter temperatures increasing by 1.3°C by the 2020s and by 2.5°C and 2.2°C respectively by the 2050s. Winter precipitation could increase by 5% whilst summer precipitation could decrease by -6%. Recent projections of sea level rises are more modest than previous estimates, but the East Midlands coastline could still experience a rise of 9.7cm on 1990 levels in the 2020s. This could lead to increased risk of coastal flooding in Lincolnshire, which is not only a consideration that could constrain development planning, but is also a threat to the region's coastal areas of Special Scientific Interest and areas of high quality agricultural land.

In the East Midlands, greenhouse gas emissions have decreased over the long-term, but there has been an upward trend since 1999. In 1990 total Global Warming Potential emissions totalled more than 60,000 kilotonnes of CO<sub>2</sub> equivalent. During the 1990s this fell to around 33,000 kilotonnes. Between 1999 and 2007 there was an upward trend, from 32,800 to 40,700 kilotonnes of CO<sub>2</sub> equivalent. This increase is due to two factors. Firstly, the East Midlands is a major producer and exporter of energy, with Fuel & Power Production accounting for 87.2% of all greenhouse gas emissions in the region in 2007. End-users have also contributed to this increase, particularly through emissions attributed to road transport. Latest figures show that the East Midlands had an above average volume of emissions attributed to road transport, and that these emissions have remained stable in recent years whilst decreasing in other regions.

Other trends reflecting the impact of human activity on the environment have been more positive in the East Midlands. With the exception of Nitrogen Oxide,

technological improvements have significantly reduced emissions in the major air pollutants in the region, such as Sulphur Oxide.

The East Midlands has experienced the greatest improvements of any region in the proportion of its rivers assessed as 'good' in terms of both biological and chemical quality. Pollution incidents that have had a 'major' impact on water quality have also fallen in recent years, although the water and waste industries have consistently been responsible for the largest number of incidents.

The region also has the highest proportions of municipal waste recycled or composted in England. However, the region still has to achieve significant improvements in order to manage waste more sustainably. An above average proportion of all waste continues to be disposed of in landfill sites. In 2006, 12.3 million tonnes of waste went to landfill in the East Midlands, 56.1% of the total, which is above the average for England of 55%. At the same time, 42.6% was recovered or recycled, which exceeded the average for England, at 37.5%.

In terms of resource efficiency – measured by the amount of waste generated for every unit of economic output – the East Midlands remains relatively inefficient, and this represents a key challenge for regional policy. In 2006, 330.5 tonnes of waste were generated for every million pounds of GVA, considerably higher than the average for England of 244.2 tonnes per million pounds of GVA.

It is important to view the environment in terms of assets and opportunities as well as constraints. The Stern Review estimated that markets for low-carbon energy products could be worth at least \$500 billion per year by 2050. The energy resources provided by the East Midlands coal mining past are an example of an opportunity for innovation and enterprise that the region can build on (e.g. abandoned mine methane). However, recent statistics on renewable fuels suggest that the East Midlands, as a significant energy producer, continues to contribute a relatively small share of the national renewable energy capacity. The East Midlands has approximately 180 Megawatts of renewable energy capacity, from hydro, wind, landfill gas and other sources. This is almost double the installed capacity in 2002, but is the fifth lowest share of the nine English regions, producing 9.2% of the total for England.

Other environmental assets include the region's biodiversity and the quality of its landscapes. Natural habitats can provide a range of benefits as 'ecosystem services'. Along with the intrinsic value they provide in enabling people to encounter wildlife and appreciate the landscape, these services enable the environment to absorb some of the causes and effects of climate change. Grasslands and forests in particular play key roles in the capture and storage of carbon emissions. However, the East Midlands has the lowest proportion of land covered by woodland of all regions other than London, at 4.7% compared to 8% in England overall. Across the East Midlands intensive farming, industrial activity and aggregate and mineral extraction has had significant impacts on the condition of the region's landscapes, with 26% of landscapes assessed as 'diverging' from their natural character, compared to 19% in England overall. Intensive farming and the continued loss of habitats, such as hedgerows, have contributed to the continued decline of farmland bird species in the region. However, on areas designated for statutory protection, such as Sites of Special Scientific Interest (SSSIs), the East Midlands performs significantly better.

The region currently has the highest proportion of SSSIs assessed as being in 'favourable' or 'recovering' condition in England, at 96.2% in March 2010. This means that the region has exceeded the PSA target of 95% by 2010.

The East Midlands is geologically rich, and is England's principal producer and exporter of aggregates and other minerals. It is also the country's principal manufacturer of concrete. In addition to this significant asset, the region also has a relatively benign geology, with limited risks of earthquakes or other geological hazards (such as radon), although shrink-swell clay is a problem in some parts of the region. However, it also has to be noted that much of the extraction that makes the East Midlands England's most important region for aggregate production takes place in areas of natural beauty, such as the Peak District.

Interaction with the historic environment can be of key importance in creating and maintaining a shared relationship between individuals and their surroundings. The East Midlands has a number of important heritage sites, containing 10.7% of Grade I listed buildings and 11.6% of registered battlefields in England. However, a comparatively high proportion of listed buildings in the East Midlands were at risk in 2009, at 4.6% of all Grade I and Grade II listed buildings, compared to 3.1% in England overall. More positively, recent evidence on heritage suggests that East Midlands residents have a greater level of interaction with their historic environment than elsewhere, with above average visits to heritage sites.

## **The spatial economy**

The East Midlands has a complex structure, with no single dominant centre (as in Birmingham in the West Midlands for example). Agglomeration economies occur when there are significant concentrations of businesses and people. They tend to be self-reinforcing as dense areas of economic activity attract yet more businesses and people. This suggests that, over time, economic activity will be concentrated in urban areas. This is often supported by the planning system, which focuses on the development of brownfield urban sites before encouraging more peripheral development. However, there are limits to the extent to which this can take place as costs such as congestion and increased land values can drive activity elsewhere.

In their work on large urban settlements in the East Midlands, Atherton and Johnston (2006) suggest that there are a small number of settlements in the region that can be categorised as regional agglomerations. These are Derby, Leicester, Northampton and Nottingham. However, agglomeration economies, and the benefits they bring, can also occur on a smaller scale outside of the largest urban centres, for example in Lincoln, which serves a large rural hinterland.

In a subsequent piece of work Atherton and Price (2009) looked at a number of smaller 'secondary' centres in the East Midlands and examined the role that they play. They found that there are a number of these settlements that act in a similar way to the larger urban areas, providing a service centre function to often large rural hinterlands. These settlements include Chesterfield, Buxton, Market Harborough, Grantham, Wellingborough and Newark. An implication of this finding is that these centres need to develop in an appropriate way, so that they can continue to fulfil this function.

The fact that there are a number of large and small service centres in the East Midlands that draw in people from large hinterlands suggest that commuting and other travel flows are significant and this is borne out in the data. Analysis of commuting flows suggests that they are significant, both within and without the region. In 2001 the East Midlands was a net exporter of workers with around 90,000 more commuting out of the region than commuting in. By 2006 this had increased to over 100,000. There are significant flows between the East Midlands and Yorkshire and the Humber (Sheffield), the West Midlands (East Staffordshire), the East of England (Peterborough) and the South East (Milton Keynes). This means that the impact of economic development and other interventions will flow across regional borders.

Within the East Midlands commuting flows are greatest into the larger urban areas, and Nottingham and Leicester in particular. In these two cities in-commuting is equivalent to 54% and 43% of total employment respectively. The other side of the coin is that outflows are greatest from those districts that are close to these areas (for example Broxtowe or Rushcliffe). These areas close to the urban centres have also experienced significant population growth, partly as a result of 'city flight'.

The data shows that commuting has increased since 1991, with more people travelling further to work. Commuters tend to be more highly skilled, highly paid and work in more specialist roles. This group of workers are likely to be part of a labour market that is regional or even national. As the workforce grows and becomes more highly skilled, commuting is likely to increase as a result of the need to match the demand for and supply of skills.

Although a number of key centres have been identified in the region, and descriptive analysis of available data might suggest it, there is no evidence that the region can be considered to be polycentric in strict functional terms. The available data on business stock, population and commuting suggest that Nottingham and Leicester stand alone as regional centres, with little interaction between them (for example commuting flows between these two cities are relatively small). Northampton also stands somewhat apart from the rest of the region and this is likely to become even more pronounced in the future as a result of greater linkages with the South East through the Milton Keynes-South Midlands growth area.

The most complex relationship among the region's major centres is between Nottingham and Derby. Nottingham attracts twice as many commuters from Derby as it sends. In many ways Derby is closely linked to the South Yorkshire conurbation but in terms of a market for highly skilled workers it is part of the same labour market as Nottingham. As Nottingham is the larger centre and develops further, its existing position may be enhanced.

## Introduction

The East Midlands in 2010 is the updated Evidence Base that supports the Regional Economic Strategy (RES), 'A Flourishing Region'. It presents a statistical portrait of the East Midlands that identifies key challenges and issues that the region must address in order to create and sustain a 'flourishing region'. The East Midlands in 2010 reflects the latest data and research available to East Midlands Development Agency (*emda*).

The recent recession presents a particular challenge for a publication of this sort. Lags in the production of official statistics inevitably mean that many key data series do not yet reflect the full impact of the recession. For this reason, official data series are supplemented by more qualitative sources of economic intelligence where appropriate. In addition, the supporting narrative highlights data series that are particularly susceptible to problems associated with production time lags.

In developing this updated Evidence Base, *emda* has tried to be as comprehensive as possible in describing the condition of the East Midlands, while maintaining a strong focus on material of direct relevance to the RES and the policy levers available to regional partners. In all cases we have tried to use the most robust official data available to us, supplemented where appropriate by credible research and evaluation evidence from elsewhere. Wherever data availability has allowed, we have presented the performance of the East Midlands in a national and international context. It is our firm belief that a comparative perspective is essential if we are to truly understand the condition of the East Midlands and the magnitude of the challenges to be faced as we strive towards the ambitious vision articulated in the RES.

In analysing a region as sizeable and diverse as the East Midlands, a difficult balance must always be struck between presenting a coherent regional picture and satisfying legitimate demands for local detail. For the first time, this year we include sub-regional profiles produced in collaboration with county and unitary authorities within the region. These give The East Midlands in 2010 a more spatial character. We have also introduced new content that seeks to describe the 'spatial economy' of the region.

In light of the complex and interrelated economic, social and environmental challenges that the region will face, the Evidence Base is necessarily broad in its scope – with many elements providing essential context for the analysis of these challenges. Throughout, the focus is on factors that either influence or are influenced by the economic sphere, but our working definition of this sphere is broad and encompasses many factors relating to wellbeing, quality of life and the environment.

The remainder of the document is structured as follows:

- **Executive Summary**
- **Chapter 1** examines the demography of the East Midlands. It considers the structure of the population by age, gender and ethnic group. It considers recent population trends, including levels of migration, and the latest population projections<sup>1</sup>. Key policy issues raised by this analysis are the rate of future population growth, which is expected to be among the fastest in the country, and the ageing of the population. Both will have a significant impact on public service provision in the region.

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<sup>1</sup> It should be noted that on 27th May 2010, ONS published the 2008-based Subnational Population Projections for England. These projections supercede the 2006-based projections used in this chapter. We will revise and republish the relevant analysis as soon as is practicable.

- **Chapter 2** addresses housing in the East Midlands. It considers the quality of the housing stock and housing affordability. Most of the analysis is devoted to an assessment of the number of households in the region and how and why this is likely to change. The number of households is projected to increase rapidly in the East Midlands, with a significant impact on the demand for and cost of housing.
- **Chapter 3** examines the economy and productivity in the East Midlands. It presents an overview of current conditions in the global, national and regional economies. It considers how the region performs against the Government's five drivers of productivity, before concluding with a detailed assessment of the industrial structure of the East Midlands. The analysis suggests that productivity is still below the national average and that the recession may exacerbate a number of long standing structural issues.
- **Chapter 4** examines the labour market in the East Midlands. It assesses labour market participation in the region, the skills of the workforce, the structure of employment and earnings. Unemployment has increased as a result of the recession but is still below the national average. The East Midlands can still be considered to be in a low pay-low skill equilibrium.
- **Chapter 5** addresses issues of deprivation and economic inclusion. It examines the Index of Multiple Deprivation before analysing data on participation in employment and education by age, gender, ethnicity and disability. It then presents an analysis of data on barriers to participation, poverty and crime. The analysis shows that deprivation is focused in the urban areas, the former coalfield and on the Lincolnshire coast. It also shows that levels of labour market participation are relatively low among ethnic minorities and those with a disability.
- **Chapter 6** analyses transport and infrastructure in the East Midlands. It analyses data on modes of personal travel, freight, the use of ICT and land and property values. It shows that more journeys in the East Midlands are made by private car, contributing to congestion at particular times and places within the region.
- **Chapter 7** assesses data relating to the environment in the East Midlands. It begins with an assessment of global climate change before examining data on emissions, waste, water and energy. It makes use of detailed data on the geology of the region and assesses biodiversity and the historic environment. The key finding is that energy generation contributes significantly to greenhouse gas emissions, along with road transport, and that energy generation from renewable sources is relatively low.
- **Chapter 8** reviews the spatial structure of the region. Unlike previous sections it does not describe official statistics but brings together a number of pieces of research that report on how the region functions as an economic entity and its linkages to surrounding regions. The key message from the discussion in this section is that the East Midlands is a complex region, with no single dominant centre but a number of significant centres.
- **Chapter 9** presents a profile for each of the upper tier local authority areas in the East Midlands. These profiles have been provided by the relevant local authorities. They present key data on each sub-area and highlight particular local issues.
- **Annex 1** sets out detailed definitions of the sub-regional geographies that are used throughout this document.

- **Glossary of terms and acronyms**

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# The East Midlands Demography

## 1. Introduction

This chapter of 'The East Midlands in 2010' profiles the region's current population structure and discusses recent and likely future changes. It compares the East Midlands region to other English regions and to trends in England and the UK as a whole. It also draws sub-regional comparisons by looking at the nine County and Unitary Authority areas, as well as the Housing Market Areas used in the Regional Spatial Strategy and the Government's classification of urban and rural areas. The geographies used in this section are described in more detail in Annex 1.

Section 2 presents a snapshot of the East Midlands population in mid-2008. This demonstrates that the East Midlands has one of the smallest populations in England, has one of the lowest population densities and is the third most 'rural' of the nine regions. The region's population structure is similar to the national average, but with a slightly higher proportion of men and a higher share of the population in the pensionable age group. There are higher proportions of older people in the rural areas in Lincolnshire and Derbyshire, and higher proportions in the school and working age groups in the cities and the south of the region. The East Midlands has a slightly smaller proportion of people who would describe themselves as belonging to a Black or Minority Ethnic (BME) group than average, and almost a third of these individuals live in Leicester, which also has the youngest age profile in the region.

Section 3 describes population trends over the decade 1998 to 2008, when the East Midlands was the only northern or midlands region to experience population growth in excess of the national average. Rates of population growth have been particularly high in Lincolnshire, Northamptonshire and Rutland, whilst they have been very modest in Leicester, Derby and Nottinghamshire. The population has grown faster in rural areas in the east and south of the region, and more slowly in the more urbanised north of the region. The pensionable age group has grown particularly significantly, whilst the number of residents in the school age group has fallen over the decade. However, the region has also experienced an above average rate of growth in its working age population. Although migration is still the most significant component of population change, rising birth rates and falling death rates have resulted in natural change making an increasing contribution, accounting for well over a third of population growth in recent years.

Section 4 analyses projections for future population change to 2031, with particular emphasis on the decade 2006 to 2016. The East Midlands is projected to experience the most rapid rate of population growth of any English region. Within the region, Northamptonshire is projected to grow fastest whilst Derbyshire is expected to experience the slowest rate of growth. Rural areas in the south and the east of the region are projected to experience stronger population growth than the more urbanised north. Both the working age and pensionable age groups are projected to grow at a faster rate in the East Midlands than in any other English region, and the school age group

could grow at a faster rate in the region than in England overall. Due to the strong growth in the working age group, dependency ratios are projected to remain fairly stable across much of the region, with the exception of Lincolnshire and Rutland, which could experience significant increases in aged dependency ratios. This could have consequences for both economic activity and service provision. Natural change is projected to become more significant as birth rates continue to increase and mortality rates fall. International migration is projected to level off and migration from other regions is projected to become increasingly important.

## 2. The East Midlands population

The East Midlands Government Office Region (GOR) is made up of nine Upper Tier Local Authority areas: the County Councils of Derbyshire, Leicestershire, Lincolnshire, Northamptonshire and Nottinghamshire; and the Unitary Authorities of Nottingham City, Leicester City, Derby City and Rutland. The region's main population centres are the cities of Leicester, Nottingham, Derby, and Lincoln and the town of Northampton.

The Office for National Statistics publishes annual estimates of the resident population known as the Mid-Year Population Estimates (MYE). From the year of the last Census, each MYE takes the estimate of the resident population in a given geographical area from 30<sup>th</sup> June the previous year, ages the population by one year, adds those who have been born in the previous 12 months and subtracts those who have died. This element is reasonably precise, because there is an accurate record of births and deaths in a given year. The other major factor in producing the MYE is migration, which is likely to have a wider margin of error, although data on migration has improved markedly in recent years.<sup>1</sup>

### 2.1 Total population

According to the 2008 MYE, the East Midlands had a resident population of 4,433,000. This is 8.6% of the total for England.

Chart 1 shows that the East Midlands is one of the smallest regions in England in terms of population, with only the North East accounting for a smaller share of the national total (at 2.6 million, or 5.0%). The chart also shows that:

- The South East accounts for the largest share of the population in England, with 8.4 million residents, or 16.3% of the national total, whilst London has the next largest share, at 14.8%; and

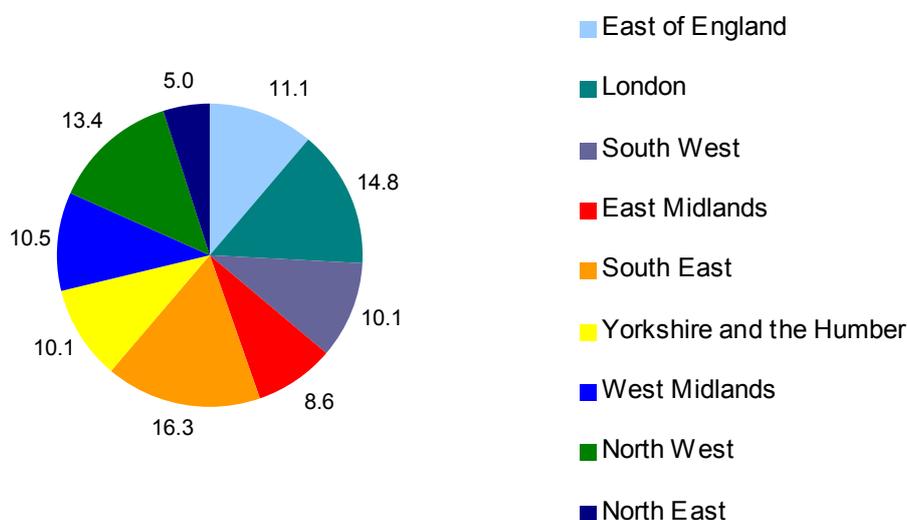
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<sup>1</sup> Estimates of international migrants (defined as someone who changes their country of residence for at least a year) moving into or out of an area are based on the International Passenger Survey (IPS), collected at the UK's main air and sea ports, and Home Office administrative sources, such as asylum applications. Estimates of people moving within the UK ('domestic' or 'internal' migration) are principally based on GP registrations and local changes in electoral registrations.

Note that short-term international migrants (someone who moves to a country other than their own for a period of less than one year) are not included in the Mid-Year Estimates.

- The Greater South East (describing London, the South East and the East of England) accounts for 42.2% of the total population of England.

**Chart 1: Share of total England population by region, 2008 (%)**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 2008, from NOMIS, 22<sup>nd</sup> October, 2009.

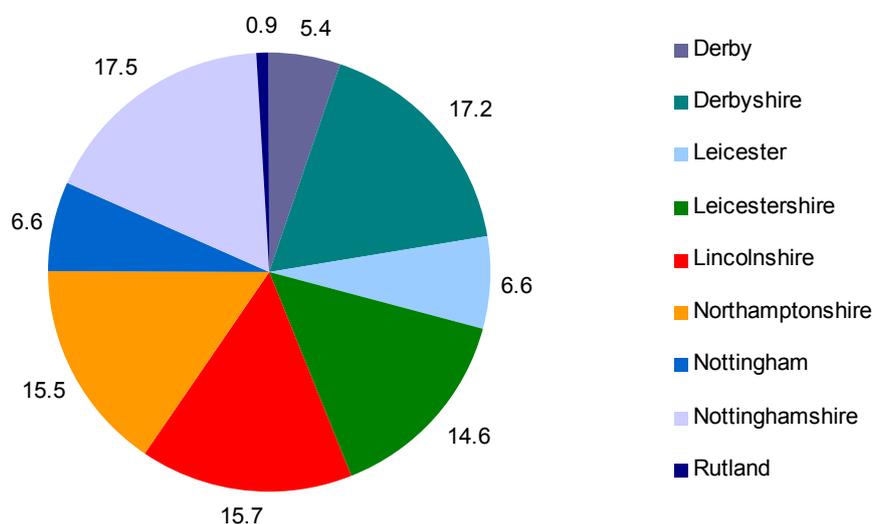
Nottinghamshire is the largest of the nine County and Unitary Authority in the East Midlands, with a population of 776,500 in 2008, accounting for 17.5% of the regional total. This does not include the Unitary Authority of Nottingham City,<sup>2</sup> which accounts for an additional 292,400 people, or 6.6% of the regional total. Chart 2 shows how this compares to the other County and Unitary Authorities in the region:

- Derbyshire has the second largest population, at 762,100 people, or 17.2% of the total for the East Midlands. Derby City accounts for an additional 239,200 people, or 5.4% of the regional total;
- The populations of Lincolnshire, Northamptonshire, and Leicestershire Counties are similar, with populations of 698,000 (15.7%), 685,000 (15.5%), and 645,800 (14.6%) respectively. However, the figure for Leicestershire does not include the Unitary Authority of Leicester City, which accounts for a further 294,700 (6.6% of the total) – the largest of the three city Unitary Authorities;

<sup>2</sup> Note that the areas used in this section refer to the administrative boundaries of Nottingham, Leicester and Derby City Unitary Authorities, rather than functional geographies or 'conurbations'. The term 'conurbation' refers to a contiguous urban area, covering both the city and its suburbs, which can extend beyond the administrative boundary of the Unitary Authority. The conurbation of Nottingham is known to be particularly 'under-bounded' by the administrative area. The 'Greater Nottingham' area has been used in local research and delivery, combining Nottingham City UA with the Local Authority Districts of Rushcliffe, Gedling and Broxtowe along with several wards covering the suburb of Hucknall which fall within the Ashfield District. However, in the interests of both comparability and statistical availability we refer to the administrative boundaries throughout this Chapter. Therefore it needs to be born in mind that some of the data referenced in this section may under-represent the population expected to be resident in given 'conurbations'.

- Together, the three city Unitary Authorities account for 18.6% of the region's total population, or 826,300 people; and
- The County of Rutland is the smallest in the region, with only 39,200 people, 0.9% of the East Midlands' total.

**Chart 2: Share of total East Midlands population by LA/UA, 2008 (%)**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 2008, from NOMIS, 22<sup>nd</sup> October, 2009.

## 2.2 Population density and rural and urban area classifications

The East Midlands covers a surface area of 15,607 square kilometres. This makes it the fourth largest English region in terms of surface area. The East Midlands had the second lowest population density, at 284 people per square km in 2008, compared to an average for England of 395 people per square km. Only the South West has a lower population density, at 219 people per square km. London is a significant outlier in this respect, with a population density of 4,847 people per square km.

Population density varies significantly across the region, but is unsurprisingly highest in the three city Unitary Authorities. Leicester City has the highest population density, with 4,037 people per square km. Population density in the Counties is much lower. It is highest in Nottinghamshire, at 372 people per square km, reflecting the more urbanised areas north of Nottingham City, whilst Lincolnshire, which covers the largest surface area, has a very low population density, at 118 people per square km.<sup>3</sup>

The East Midlands' relatively low population density means that it is one of the most 'rural' regions in England. There are two approaches to defining areas

<sup>3</sup> ONS, 'Regional Snapshot Archive', 2009 (for regional surface area in square km) and ONS Crown Copyright, 'Mid Year Population Estimates', 2008 (for population).

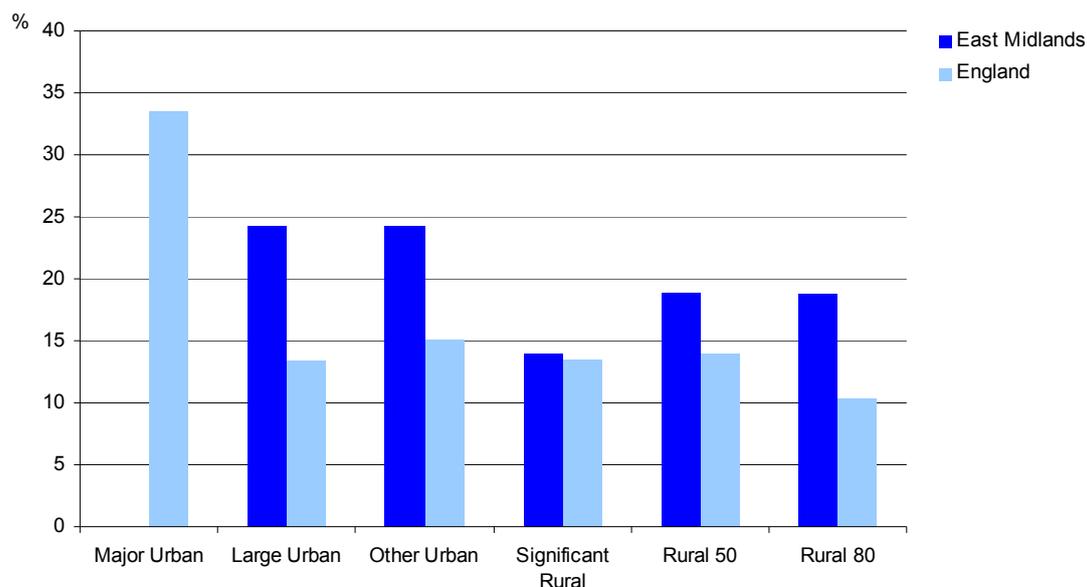
according to how 'rural' or 'urban' they are which are currently in use, which are described in more detail in Annex 1.

The first is a detailed approach which defines small areas (Census Output Areas) according to the density of settlement within that area, from 'sparse' through to 'less sparse'. As this definition is based on small areas, data is only available from the 2001 Census. However, this is identified by Defra as the preferred method for estimating the number of people living in rural and urban areas because it identifies the pattern of settlement density. According to this approach, in 2001:

- The East Midlands was the third most rural region in England, with 29.5% of residents living in rural settlements;
- This is over 10 percentage points higher than the average for England, of 19.4%; and
- On this measure, the South West is the most rural region, with 34% of residents living in rural settlements, followed by the East of England, with 31%.

Chart 3 illustrates the share of the population regionally and nationally living in areas classified by a second approach, based on Local Authority Districts. This 'district classification' method is not an ideal method for counting population in given types of settlement, as it groups entire districts according to the proportion of residents living in a dominant settlement type (so 'Rural 80' districts are those where at least 80% of residents live in rural settlements and market towns). Therefore residents within a district classed as 'rural' may well be living in a relatively densely populated town (such as residents of Skegness within the 'Rural 80' district of East Lindsey). However, to provide estimates more recent than the 2001 Census, to compare change over time, and to discuss variables based on sample surveys (such as the Annual Population Survey, which are only robust to Local Authority District level), the district classification will be referred to throughout this document, and the classifications for each of the 40 Unitary and Local Authority Districts in the region are shown in Map 1.

**Chart 3: Population by DEFRA District Classification, 2008 (%)**

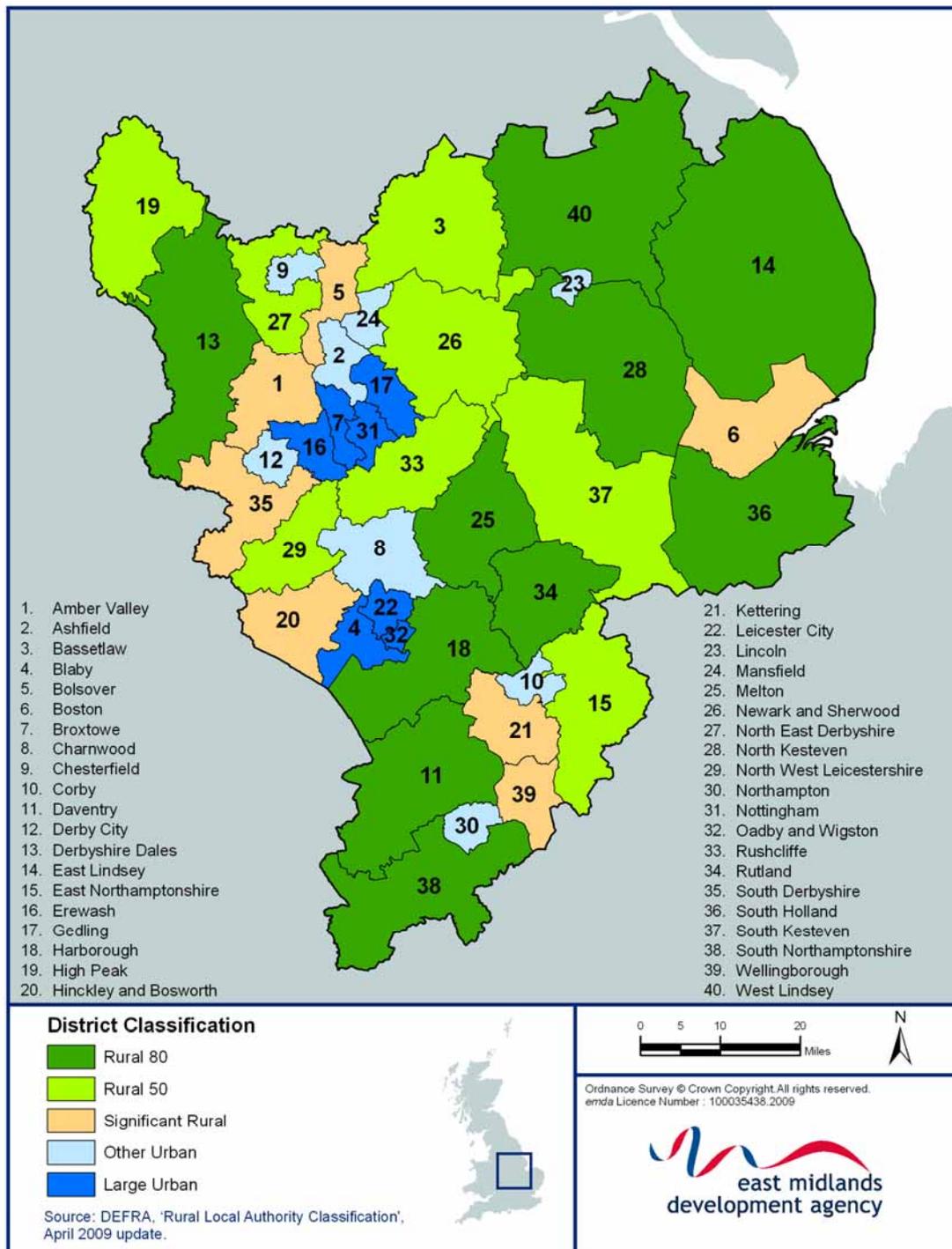


Source: ONS Crown Copyright, 'Mid Year Population Estimates', 2008, from NOMIS, 24<sup>th</sup> December, 2009, and DEFRA, 'Rural Local Authority Classification, April 2009 update.

The distribution of the East Midlands population by Defra district classification, compared to the average for England, is illustrated by Chart 3, as follows:

- The East Midlands has no districts classified as 'Major Urban'. In England as a whole, 33.5% of the population in 2008 were resident in districts classified as such;
- The region has larger proportions living in 'Large Urban' and 'Other Urban' districts than the national average, at 24.2% of the East Midlands population in both cases (compared to 13.4% and 15.1% respectively in England). Examples of the seven 'Large Urban' districts are Nottingham or Erewash (between Nottingham and Derby), and examples of the eight 'Other Urban' districts include Ashfield, Charnwood and Lincoln;
- The proportion of the population living in 'Significant Rural' districts in the East Midlands is similar to the national average, at 14% in the region and 13.6% in England. Examples of the seven districts in this group include Kettering, Boston and Bolsover;
- The East Midlands also has higher proportions of the population in 'Rural 50' and 'Rural 80' districts, at 18.9% and 18.8% of the 2008 population respectively (compared to 14% and 10.4% in England overall). Examples of the eight 'Rural 50' districts include Bassetlaw and High Peak and examples of the ten 'Rural 80' districts include Daventry and East Lindsey; and
- Overall, 51.6% of the East Midlands population in 2008 were resident within districts classed as rural (although, as stated above, many will be living in urban settlements) compared to 37.9% in England overall, whilst 48.4% of the region's residents lived in districts classed as urban, compared to 62.1% nationally.

**Map 1: Defra Urban and Rural District Classification, 2009**



### **Key Points: Total population size and distribution**

- The East Midlands had a population of 4.4 million residents in 2008, 8.6% of the total for England. The region has the second smallest population of the nine English regions.
- Nottinghamshire is the largest Local Authority area in the region, accounting for 17.5% of the total population in the East Midlands. Together the three city Unitary Authority areas of Derby, Nottingham and Leicester account for 18.6% of the region's total population, or 826,300 people. Rutland is the smallest, accounting for less than 1% of the total regional population.
- The East Midlands is the fourth largest English region in terms of surface area, covering 15,607 km<sup>2</sup>, but has the second lowest population density, at only 284 people per km<sup>2</sup>, compared to the average for England of 395 people per km<sup>2</sup>.
- The East Midlands was the third most rural region in England, with 29.5% of residents living in rural settlements according to the 2001 Census.
- At a district level, 51.6% of the East Midlands population in 2008 lived in districts classed as rural, compared to 37.9% nationally.

## **2.3 Population structure**

This sub-section looks into the structure of the region's population in more detail. Firstly, it looks at how the demographic profile of the East Midlands and its constituent sub-regions compare in terms of age and gender, before assessing ethnicity and country of birth. Three sources are used in this analysis. For age and gender, the 2008 MYE is used as before. To discuss ethnicity, the recent ONS experimental statistics for 2007 will be used, whilst the Annual Population Survey (APS) for 2008 will be used to look at country of birth.

A key categorisation used in this analysis is the broad age ranges conventionally used in describing demographic trends. These are:

- The school age group (aged between less than one year and 15 years);
- The working age group (aged between 16 and below the current state pension age, 59 for women and 64 for men); and
- The pensionable age (current state pension age and over – 60 and over for women and 65 and over for men).

### **2.3.1 Age and gender**

The structure of the East Midlands population by age and gender is fairly similar to the profile for England:

- In the East Midlands in 2008, 49.5% of the population are male. This is a slightly higher proportion of the region's population than in England as a whole (49.2%);

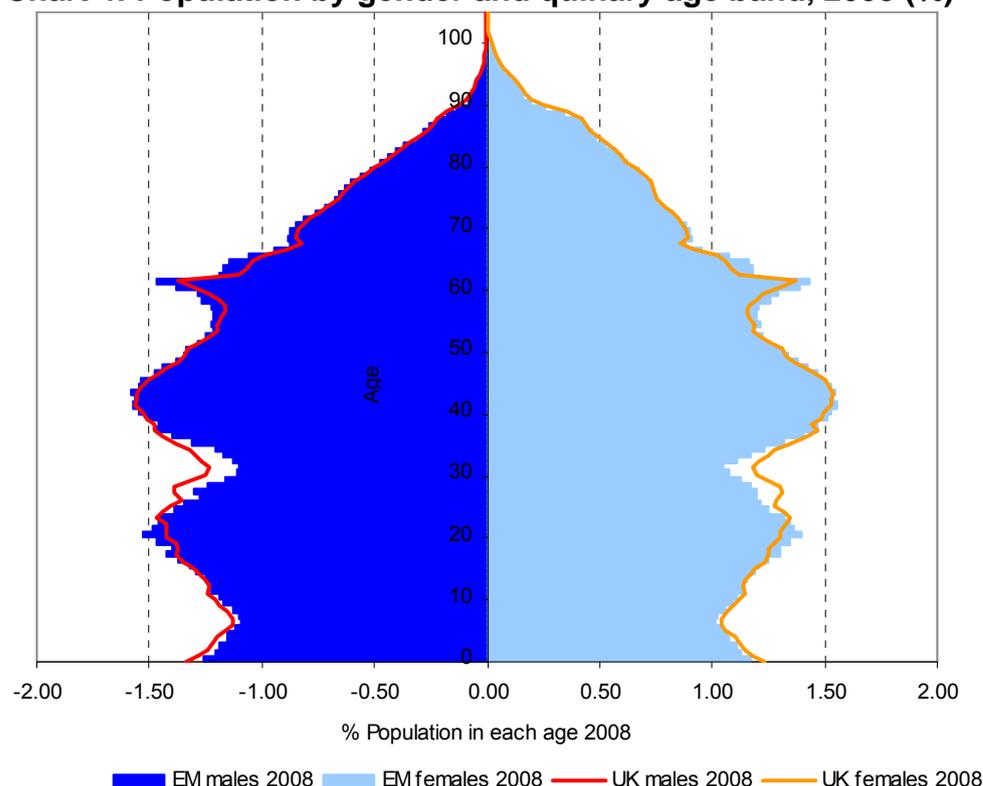
- Women make up just over half the population in all English regions. In the East Midlands, 50.5% of the population are female;
- Alongside London, the East Midlands has the lowest proportion of the population who are female of all English regions; and
- Of all the English regions, women make up the largest share of the North East's population, at 51.1%.

Chart 4 shows the population by five-year age band in the East Midlands. The profile of the region's population by age and gender is fairly similar to the national average (in this case the UK), with some notable exceptions:

- The region has a significantly smaller proportion of both males and females in the 25-29 and 30-34 age bands than in the UK. Males in the 25-29 age band account for 3.1% of the region's population whilst females in that age band account for 3.0%, compared to 3.4% for males and 3.3% for females in the UK. In the 30-34 age band, males and females each account for 2.8% of the regional total, compared to 3.1% for both males and females nationally; and
- The region has a slightly higher proportion of the population in the 55-59 and 60-64 age bands. Male 55-59 year olds and female 55-59 year olds each account for 3.1% of the East Midlands' population, compared to 2.9% and 3% respectively for males and females in the UK overall. In the case of 60-64 year olds, males account for 3.1% and females account for 3.2% of the total population of the East Midlands, compared to the national average of 2.9% and 3% respectively for males and females.

The structure of the region's population by 5-year age band, as shown in Chart 4, reflects significant variations in birth rates since the Second World War, which will be described in more detail later in this section. In both the East Midlands and nationally, the large proportion of 60-64 year olds illustrates the cohort born in the post-war 'baby-boom', and their children in the 35-44 age bands, whilst the lower proportions in the 25-34 age bands reflects the lower birth rates in the 1970s and early 1980s. As birth rates have again increased over the last two decades, there are increasing numbers in the younger age bands.

**Chart 4: Population by gender and quinary age band, 2008 (%)**



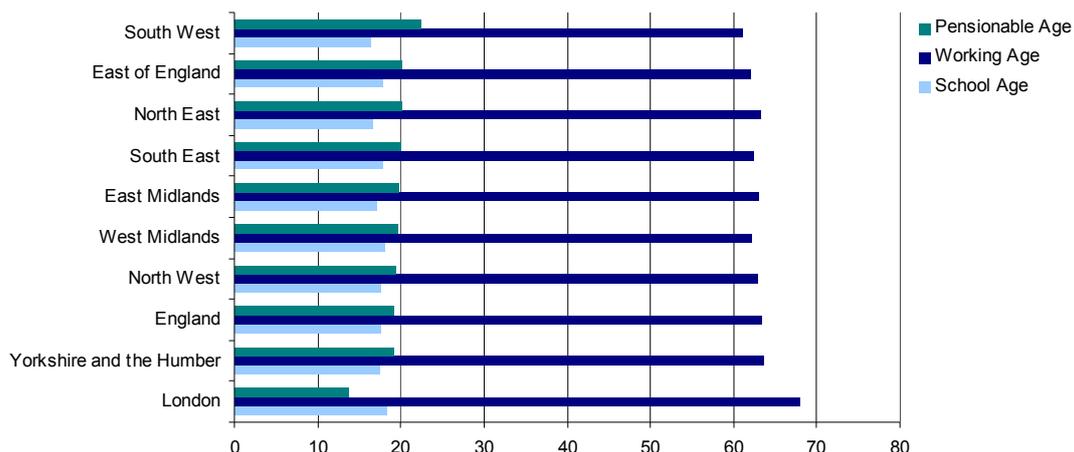
Source: ONS Crown Copyright, 'Mid Year Population Estimates', 2008, analysis provided by the East Midlands ONS Regional Team, 30<sup>th</sup> October, 2009.

Chart 5 shows that the age structure by broad age band is similar across the English regions, with the exception of London. In the East Midlands, 17.1% of the population in 2008 were in the school age group, 63.1% were in the working age group, and 19.7% were of pensionable age. When compared to England as a whole, the East Midlands has a slightly older age profile. In England in 2008, 17.6% were in the school age group, 63.3% were in the working age group, and 19.1% were in the pensionable age group.

However, the national average is skewed by the atypical age profile of London, where 67.9% of residents were in the working age group and only 13.8% were in the pensionable age group.

The South West has the oldest age profile, with 22.5% in the pensionable age group. The East Midlands currently has a lower proportion in the pensionable age group than the South West, the East of England, the South East, and the North East. The discussion of population projections later in this section suggests that this picture is likely to change significantly in future years.

**Chart 5: Population by broad age group, 2008 (%)**

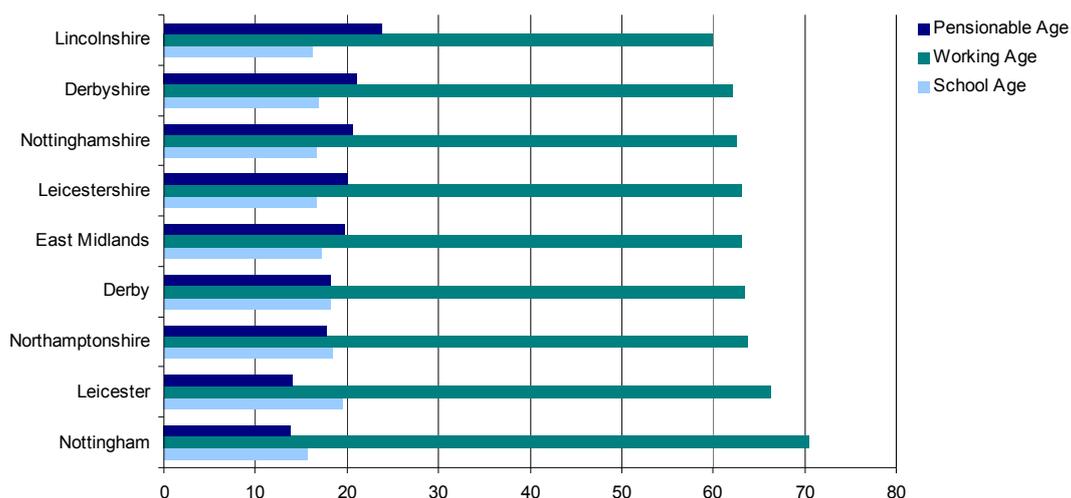


Source: ONS Crown Copyright, 'Mid Year Population Estimates', 2008, from NOMIS, 21<sup>st</sup> January, 2010.

Chart 6 shows the population by broad age band within the East Midlands:

- Leicester City has the youngest overall age profile, with the highest proportion of residents in the school age group, at 19.6%, the second highest in the working age group, at 66.3%, and the second lowest proportion in the pensionable age group, at 14%; and
- Lincolnshire has the oldest age profile, with 23.9% of its resident population in the pensionable age group and the lowest proportion in the working age group, at 59.9%.

**Chart 6: Population by broad age group by LA/UA, 2008(%)**

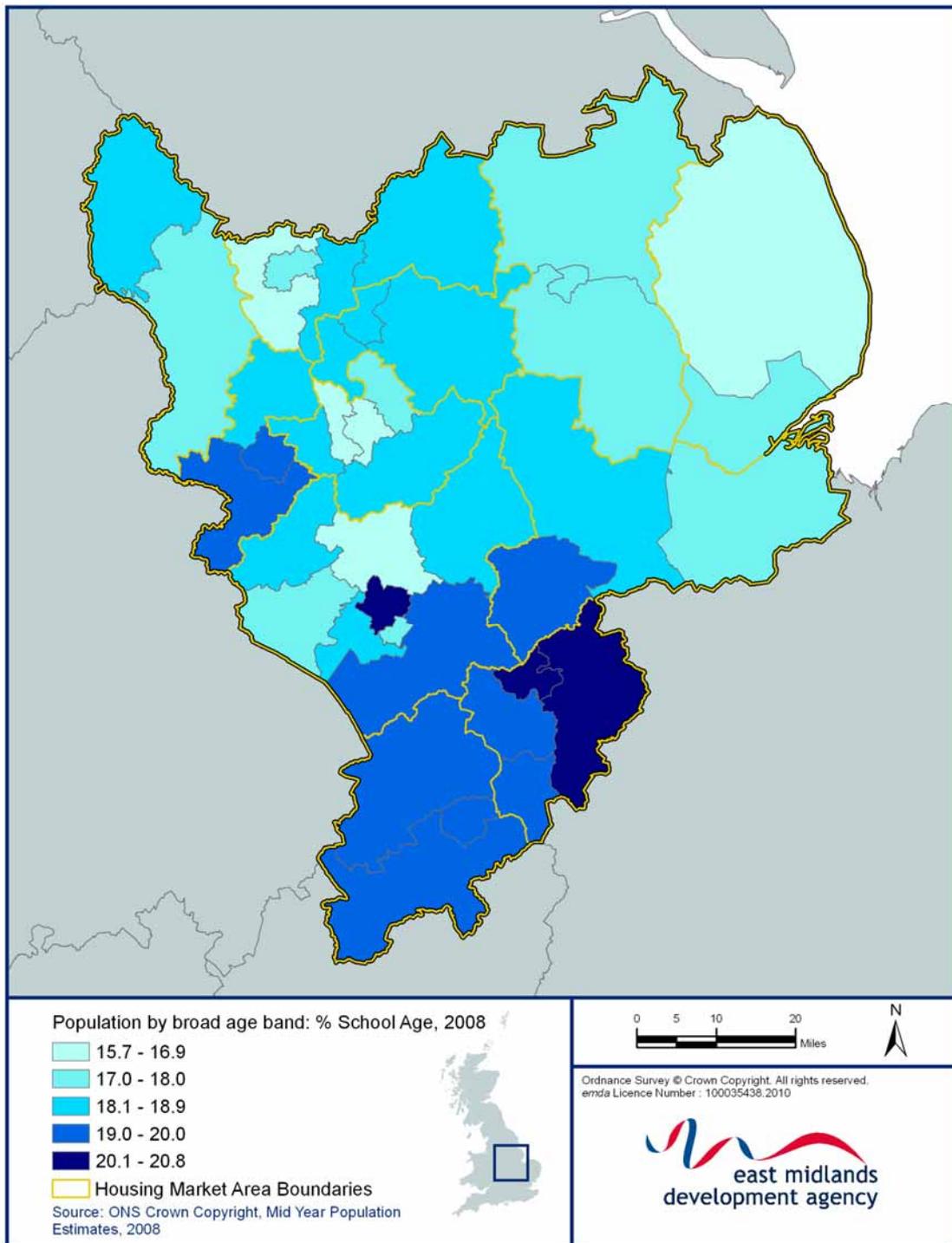


Source: ONS Crown Copyright, 'Mid Year Population Estimates', 2008, from NOMIS, 21<sup>st</sup> January, 2010.

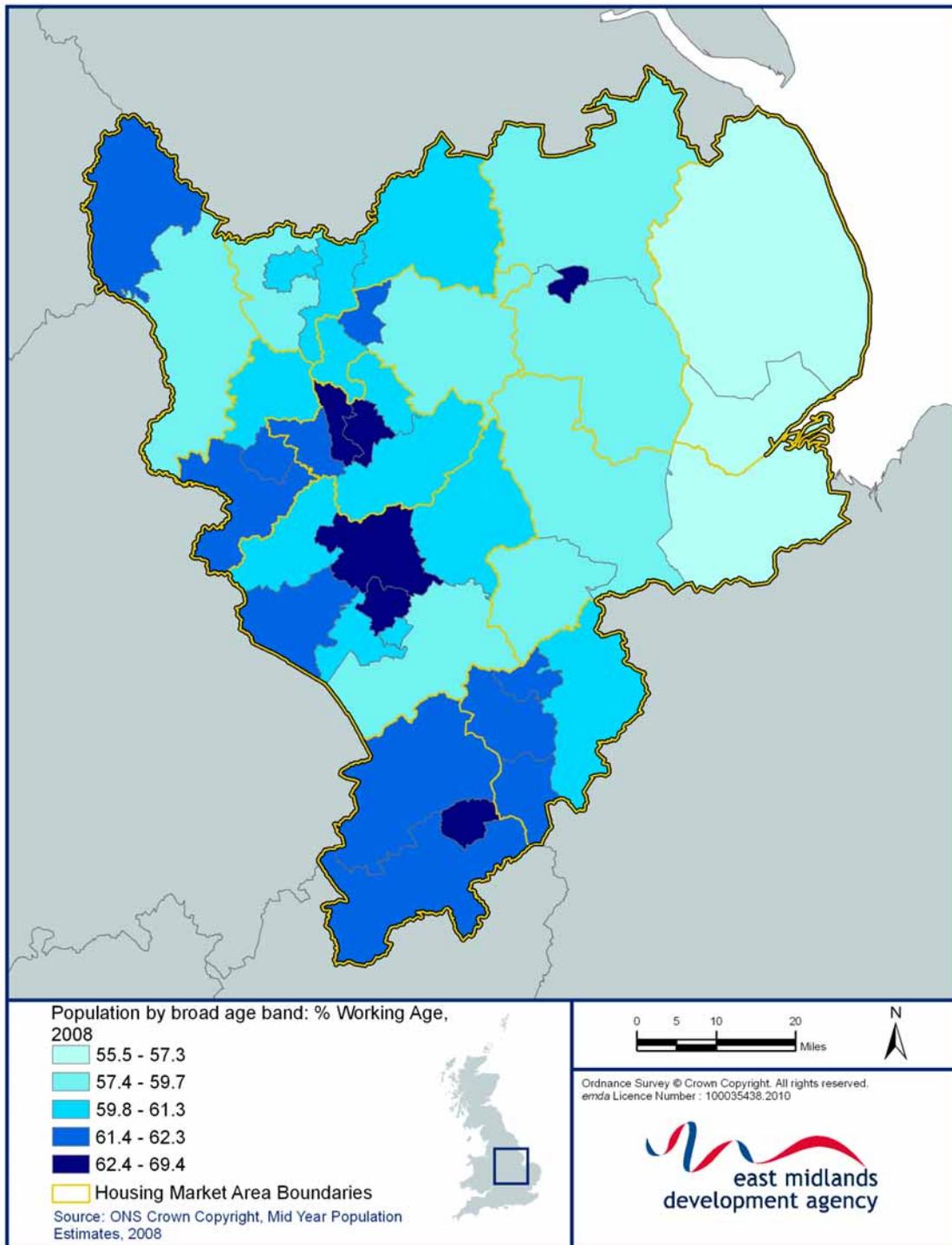
In general terms, with the exception of the three cities, the south of the region has a younger age profile, whilst the north and east of the region generally has an older population.

Maps 2 to 4 show the proportion of the population by Local Authority District for each of the three broad age bands respectively. These present a clear picture of how the age profile of the population changes significantly across the region. Map 2 shows that the highest proportions of the school age group are concentrated in districts in the south of the region, in Northamptonshire and Leicester City in particular, with far lower proportions in the north east of the region. Map 3 shows high proportions of the working age group in the three cities and the west and south of the region. Finally, Map 4 shows that high proportions of the pensionable age group are concentrated in the more rural areas of the region, especially the coastal Lincolnshire districts of East Lindsey, Boston and South Holland.

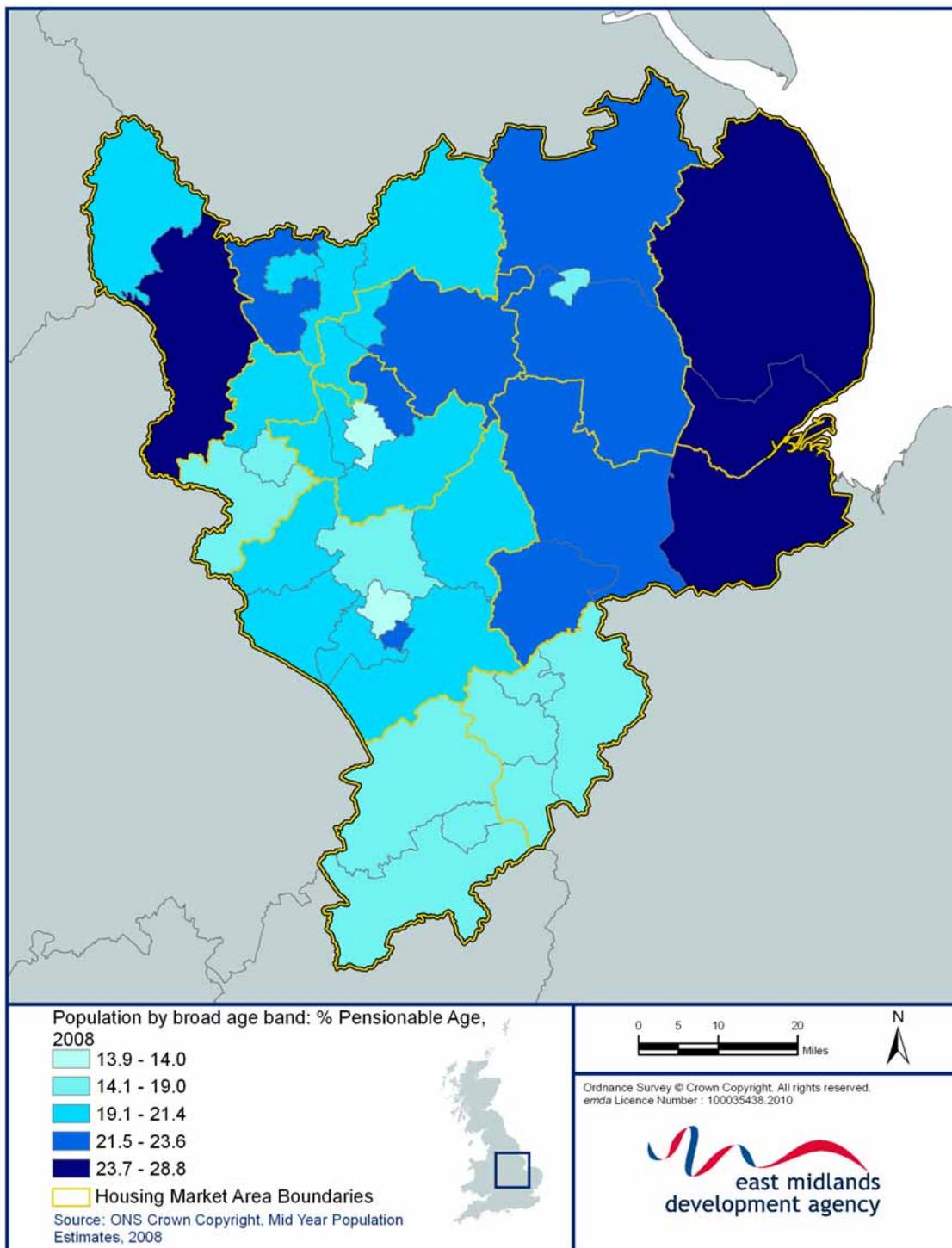
**Map 2: Population in the school age group by LA/UA, 2008 (%)**



**Map 3: Population in the working age group by LA/UA, 2008 (%)**



**Map 4: Population in the pensionable age group by LA/UA, 2008 (%)**



### 2.3.2 Ethnicity

The following section profiles the region's population by ethnic group. In line with practice recommended by the Equality and Human Rights Commission, this section uses the 16-way classification of ethnic group developed for the 2001 Census.<sup>4</sup> These groups are based on the principle of self-classification, where respondents were prompted to state what they considered their ethnic group to be.<sup>5</sup>

**Table 1: Population by broad ethnic group, 2007 (%)**

Area	White	Mixed	Asian or Asian British	Black or Black British	Chinese or Other Ethnic Group
North East	95.5	0.8	2.2	0.6	0.9
North West	92.1	1.2	4.4	1.1	1.1
Yorkshire and the Humber	90.6	1.3	5.7	1.3	1.2
<b>East Midlands</b>	<b>90.9</b>	<b>1.4</b>	<b>5.0</b>	<b>1.5</b>	<b>1.1</b>
West Midlands	86.1	1.8	8.4	2.5	1.2
East of England	91.6	1.5	3.6	1.9	1.3
London	69.0	3.5	13.3	10.6	3.5
South East	92.0	1.5	3.5	1.6	1.4
South West	95.3	1.1	1.6	0.9	1.0
<b>England</b>	<b>88.2</b>	<b>1.7</b>	<b>5.7</b>	<b>2.8</b>	<b>1.5</b>

Source: ONS Crown Copyright, Estimated resident population by Ethnic Group (experimental statistics) 2007.

Table 1 presents the population of the English regions by 5 broad ethnic groups (the detailed 16-way classification aggregated up to 'White', 'Mixed', 'Asian or Asian British', 'Black or Black British', and 'Chinese or Other Ethnic Group')<sup>6</sup> based on the 2007 Mid-Year Estimate. It is also convention to refer to the 4 non-White groups in this classification as 'Black and Minority Ethnic' groups, or 'BME groups'.

<sup>4</sup> See: Equality and Human Rights Commission, 'Ethnic Monitoring: A Guide for Public Authorities', and Office for National Statistics, 'Ethnic Group Statistics: A guide for the collection and classification of ethnicity data', 2003.

<sup>5</sup> The approach is a cohort component methodology constrained to Mid-Year Population Estimates. Consideration is given to the modelling of the ethnic dimension of mortality; fertility (and the allocation of ethnic group to infants); switching between ethnic group categories; and the various aspects of migration, with particular attention given to the application of commissioned Census data.

<sup>6</sup> The 5 broad ethnic groups incorporate the 16 more detailed groups as follows:

**White:** includes categories 1-3 – 'White: British'; 'White: Irish', and; 'White: Other White'.

**Mixed:** includes categories 4-7 – 'Mixed: White and Black Caribbean'; 'Mixed: White and Black African'; 'Mixed: White and Asian', and; 'Mixed: Other Mixed'.

**Asian or Asian British:** includes categories 8-11 – 'Asian or Asian British: Indian'; 'Asian or Asian British: Pakistani'; 'Asian or Asian British: Bangladeshi', and; 'Asian or Asian British: Other Asian'.

**Black or Black British:** includes categories 12-14 – 'Black or Black British: Black Caribbean'; 'Black or Black British: Black African', and; 'Black or Black British: Other Black'.

**Chinese or Other Ethnic Group:** includes categories 15-16 – 'Chinese or other ethnic group: Chinese', and; 'Chinese or other ethnic group: Other Ethnic Group'.

Table 1 shows that:

- The East Midlands had the fourth lowest proportion of its population who would describe themselves as 'White', out of the nine English regions, at 90.9%. However, this is above the average for England overall, at 88.2%;
- This is because of the impact of London on the national average, which has by far the largest proportion of its population who would classify themselves as coming from a BME group, with 69% of its population classified as 'White';
- The East Midlands has a similar profile to the East of England, the South East, the North West and Yorkshire and the Humber, with between 90% and 92% of residents describing themselves as 'White'. The North East and the South West have very small proportions of residents who would describe themselves as belonging to a BME group, with 95.5% and 95.3% of residents describing themselves as 'White'. The West Midlands has a significantly higher proportion of BME residents than other northern or midlands regions; and
- In the East Midlands, residents who would describe themselves as 'Asian or Asian British' account for the largest BME group, at 5% of the total population in 2007, compared to 5.7% in England overall.

**Table 2: England and East Midlands population by detailed (16 category) ethnic group, 2007**

	England		East Midlands	
	000s	%	000s	%
White: British	42,736.00	83.6	3,873.20	88.0
White: Irish	570.5	1.1	34.9	0.8
White: Other White	1,776.30	3.5	92.9	2.1
Mixed: White and Black Caribbean	282.9	0.6	25.6	0.6
Mixed: White and Black African	114.3	0.2	6.6	0.2
Mixed: White and Asian	260.9	0.5	17.3	0.4
Mixed: Other Mixed	212	0.4	12.9	0.3
Asian or Asian British: Indian	1,316.00	2.6	147.2	3.3
Asian or Asian British: Pakistani	905.7	1.8	44	1.0
Asian or Asian British: Bangladeshi	353.9	0.7	12.1	0.3
Asian or Asian British: Other Asian	339.2	0.7	18.1	0.4
Black or Black British: Black Caribbean	599.7	1.2	31.4	0.7
Black or Black British: Black African	730.6	1.4	30.4	0.7
Black or Black British: Other Black	117.6	0.2	5.4	0.1
Chinese or Other Ethnic Group: Chinese	400.3	0.8	29.8	0.7
Chinese or Other Ethnic Group: Other	376.1	0.7	17.9	0.4
All Groups	51,092.0	100	4,399.6	100

Source: ONS Crown Copyright, Estimated resident population by Ethnic Group (experimental statistics) 2007.

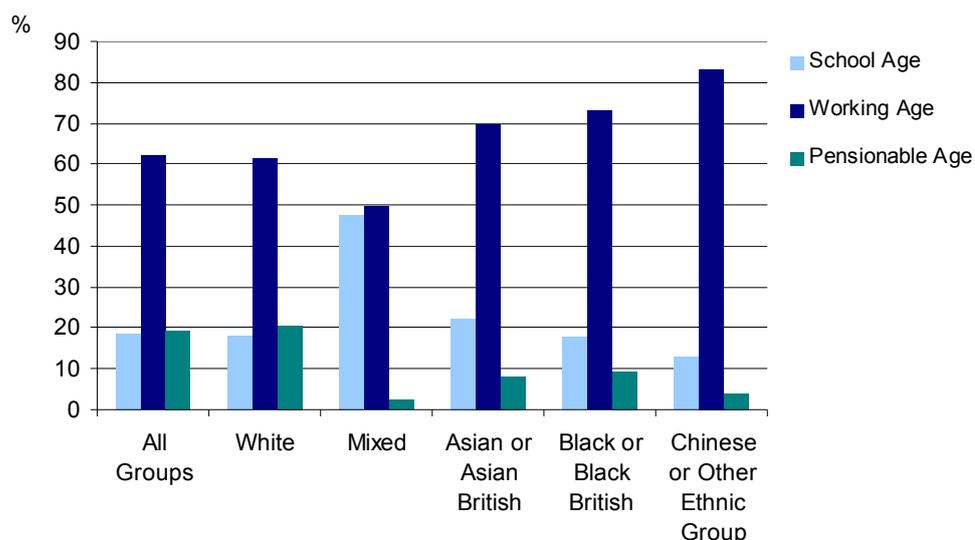
Table 2 shows the East Midlands population by detailed 16-way ethnic group compared to the profile for England overall. Although the East Midlands has a lower proportion of its population belonging to broad BME groups, the more detailed level of classification reveals some important differences compared to the national profile:

- The East Midlands has a larger proportion classifying themselves as belonging to the broad 'White: British' ethnic group but has lower than average proportions in both the 'White: Irish' and 'White: Other' groups, at 0.8% and 2.1% respectively compared to 1.1% and 3.5% in England as a whole; and
- The East Midlands has a higher proportion of residents who classify themselves as 'Asian or Asian British: Indian', at 3.3% compared to 2.6% in England as a whole. In 2007, this group is estimated to have accounted for approximately 147,200 individuals in the East Midlands, the largest group in the region after 'White: British'.

Chart 7 shows how the age structure of the population in the East Midlands varies across each broad ethnic group. The chart shows that in the East Midlands (as in England as a whole), BME groups have a much younger age profile than people who classified themselves as 'White':

- In 2007, 18% of the region's population in the 'White' broad ethnic group were school age, 61.4% were working age, and 20.6% were pensionable age. This was broadly in line with the age profile for the group in England overall, with the exception of the pensionable age group, which accounted for a slightly higher proportion in the East Midlands;
- The 'Mixed' broad ethnic group has the youngest age profile, with 47.8% in the school age group, 49.8% of working age, and only 2.6% of pensionable age in the East Midlands. In England, a slightly higher proportion of this group were working age, at 51.7%;
- The 'Asian or Asian British' age group has above average proportions in the school and working age groups in both the East Midlands and England overall. The 'Black or Black British' group has a particularly high proportion in the working age group in the East Midlands (72.9% compared to 68.9% in England overall); and
- People who would describe themselves as being in the 'Chinese or Other Ethnic Group' were more likely to be of working age than any other broad ethnic group, with 83.2% aged between 16 and 59/64 in the East Midlands compared to 81.4% for this group in England overall.

**Chart 7: Broad ethnic group by age band in the East Midlands, 2007 (%)**

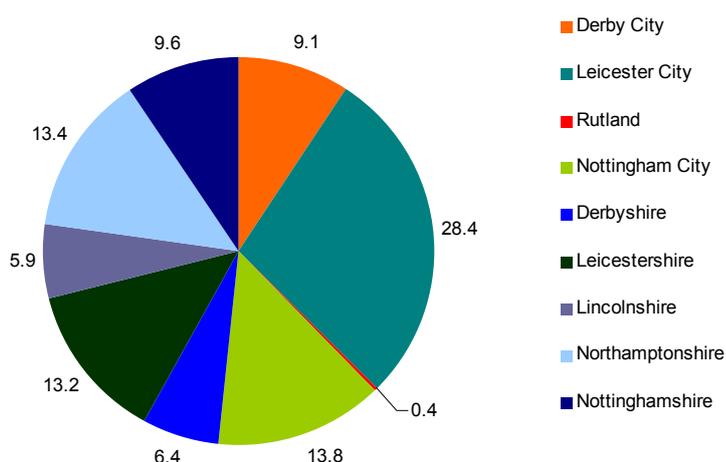


Source: ONS Crown Copyright, Estimated resident population by Ethnic Group (experimental statistics) 2007.

Looking at the East Midlands County and Unitary Authorities, Chart 8 illustrates the total share of the region's population who would classify themselves as belonging to a BME group. This shows that:

- Leicester City accounts for 28.4% of all residents of the East Midlands in BME groups. This is equivalent to approximately 113,400 individuals. Nottingham City accounts for the next largest share, at 13.8% of the regional total;
- Northamptonshire and Leicestershire also account for significant shares of the region's total population in BME groups, at 13.4% and 13.2% respectively; and
- Lincolnshire and Derbyshire account for relatively small proportions, at 5.9% and 6.4% of the region's total BME population respectively. Rutland, which accounts for 0.9% of the region's total population, accounts for only 0.4% of the region's BME population.

**Chart 8: Share of total regional population in Black and Minority Ethnic groups by LA/UA, 2007**



Source: ONS Crown Copyright, Estimated resident population by Ethnic Group (experimental statistics) 2007.

Table 3 shows how the population of the County and Unitary Authorities is structured according to broad ethnic groups:

- Leicester City has, by far, the largest representation of Black and Minority Ethnic groups in the region, with the 'Asian or Asian British' group accounting for the largest proportion, at 29.6% of the city's estimated resident population in 2007. Leicester City also had the largest proportion of residents who would classify themselves as 'Black or Black British', at 4.9%;
- Nottingham and Derby Cities also had higher proportions of residents who would classify themselves as belonging to a BME group in 2007. In Derby, 9.5% of residents were estimated to classify themselves as 'Asian or Asian British', whilst 4.7% of residents in Nottingham City would classify themselves as 'Black or Black British'; and
- The counties all had lower shares of the total population in BME groups than the East Midlands average. In Lincolnshire in 2007, only 1.2% of the population was estimated to be in the 'Asian or Asian British' group and 0.6% in the 'Black or Black British' group.

**Table 3: Population by broad ethnic group by LA/UA, 2007 (%)**

	White	Mixed	Asian or Asian British	Black or Black British	Chinese or Other Ethnic Group
Leicester UA	61.3	2.6	29.6	4.9	1.6
Nottingham UA	80.9	3.3	8.0	4.7	3.0
Derby UA	84.8	2.1	9.5	2.2	1.3
Leicestershire	91.7	1.2	5.1	0.9	1.1
Northamptonshire	92.2	1.6	3.3	1.8	1.2
Nottinghamshire	95.1	1.2	1.9	0.9	0.9
Rutland UA	95.8	1.0	1.6	0.8	0.5
Lincolnshire	96.6	0.9	1.2	0.6	0.7
Derbyshire	96.7	0.9	1.3	0.6	0.6
<b>East Midlands</b>	<b>90.9</b>	<b>1.4</b>	<b>5.0</b>	<b>1.5</b>	<b>1.1</b>
<b>England</b>	<b>88.2</b>	<b>1.7</b>	<b>5.7</b>	<b>2.8</b>	<b>1.5</b>

Source: ONS Crown Copyright, Estimated resident population by Ethnic Group (experimental statistics) 2007.

### **Key Points: Population profile by gender, age and ethnicity**

- A slightly higher proportion of the East Midlands population are male than in England overall and the East Midlands has an older age profile than nationally.
- In 2008, 17.1% of the region's residents were in the school age group, 63.1% were in the working age group, and 19.7% were in the pensionable age group.
- Within the East Midlands, Leicester City has the youngest age profile with 19.6% in the school age group. Nottingham City has the highest proportion in the working age group and Lincolnshire has the oldest age profile, with 23.9% of residents in the pensionable age group.
- In terms of ethnicity, the East Midlands has a similar population profile to a number of other regions outside London, with over 90% of residents describing their ethnic group as 'White'. Residents who describe themselves as 'Asian or Asian British' make up the largest BME group in the region, accounting for 5% of the total population in 2007 population.
- BME population groups have a much younger age profile than the 'White' broad ethnic group.
- Leicester City accounts for the largest share of residents in the East Midlands who would classify themselves as belonging to a BME group, whilst Lincolnshire, Derbyshire and Rutland account for very small shares.

## 2.4 Population born outside the UK

To conclude this snapshot of the region's current demographic profile, this section will analyse the proportion of the resident population made up of individuals born outside the UK. This discussion provides some context for analysis on international migration, as an important component of historic and future demographic change.

International migration is a key driver of the changing demographic profile of the region. However, directly measuring the stock of international migrants is problematic, and requires use of proxy measures. At a regional level, the best available indicator is the country of birth variable within the 2008 Annual Population Survey.<sup>7</sup> This is distinct from the preceding discussion of ethnicity, although the data enables us to split the population born outside the UK into 'White' and BME groups, and provides a broad proxy for the stock of international migrants in the region which can be compared to other regions and across County and Unitary Authorities. It is also important to note that the APS principally captures long-term migrants (usually referring to migrants resident in the UK for more than one year). Therefore this section does not describe 'short-term migrants', which are better captured by administrative data such as National Insurance Number registrations and the ONS' new estimates of short-term migration. These data are discussed in more detail in the Labour Market Chapter.

With these conditions in mind, this data enables broad statements to be made about migrant population groups. Chart 9 shows that:

- A total of 8.6% of the working age population normally resident in the East Midlands in 2008 were born outside the UK. This represents an increase of 1 percentage point on 2006. This is fairly typical for a region outside London, and compares closely to the East of England (9.6%) and Yorkshire and the Humber (7.7%);
- However, it is considerably below the proportion for England as a whole (12.1%), principally because of the impact of London – which is an extreme outlier, illustrating its continued importance as a destination for international migrants. In 2008, 33.3% London's population were born outside the UK, up from 31.5% in 2006; and

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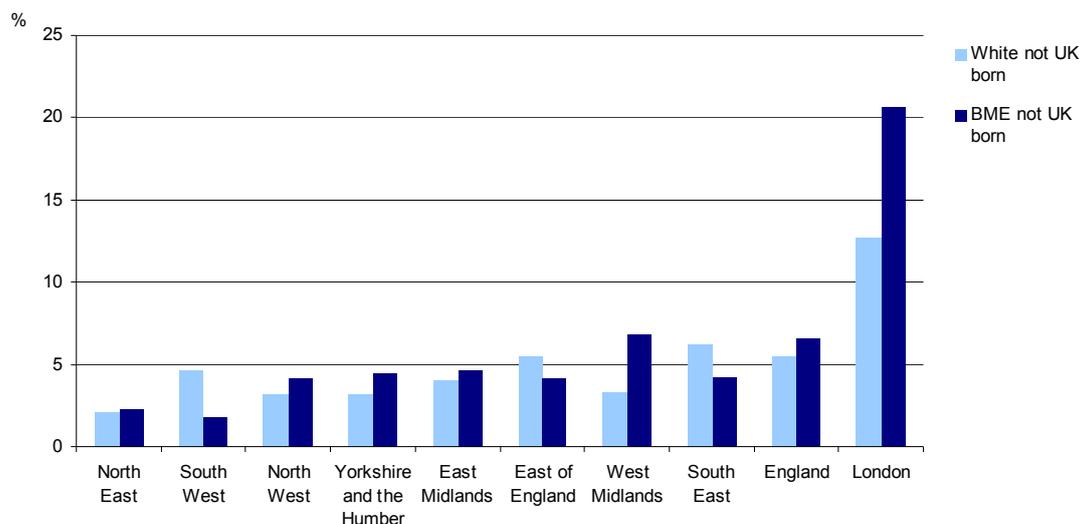
<sup>7</sup> The APS is a sample survey, thus data derived from it are subject to sampling variability. This is particularly an issue for smaller population groups such as international migrants. The survey may undercount the numbers of people who were born overseas and does not include a number of groups. These include: people who have been resident in the UK for less than six months; students in halls who do not have a UK resident parent, and; people in most other types of communal establishments (e.g. hotels, boarding houses, hostels, mobile home sites, etc.). Moreover, the results are grossed to population estimates which exclude migrants staying for less than 12 months. The data must also be interpreted with care as it does not distinguish between established and relatively recent migrants, and the sample is insufficient for analysis by individual country of birth. Additionally, it does not identify the reason for migration (such as employment, family reasons, study, or asylum). Finally, it also includes children of UK nationals who were born overseas (such as children of armed forces personnel etc.). However, the APS is a large survey and provides the only reliable stock estimate of international migrants, as available administrative sources – such as National Insurance registrations – are subject to double counting, variable rates of take-up, and do not enable deregistration (so do not account for migrants who have since left the UK).

- The East Midlands has a fairly equal division between people who described themselves as 'White' born outside the UK (4%) and those who described themselves as belonging to a BME group born outside the UK (4.6%). This contrasts with London, and to a lesser extent the West Midlands, which have much larger proportions of the resident population born outside the UK describing themselves as belonging to a BME group.

This could indicate the increasing share of predominantly 'White' migrants from European Accession countries (the A8 countries plus Romania and Bulgaria) in the East Midlands non-UK born population.<sup>8</sup> This group has tended to disperse to regions outside London more widely than previous tranches of immigration.<sup>9</sup> This also means that A8 migrants have been more likely to move to more rural regions and sub-regions than other migrant groups.

Migrants from 'New-Commonwealth' countries, such as India and Pakistan, are more likely to move to areas with a history of immigration from these countries and thus well-established communities, like Leicester City. The employment characteristics of these groups are explored in more detail in the Labour Market and Deprivation and Economic Inclusion Chapters of 'The East Midlands in 2010'.

**Chart 9: Population born outside the UK by region, 2008 (%)**



Source: ONS Crown Copyright, 'Annual Population Survey', January 2008-December 2008, from NOMIS, 26<sup>th</sup> January, 2010.

<sup>8</sup> The A8 countries refer to the central and eastern European countries that joined the enlarged European Union in May 2004: Poland, Lithuania, Latvia, Slovakia, Slovenia, Hungary and the Czech Republic. Only the UK, Ireland and Sweden chose not to impose restrictions on A8 nationals, which – along with the relatively buoyant labour market in the UK at the time – contributed to migrants from Poland in particular making up the biggest single movement of foreign nationals to the UK in the post-1945 period.

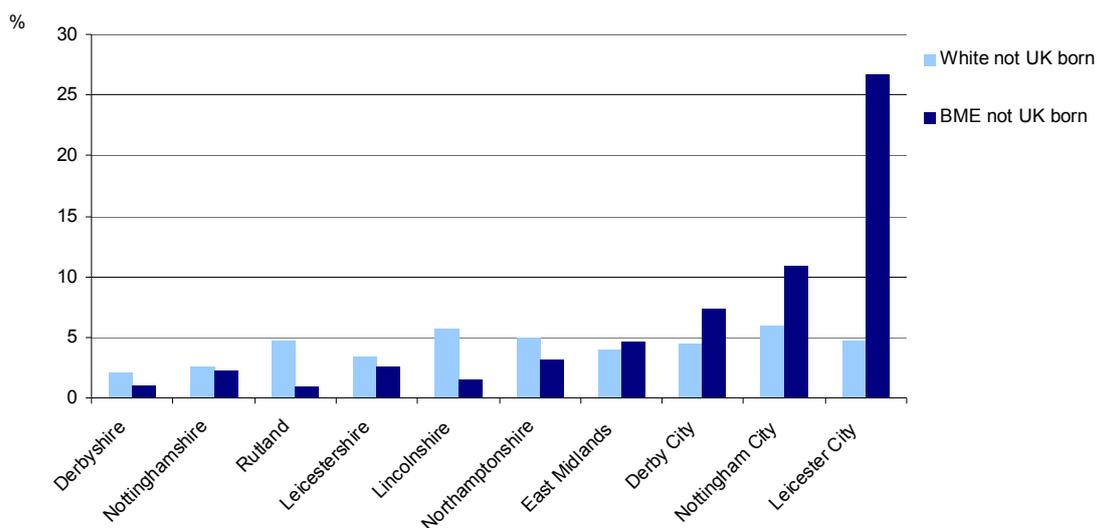
<sup>9</sup> The Institute of Employment Research (IER), on behalf of *emda*, 'Migrant Workers in the East Midlands Labour Market', January 2007. This work is currently being updated, with additional exploration on the impacts of recession on international migration. This updated study will be published in early summer 2010.

Chart 10 shows how the share of the population born outside the UK varies across the County and Unitary Authorities in the East Midlands. This data should be interpreted with caution at this level. The confidence intervals can be quite large (as much as +/- 3 percentage points) due to the small sample size.

Leicester City has by far the largest share of its resident population born outside the UK, at 31.4%. This is split between 26.7% who described themselves as belonging to a BME group, and 4.7% who described themselves as 'White'. The areas of Nottingham and Derby also have larger shares of their resident population who are non-UK born compared to the regional average. In Nottingham, 16.8% of residents in 2008 were born outside the UK, with those describing themselves as belonging to a BME group accounting for 10.9% of all residents.

Conversely, the counties all have lower proportions of residents born outside the UK. Northamptonshire and Lincolnshire have higher shares of White non-UK born compared to BME non-UK born, possibly illustrating the importance of migrants from A8 countries to these areas, the majority of whom are White.

**Chart 10: Population born outside the UK by County/UA, 2008 (%)**



Source: ONS Crown Copyright, 'Annual Population Survey', January 2008-December 2008, from NOMIS, 26<sup>th</sup> January, 2010.

### Key Points: Population born outside the UK

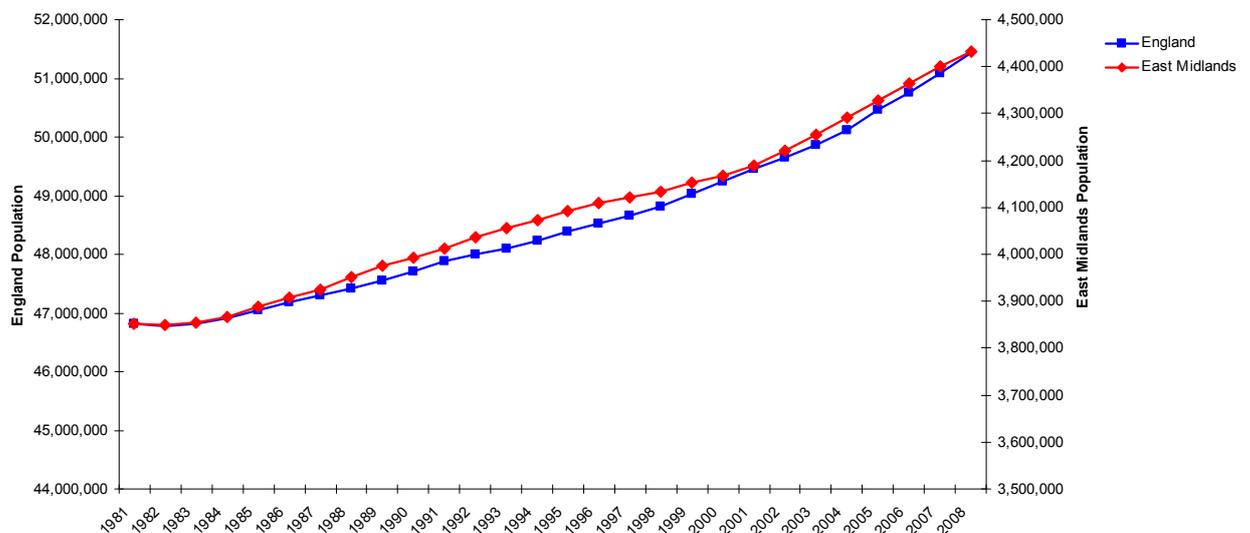
- In 2008, 8.6% of the region's resident population were born outside the UK, compared to 12.1% in England overall. However, this is fairly typical for a region outside London, as the English average is skewed by the fact that a third of London residents were born outside the UK.
- The East Midlands has a higher proportion of 'White' residents born outside the UK compared to those from BME groups relative to some other regions, possibly reflecting the impact of the post-2004 migration of predominantly white nationals from the Central and Eastern European EU Accession States.
- Leicester City has the largest proportion of residents born outside the UK, at 31.4%, but a large proportion are from BME groups, reflecting the continued importance of Leicester as a destination for migrants from New Commonwealth countries such as India and Pakistan.
- Conversely, Northamptonshire and Lincolnshire have higher proportions of 'White' non-UK born residents, possibly reflecting the greater tendency of A8 migrants to move to more rural areas for employment reasons, compared to other migrant groups with more established communities in urban areas like Leicester and Nottingham.

## 3. Recent population trends

The following sub-section looks at demographic trend data over recent years, comparing the 1998 and 2008 Mid-Year Population Estimates. This analysis is accompanied with a discussion of the components of population change, i.e. the balance between births and deaths and inward and outward migration.

### 3.1 Trends in total population

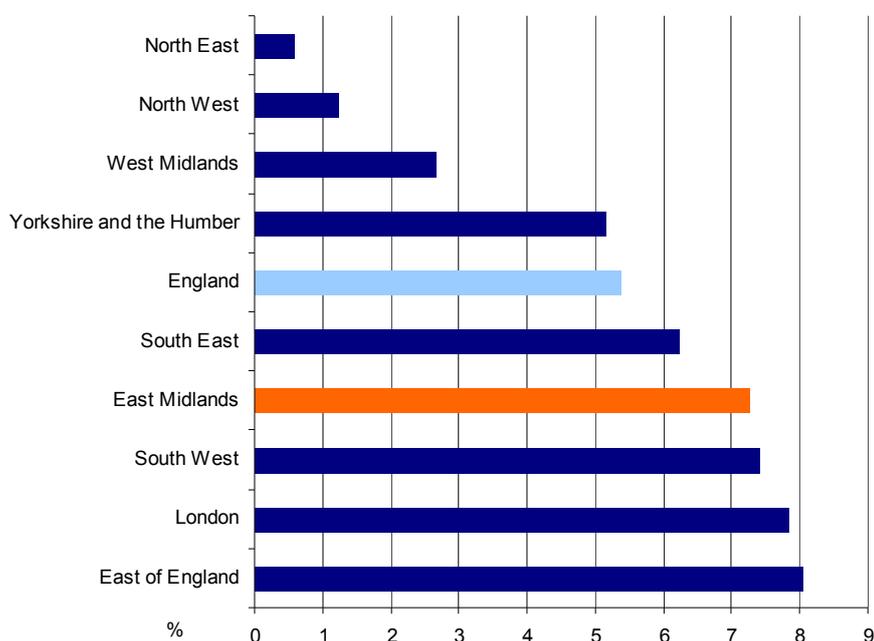
**Chart 11: Long-term population trends in the East Midlands and England, 1981-2008 (thousands)**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1981- 2008, from NOMIS, 22<sup>nd</sup> October, 2009.

Chart 11 shows that the East Midlands population has been increasing over a long period of time, and for much of the period from 1981 it has increased faster than the national average. In 1981, the East Midlands population was 3.9 million, accounting for 8.2% of the total population for England. By 2008, this share had increased to 8.6%, as the region's population reached 4.4 million. Chart 11 also shows that although the rate of population growth slowed in the late 1980s and early 1990s, and again at the end of the 1990s, periods of past economic downturn have not coincided with a cessation of population growth, either in the East Midlands, or nationally.

**Chart 12: Total population growth by region, 1998-2008 (%)**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1998-2008, from NOMIS, 19<sup>th</sup> October, 2009.

Chart 12 shows the total change in population across the English regions between 1998 and 2008. Over the decade, the population of the East Midlands increased by approximately 300,400 residents from 4,132,600 in 1998. This represents a 7.3% increase, compared to a 5.4% increase in England overall. The East Midlands was the only northern or midlands region to experience population growth in excess of the national average. In addition, the chart shows that:

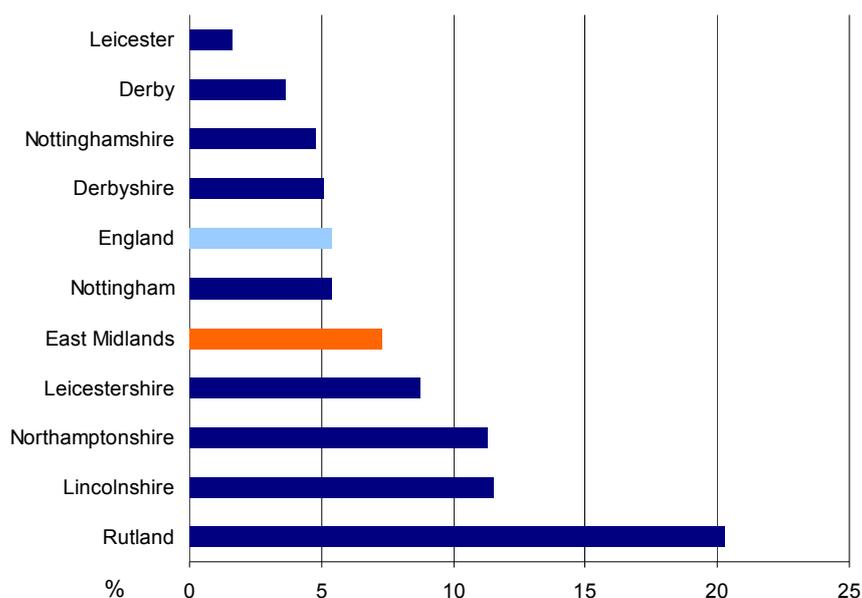
- The populations of the East of England and London grew the most over the decade, London by 7.8% (an additional 554,300 residents) and the East of England by 8% (an additional 426,700 residents); and
- The population of the North East grew least, by 0.6% (an increase of only 14,600). However, this represents a change compared to earlier time periods. The North East's population decreased year-on-year

between 1993 and 2001, before increasing year-on-year between 2002 and 2008.

Chart 13 demonstrates that, although all County and Unitary Authorities have experienced population growth over the decade 1998-2008, there have been very significant differences across the region:

- Rutland has experienced the largest percentage population increase, at 20.2%, but because of the small size of the area, this increase is quite small in absolute terms (6,600 individuals);
- Lincolnshire and Northamptonshire have both experienced very substantial increases in their resident populations. Lincolnshire grew by 11.5%, with 72,000 additional residents over the decade, whilst Northamptonshire grew by 11.3%, an additional 69,600 residents. Leicestershire also experienced growth in excess of the regional average, with an increase of 8.7%; and
- Leicester and Derby Cities both experienced relatively small population growth. Derby grew by 3.6% (8,300 additional residents) whilst Leicester City grew by 1.6% (4,700 additional residents).

**Chart 13: Total population growth by County/UA, 1998-2008 (%)**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1998-2008, from NOMIS, 19<sup>th</sup> October, 2009.

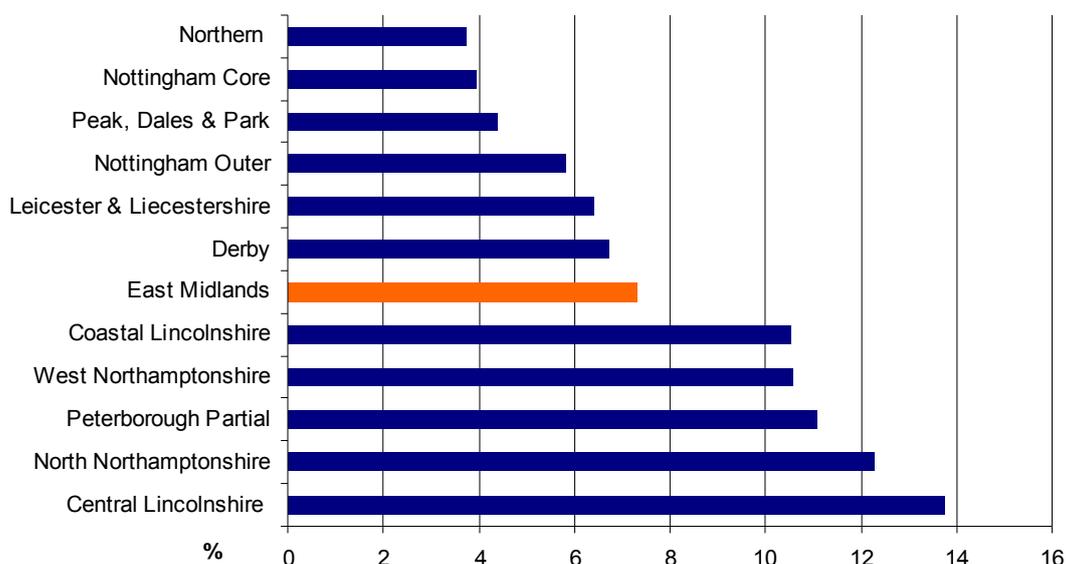
In the context of recent trends in population change, it is useful to compare Housing Market Areas (see Annex 1) with the analysis by County and Unitary Authorities area, as HMA boundaries which dissect a number of counties illustrate key local variations in growth, as shown in Chart 14. All HMAs experienced positive population change over the decade:

- The fastest growth rates over the decade were experienced by HMAs in the south and east of the region, in Northamptonshire and Lincolnshire. The HMA with the fastest growth over the decade was Central Lincolnshire, which experienced growth of 13.8%. This growth

rate significantly exceeded that of Coastal Lincolnshire HMA, which grew by 10.5%;

- The North Northamptonshire and Peterborough Partial HMAs also experienced growth rates significantly higher than the regional average, at 12.3% and 11.1% respectively; and
- The Northern HMA experienced the lowest rate of growth over the period, increasing by only 3.7%. Nottingham Core also grew at a significantly slower rate than the regional average, at 3.9%. This is below the rate of growth experienced by Nottingham City UA (5.4%) because of the relative slow rates of growth in Gedling (0%), Erewash (2.8%) and Broxtowe (3.5%).

**Chart 14: Total population growth by HMA, 1998-2008 (%)**

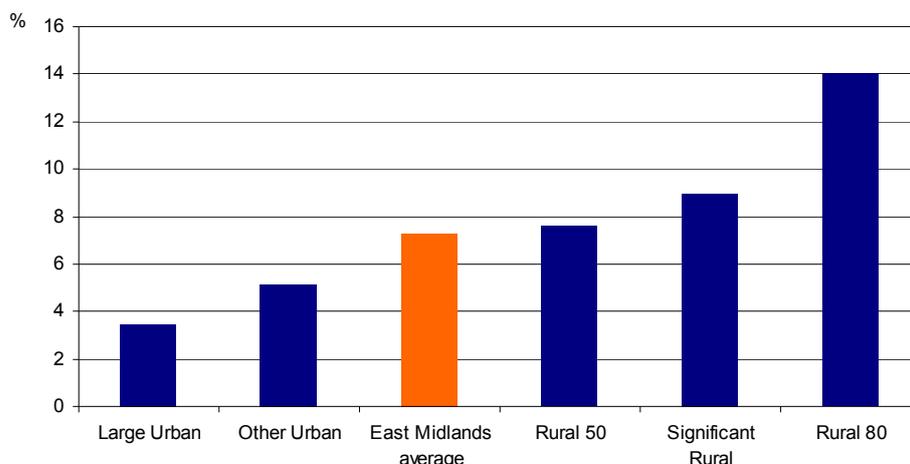


Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1998-2008, from NOMIS, 19<sup>th</sup> October, 2009.

The final geographical disaggregation in this section is the urban and rural district classifications. Chart 15 shows how population growth over the decade 1998-2008 varied according to extent of rurality:

- This very clearly shows that the rural categories of district all experienced faster than average growth, whilst the urban categories all grew at below average rates;
- The most 'rural' category of district, 'Rural 80', experienced a growth rate of 14% in the East Midlands, almost twice that of the regional average; and
- The most densely populated category of district, 'Large Urban' areas, experienced the slowest rate of growth, at 3.5% between 1998 and 2008, less than half the rate of the East Midlands overall.

**Chart 15: Total population growth by urban and rural classification, 1998-2008 (%)**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1998-2008, from NOMIS, 19<sup>th</sup> October, 2009.

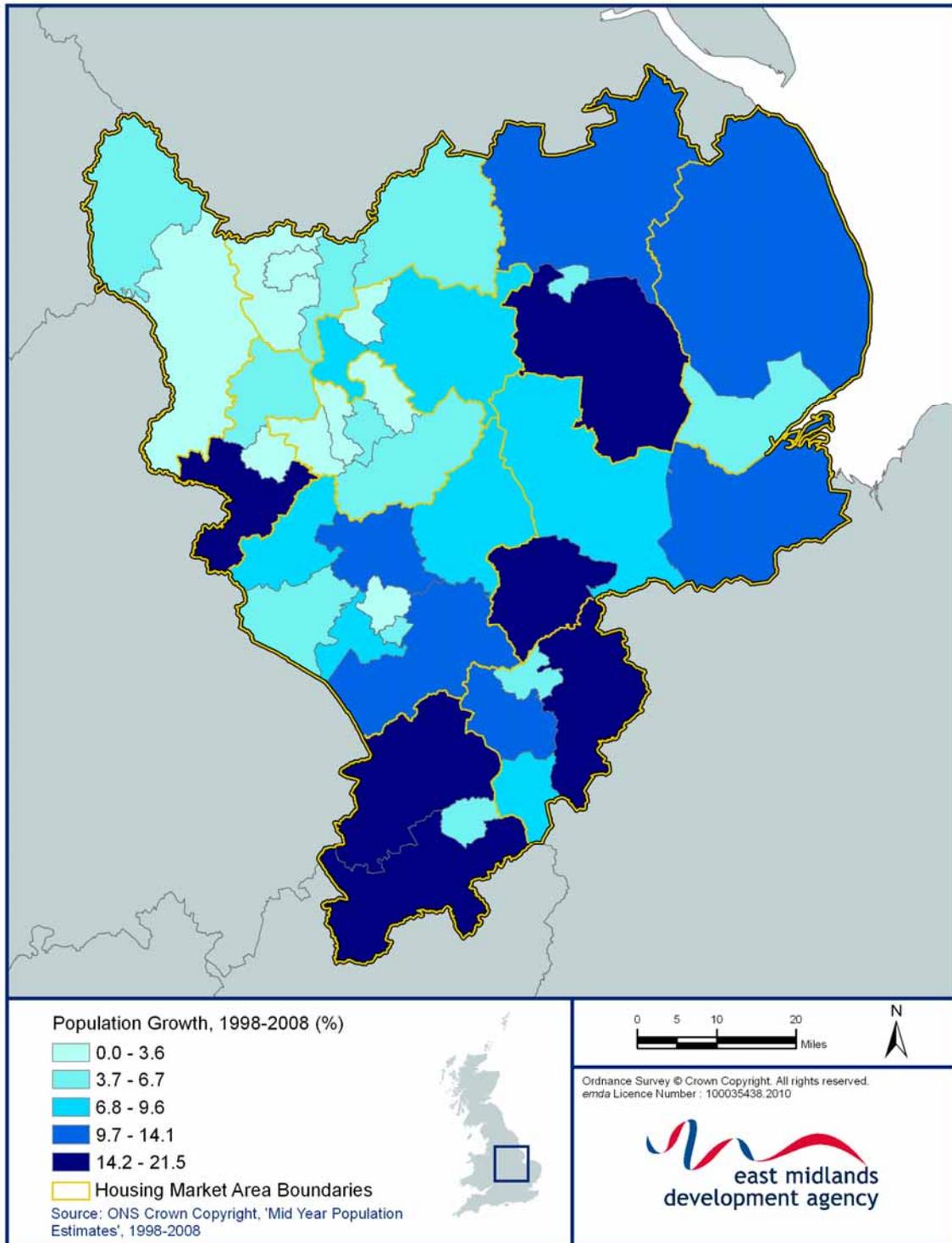
Map 5 shows population growth rates over the decade 1998-2008 by Local Authority District. This illustrates the concentration of strong population growth in the most southerly parts of the region and also the more accessible parts of Lincolnshire.

The strongest population growth, at 21.5% between 1998 and 2008, was in the Lincolnshire district of North Kesteven, just east of the A1 corridor, and containing the expanding market town of Sleaford. In the south of the region, the districts of South and East Northamptonshire grew at a similarly strong rate, at 19.4% and 19.2% respectively.

Conversely, Map 5 shows that areas in the north of the region, especially in the former Coalfield areas, grew at a much slower rate. The district of Gedling, north east of Nottingham, experienced zero population growth between 1998 and 2008, and Chesterfield and North East Derbyshire grew at only 1.6% and 1.7% respectively over the decade.

Generally speaking, the more rural parts of the region have experienced the fastest rates of population growth, whilst the more urbanised districts (especially those around the former Coalfields) have grown at a substantially slower rate.

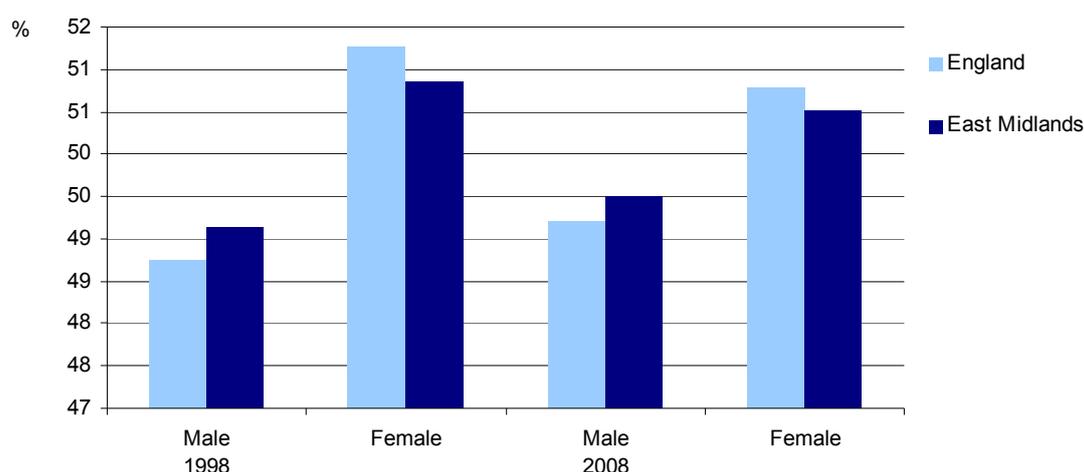
**Map 5: Total population change by LAD/UA, 1998-2008 (%)**



### 3.2 Population trends by gender, age and ethnicity

Chart 16 shows how the male and female shares of the total population in the East Midlands has changed over the decade and how this compares to England. Between 1998 and 2008 the proportion of the population accounted for by males has increased both in the East Midlands and nationally. In 1998 men accounted for 49.1% of the region's population, increasing to 49.5% in 2008. The change was similar in England overall, with the share of the population accounted for by men increasing from 48.7% to 49.2%. This is due to the increasing life expectancy of men over the decade, which has increased at a greater rate than female life expectancy (although this remains higher than men).<sup>10</sup> Change in life expectancy is covered in more detail in the Chapter on Deprivation and Social Inclusion in '*The East Midlands in 2010*'. This means that there will be an increasing number of males in the pensionable age group, which will further increase demands on elder care services. This is explored later on in this Chapter (Section 4.3) when we look at dependency ratios.

**Chart 16: % Population by gender, England and East Midlands, 1998-2008**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1998-2008, from NOMIS, 19<sup>th</sup> October, 2009.

Chart 17 shows how the rate of population growth has varied across the three broad age groups between 1998 and 2008. All regions have experienced growth in the working age population and most regions have experienced a growth in the pensionable age group:

- The pensionable age population has grown faster than the other two groups in all regions except for London (where it has fallen by -0.7%), whilst the school age population has fallen in all regions except for the East of England (where it has grown by only 0.3% over the decade) and London (where it has grown by 0.2%);
- The pensionable age group in the East Midlands increased by 14.6% (compared to 9.9% in England overall), which was the second fastest

- rate of growth for this age group of the nine English regions. This group grew by the fastest rate in the East of England, by 16.4%;
- The East Midlands also experienced the second strongest growth in the working age population over the decade, increasing by 8.4% (equivalent to 217,900 additional individuals in that age group compared to 1998) compared to 12.1% in London and 6.9% in England as a whole; and
  - The school age group decreased by -3.7% (with 29,400 fewer individuals in that age group in 2008 compared to 1998), which is slightly lower than the rate of decrease in England overall (-4%).

**Chart 17: Population growth by broad age band, 1998-2008 (%)**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1998-2008, from NOMIS, 19<sup>th</sup> October, 2009.

These differing rates of growth have affected the age structure of the East Midlands population between 1998 and 2008. There has been a fall of 2 percentage points in the share of the population in the school age group, which has been offset by increases of 0.7 percentage points (from 62.4% to 63.1%) and 1.3 percentage points (from 18.5% to 19.7%) in the share accounted for by the working age and pensionable age groups respectively.

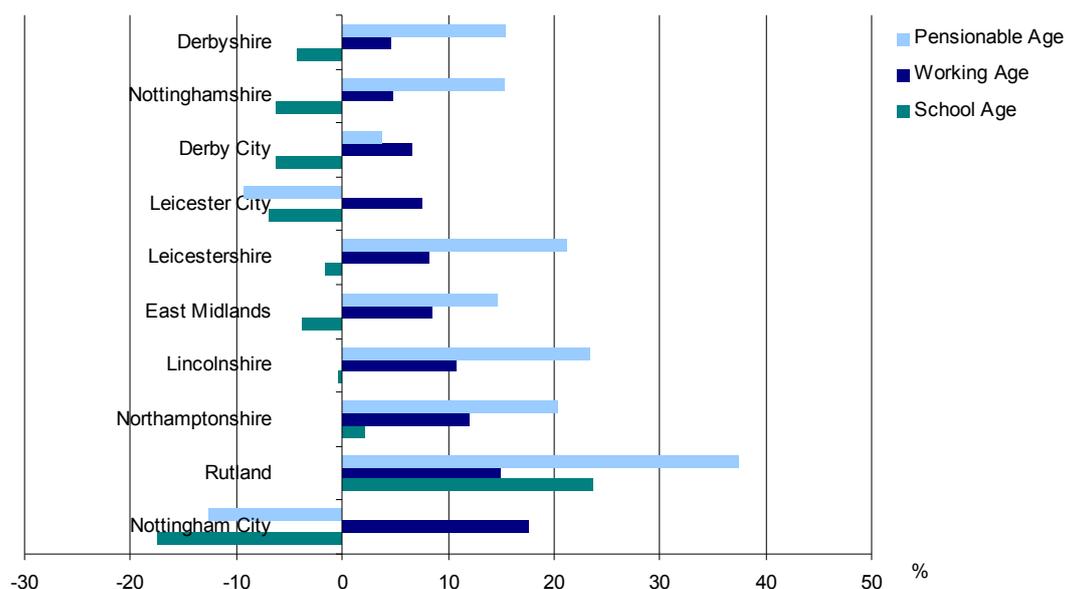
Chart 18 shows the percentage growth in population across the three broad age bands in the nine County and Unitary Authorities. Each has experienced growth in the working age group. However, in all five Counties and Rutland this rate of growth has been exceeded by the increase in the pensionable age population (although in absolute terms the increase in working age population often far exceeds the increase in the pensionable age group). The chart also shows that:

- Nottingham City has experienced the greatest rate of growth in its working age population, increasing by 17.5% over the decade (3,700 additional individuals). However, the population in the school and

pensionable age bands in the city both decreased significantly, by -17.4% and -12.5% respectively. Leicester City also experienced significant decreases in the number of residents in both the school age and pensionable age populations;

- Derbyshire and Nottinghamshire experienced the slowest rates of growth in the working age group, at 4.6% and 4.8% respectively over the decade, alongside decreases in the school age population. However, both experienced significant growth in the pensionable age group, suggesting significant population ageing;
- Northamptonshire has seen strong growth in both the working age group, by 11.9% (46,500 additional individuals) and the pensionable age group, by 20.4% (20,600 individuals), and has also seen a modest increase in the school age group, by 2.2%; and
- Rutland and Lincolnshire have both experienced very strong growth in their pensionable age populations. In Lincolnshire, the pensionable age group increased by 23.3% over the decade (31,500 additional individuals) compared to 10.8% in the working age group (40,700 additional individuals).

**Chart 18: Population growth by broad age band by County/UA, 1998-2008(%)**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1998-2008, from NOMIS, 19<sup>th</sup> October, 2009.

The final trend in recent population change in this section is the growth of different ethnic groups. The experimental statistics on ethnicity previously used in Section 2.3.2 also include time-series from 2001 to 2007.

As the population who describe their ethnicity as 'White' make up a significant majority of the population, this section will look at trends in this group initially, before looking in detail at trends within BME groups.

The estimated proportion of the population in the East Midlands who would describe themselves as 'White' (including 'White: other', which applies to

migrants from A8 countries) has fallen from 93.4% in 2001 to 90.9% in 2007. The trend in the region has followed the national trend very closely.

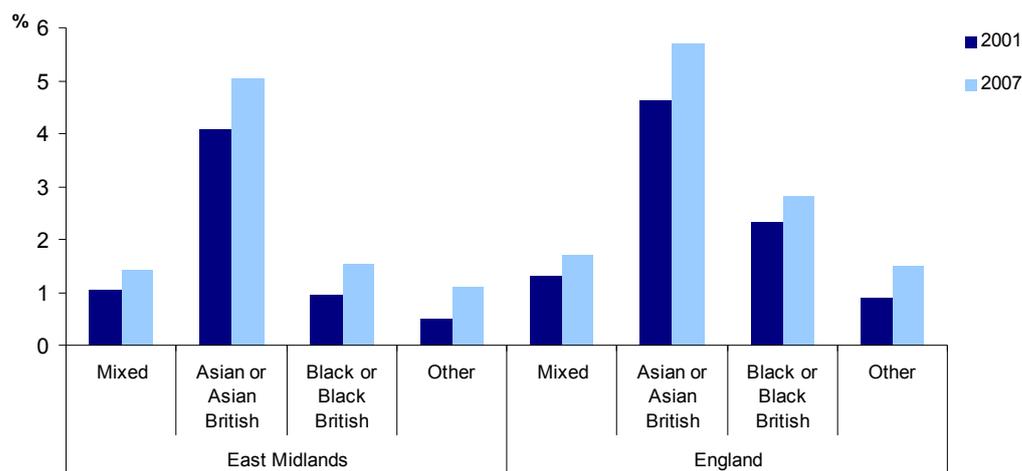
In numerical terms this population has increased over the five year period, from 3,913,700 East Midlands residents in 2001 to 4,001,000 in 2007. This is a growth of 2.2% over the six-year period, lower than the rate of total population change, which was 5%. Therefore a significant proportion of total population growth between 2001 and 2007 is due to growth in BME groups.

Chart 19 shows the changing share of the population accounted for by different BME groups. In numerical terms, the BME population has increased more than both the population in the 'White' broad ethnic group and the total population between 2001 and 2007.

In 2001, East Midlands residents who described themselves as belonging to a BME group totalled 276,100. In 2007, this was estimated to have increased to 398,700, a growth rate of 44.4% over the six year period. The chart also shows that:

- In the East Midlands in 2001, people who would describe themselves as belonging to a BME group made up 6.6% of the population. In 2007 this had increased to 9.1%. This compares to 9.2% in 2001 and 11.8% in 2007 in England overall; and
- The group that has increased most in terms of their share of the total population is the 'Asian or Asian British' group, which increased from 4.1% in 2001 to 5.0% in 2007. This group also increased its share of the total population most in England overall.

**Chart 19: Population in the East Midlands and England in BME groups, 2001-2007 (%)**



Source: ONS Crown Copyright, Estimated resident population by Ethnic Group (experimental statistics) 2001-2007.

### **Key Points: Recent population trends**

- The East Midlands population has been increasing year-on-year since the mid-1980s, and for much of this period it has grown faster than the national average.
- Between 1998 and 2008, the East Midlands was the only northern or midlands region to experience population growth in excess of the national average, growing by 7.3% compared to 5.4% nationally.
- Within the East Midlands, all County and Unitary Authorities have experienced some population growth. The population of Rutland, Lincolnshire and Northamptonshire all grew strongly, by 20.2%, 11.5% and 11.3% respectively.
- Looking at Housing Market Areas illustrates the differences between cities and their wider conurbations and between central and coastal Lincolnshire. Central Lincolnshire HMA grew faster than Coastal Lincolnshire, at 13.8% and 10.5% respectively. The Northern HMA grew the least, by only 3.7%.
- Rural areas grew significantly faster on average than urban areas. 'Rural 80' districts experienced a growth rate of 14%, almost twice the regional average, whilst 'Large Urban' districts only grew by 3.5%, less than half the regional average.
- Increasing male life expectancy has seen the share of the population accounted for by men increase from 49.1% to 49.5% over the decade 1998 to 2008.
- Most English regions have experienced demographic ageing over the decade. The size of the pensionable age group has increased by 14.6% in the East Midlands, compared to 9.9% in England overall. However, the working age population has also increased strongly, by 8.4% in the region and 6.9% in England.
- This has meant that the share of the population accounted for by the pensionable age group in the region has increased from 18.5% to 19.7%.
- Nottingham City has experienced the greatest growth in the working age group, whilst Lincolnshire and Rutland have experienced the greatest growth in their respective pensionable age groups.
- Although increasing in absolute numbers, the proportion of the population in the 'White' ethnic broad group has decreased overall, from 93.4% to 90.9% between 2001 and 2007. BME groups have experienced faster than average population growth, and have thus increased from 6.6% to 9.2% of the total population between 2001 and 2007.

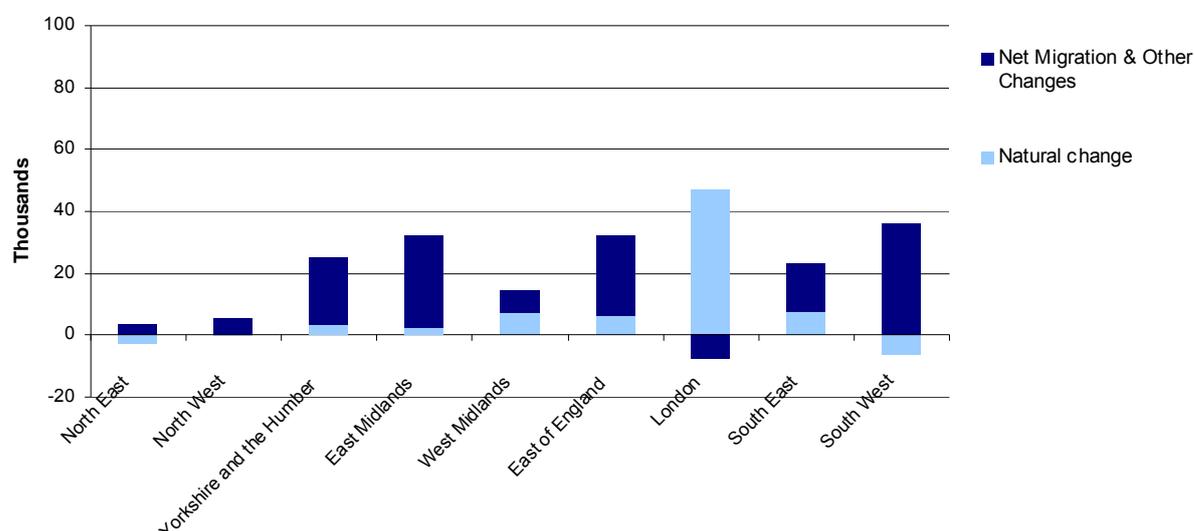
### 3.3 Components of population change

The rate of population growth in a given area is due to the balance between four factors: births and deaths (together known as 'natural change'), and outward and inward migration (together known as 'migration').

Estimates of the extent of these factors are the key inputs to each annual release of population estimates, as they enable the ONS to add and subtract residents for each year following the last Census.<sup>11</sup>

Charts 20 and 21 illustrate the headline components of change released with each Mid Year Estimate (showing the volume of population growth since the previous mid-year due to natural change and 'net migration and other changes') for 2001-2002 and 2007-2008.<sup>12</sup>

**Chart 20: Natural change and net migration by region, 2001-2002 (thousands)**

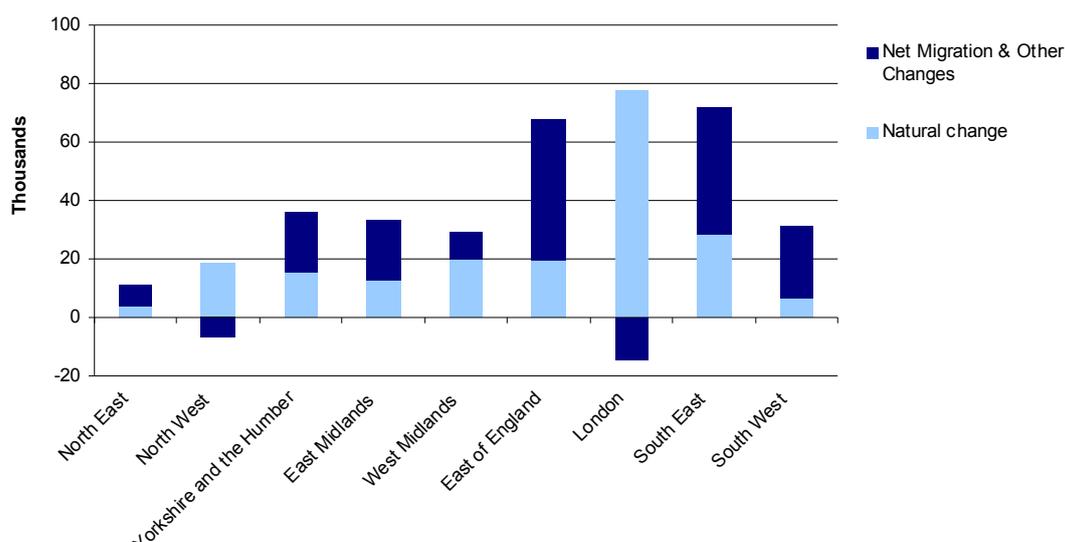


Source: ONS Crown Copyright, 'Mid Year Population Estimates', 2001, Table 10: Local Authority Components of Change, 2008.

<sup>11</sup> Note that these estimates do not take into account population implications of current policy – such as planned house building activity – but only changes that have happened in previous years.

<sup>12</sup> Net migration expresses the balance of inward and outward migrants (combining both international and domestic flows). 'Other changes' includes population movement relating to communal establishments (an establishment providing managed residential accommodation, such as care homes) and armed forces personnel.

**Chart 21: Natural change and net migration by region, 2007-2008 (thousands)**



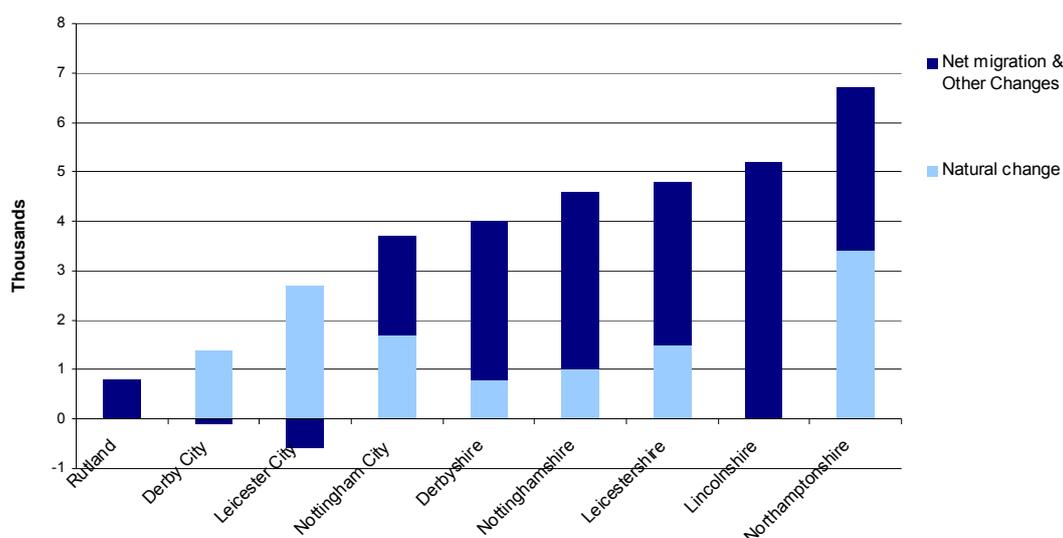
Source: ONS Crown Copyright, 'Mid Year Population Estimates', 2008, Table 10: Local Authority Components of Change, 2009.

The charts show that there has been an almost universal increase in the importance of natural change across the English regions between 2001-2002 and 2007-2008. In detail, this shows the following:

- In the East Midlands, net migration and other changes accounted for 29,800 of the 32,000 additional residents in mid-2002 compared to mid-2001, or 93% of total change. By 2008 however, net migration and other changes accounted for only 62% of population growth, or 20,800 of the additional 33,300 residents since mid-2007;
- This trend was reflected in England overall. Net migration and other changes contributed 69% of the 202,600 additional residents between mid-2002 and mid-2001. In 2008, net migration and other changes contributed only 43%;
- In other regions, natural change provided a negative contribution between 2001 and 2002, with the South West losing 6,100 residents through natural change (i.e. 6,100 more deaths than live births that year), with net migration accounting for 120% of population growth. Only in London did natural change provide the larger contribution (with a negative net migration flow of -7,800 that year); and
- Between 2007 and 2008, natural change was positive in all regions, and provided the largest share in the North West and London (where it counteracted negative net migration) and the West Midlands (where it exceeded net migration, at 20,200 compared to 9,100 additional residents).

Chart 22 illustrates the balance between the two components of change for the region's County and Unitary Authorities between mid-2007 and mid-2008.

**Chart 22: Natural change and net migration County/UA, 2007-2008 (thousands)**



Source: ONS Crown Copyright, 'Mid Year Population Estimates', 2008, Table 10: Local Authority Components of Change, 2009.

This shows that the drivers of population growth across the region vary significantly:

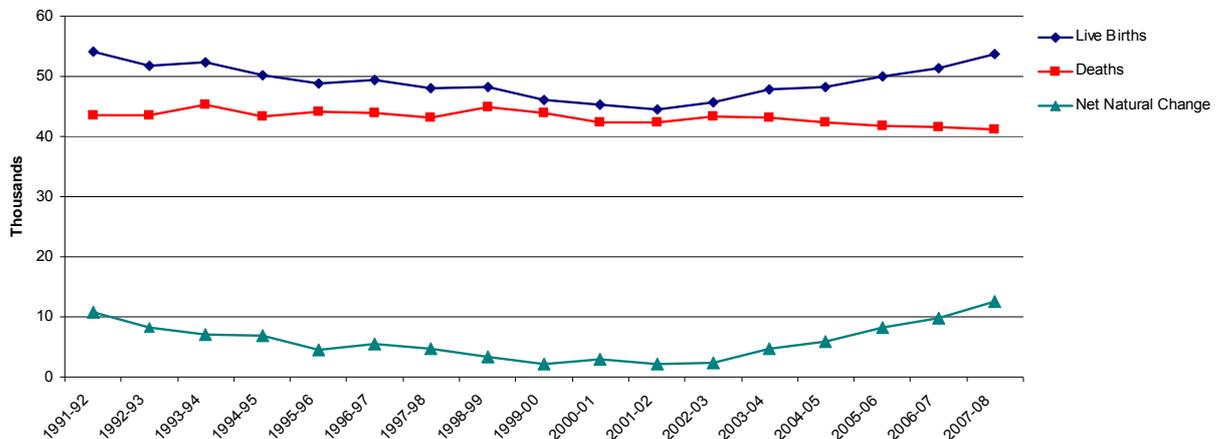
- Northamptonshire, the area with the largest volume of population increase between mid-2007 and mid-2008, experienced equal contributions from both components;
- However, Lincolnshire, which experienced a comparable **volume** of increase, and Rutland, which experienced a high **rate** of increase, both grew entirely because of migration. Both areas experienced zero natural change (i.e. parity between births and deaths). Rutland's population grew because of a positive net flow of 800 migrants over the 12 months, whilst Lincolnshire experienced positive net migration of 5,200; and
- Natural change overwhelmingly drove population growth in Leicester and Derby Cities. Leicester City lost 600 residents through negative net migration between mid-2007 and mid-2008. This was compensated by positive natural change of 2,700 (leading to a population growth of 2,100). Derby City lost 100 residents through negative net migration, so its total population growth in the 12 months of 1,300 was due to a natural change contribution of 1,400.

To understand recent increases in the importance of natural change as a component of population growth, Chart 23 illustrates long-term trends in live births and deaths alongside net natural change in the East Midlands. This shows that:

- Although live births in the region have exceeded deaths throughout the period since 1991-92, the net contribution of natural change fell between 1991-92 and 2001-02;
- The number of deaths remained fairly static up to 2002-03, around 43-45,000 per year. Therefore the fall in net natural change was due to

- a declining number of births, from 54,200 between mid-1991 and mid-1992 to 44,600 between mid-2001 and mid-2002; and
- However, net natural change began to increase year-on-year from 2002-2003 (from 2,400 per year to 12,500 in 2007-2008). This was because of both a strong increase in births per year combined with a steady decrease in deaths.

**Chart 23: Natural change in the East Midlands: live births, deaths and net change, 1991-1992 to 2007-2008**

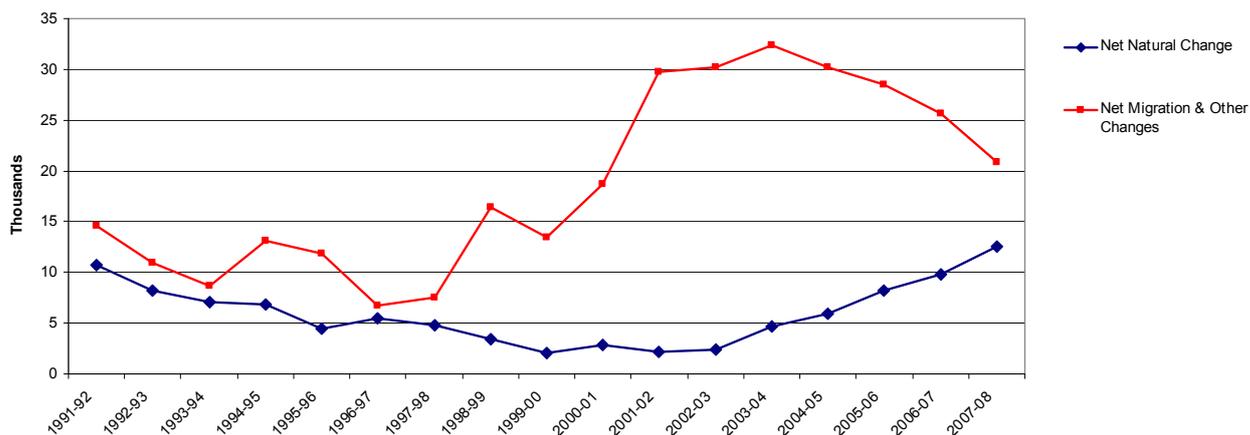


Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1992-2008, Table 10: Local Authority Components of Change, 2009.

Although the contribution of net migration to total population growth has exceeded natural change throughout the period since 1991-1992, the balance between the two components has changed significantly. Chart 24 illustrates that:

- The two components were relatively close between 1991-1992 and 1997-1998. Between mid-1991 and mid-1992, natural change accounted for 42.3% of population growth, and migration accounted for 57.7%;
- Net migration then grew rapidly from 1997-1998, and peaked at 32,400 additional residents between mid-2003 and mid-2004 (accounting for 92.6% of total population change); and
- The volume of net migration then fell to 20,800 between mid-2007 and mid-2008. As Chart 23 demonstrated, net natural change increased year-on-year from 2002-2003. By 2007-2008 it contributed 37.5% of total population change (with migration contributing 62.5%).

**Chart 24: Net components of change in the East Midlands, 1991-1992 to 2007-2008 (thousands)**



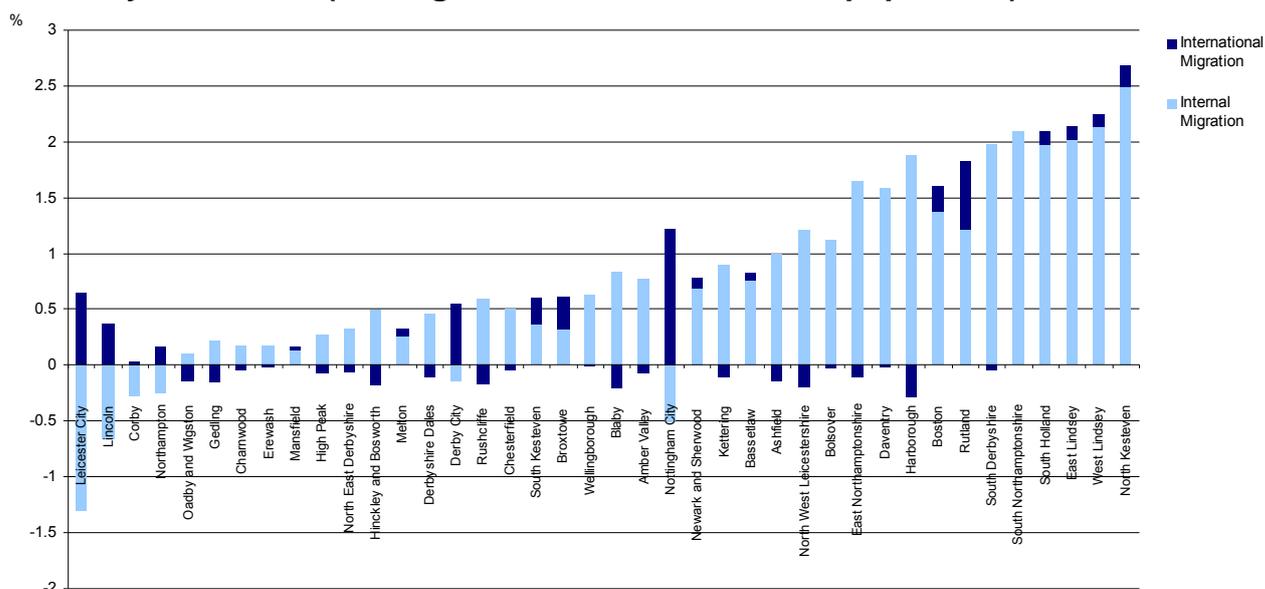
Source: ONS Crown Copyright, 'Mid Year Population Estimates', 1992-2008, Table 10: Local Authority Components of Change, 2009.

The recent trend in natural change is due to increasing life expectancies (especially for men) alongside a more recent increase in fertility rates. However, this component is closely interlinked to migration, as inward migration is a key driver in increasing birth rates, as migrants tend to have a younger age profile, and thus higher fertility rates, than non-migrants.

Migration is the more difficult of the two components to estimate, and is derived from a range of different sources, including the International Passenger Survey (IPS) for international migrants, and GP registration data and a range of other administrative sources for internal migrants. The most detailed estimates are published for individual Local Authority Districts, and include inflows and outflows for both international and internal migrants between each Mid-Year Estimate. Comparable data is not currently available for higher levels of geography, such as County and Unitary Authority areas or Government Office Regions, as some migrants move between Local Authorities within Counties or regions, thus their move is not across a county or regional boundary. For this reason, internal migration into and out of the higher level areas is not the sum of numbers moving into or out of the component lower level areas.<sup>13</sup>

<sup>13</sup> ONS Crown Copyright, notes for 'Table 1: Migration indicators for local authority areas in England & Wales, mid-2001 to mid-2008', August 2009.

**Chart 25: Balance of internal and international migrants by Local Authority, 2001-2002 (net migration as a % of mid-2002 population)**

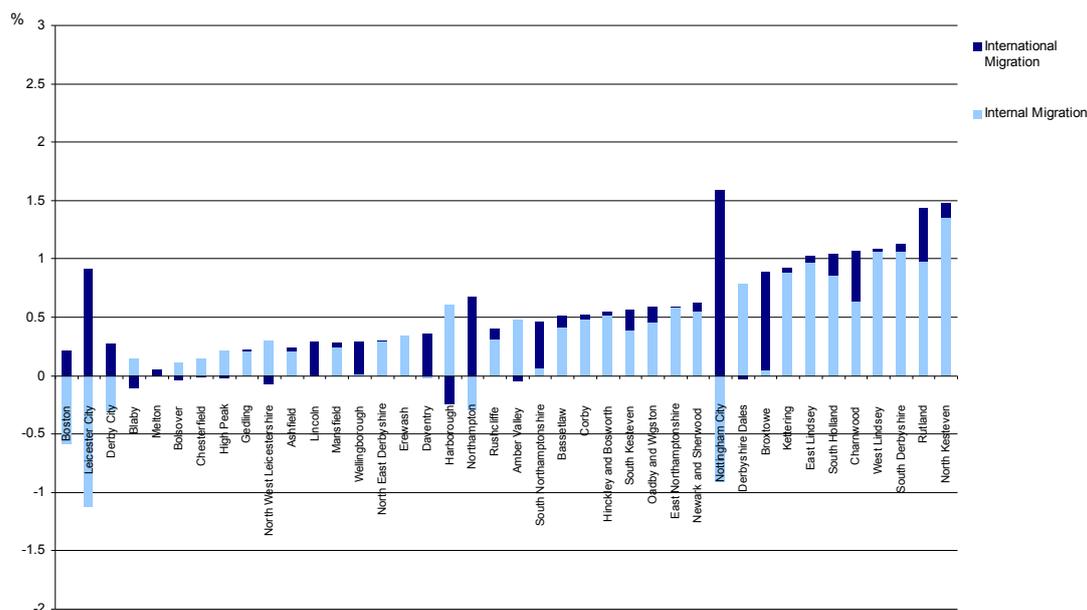


Source: ONS Crown Copyright, 'Migration indicators by local authority areas in England & Wales, mid-2001 to mid-2008', 2009.

Chart 25 shows net international and net internal migration as a percentage of the population across the 40 Local Authority Districts and Unitary Authorities in the East Midlands between mid-2001 and mid-2002, whilst Chart 26 shows this for mid-2007 to mid-2008. The overriding message from this data is that in almost all Local Authorities, for both time periods, internal migration (from other areas in the UK) makes up by far the largest share of net inward migration. Comparison between the two time periods also demonstrates that net migration in 2007-2008 was considerably less than in 2001-2002 in many districts. For example, in North Kesteven, the district that experienced the highest level of migration in both periods, net migration decreased from 2.7% of the total population in 2001-2002 to 1.5% in 2007-2008. In addition to this, the charts show that:

- In the balance of internal against international migration, a small number of districts stand out as exceptions, with international migration accounting for the larger share. These districts include Nottingham City, Leicester City, Derby City, Northampton and Broxtowe, which are all areas with large university student populations;
- Rural districts in the south and east of the region have the highest proportions of overall migration, and internal migration accounts for the largest share of this. In North Kesteven, net internal migration accounted for 2.5% of the 2002 resident population and 1.4% of the 2008 resident population, whilst net international migration accounted for 0.2% and 0.1% respectively; and
- Leicester City and Nottingham City have both experienced large net internal out-migration in both periods. In 2007-2008, net internal migration accounted for -1.1% of residents of Leicester City, and -0.9% of Nottingham City residents.

**Chart 26: Balance of internal and international migrants by Local Authority, 2007-2008 (net migration as a % of mid-2008 population)**

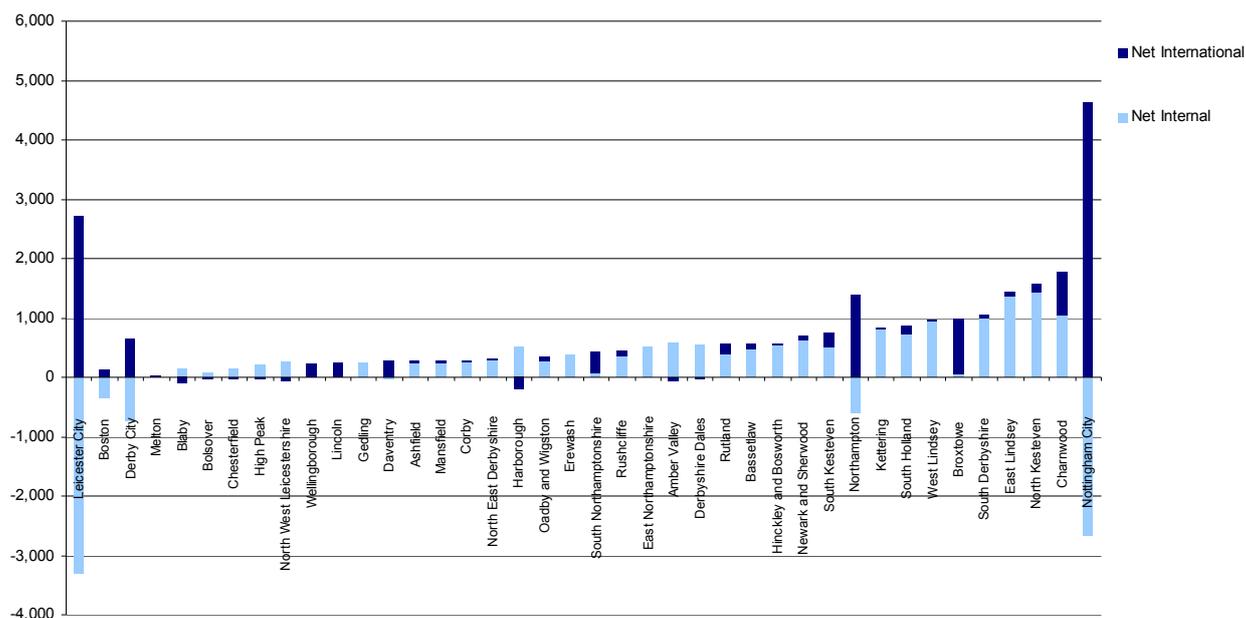


Source: ONS Crown Copyright, 'Migration indicators by local authority areas in England & Wales, mid-2001 to mid-2008', 2009.

Migration expressed as a proportion of the population allows comparison of internal and international migration across districts of varying population sizes, but disguises large variations in the volume of migration. Chart 27 presents net international and internal migration in volume terms for the period mid-2007 to mid-2008. This shows that:

- Nottingham City had by far the largest volume of in-migration. Although Nottingham experienced a net outflow of internal migrants, the inflow of international migrants was so large, at 4,631 additional residents, the total balance of migration, at 1,966, was higher than any other Local Authority District or Unitary Authority in the region;
- However, Leicester City, despite having a large net inflow of international migrants (2,701), experienced such a large net outflow of internal migrants that the total net-balance was negative. Between 2007 and 2008, Leicester lost a total of 606 residents due to net out migration, the largest total net-outflow of the region's Local Authority Districts or Unitary Authorities; and
- In most Local Authorities, internal migration accounts for the largest volume as well as share of migration. For example, in North Kesteven, 1,436 of the total net increase of 1,574 migrants was due to internal migration.

**Chart 27: Volume of internal and international migrants by Local Authority, 2007-2008 (absolute numbers)**



Source: ONS Crown Copyright, 'Migration indicators by local authority areas in England & Wales, mid-2001 to mid-2008', 2009.

### Key Points: Components of recent population change

- Net population growth is a consequence of the balance between births and deaths ('natural change') and outward and inward migration. Collectively these factors are known as the 'components' of population change.
- Natural change has increased in importance in all regions between 2001-2002 and 2007-2008. In the East Midlands, natural change accounted for only 7% of population change between mid-2001 and mid-2002, but by 2007-2008 this share had increased to 38%.
- Since 2002-2003, the number of births in the East Midlands has been increasing, whilst the number of deaths has been falling. This is due to increasing life expectancies as well as recent increases in fertility rates.
- In Northamptonshire, the local area which has experienced the greatest volume of growth between mid-2007 and mid-2008, the contribution of natural change and migration was fairly equal. However in Lincolnshire, which experienced the second highest volume of growth, migration and other changes accounted for all of the increase in population.
- Detailed estimates of international migration and migration from other areas of the UK are available for the 40 Local Authority Districts in the region. In most cases, internal migration from elsewhere the UK significantly exceeded the volume of international migration. However in a small number of districts with large resident student populations, such as Nottingham, Leicester, Derby and Broxtowe, the reverse is true, with international migration accounting for the largest share of net-migration.

## 4. Future projections of population change

The following section looks at future prospects for population change, using the 2006-based Sub-National Population Projections (the 2006-based SNPP) published by the ONS in June 2008. These are trend-based projections of future population numbers that assume that future levels of births, deaths and migration will follow the trajectory of observed levels over the previous five years (2002 to 2006). They provide the Government's standard accepted estimate of future population levels. However, they take no account of local development policy, economic factors or capacity of areas to accommodate population. Their aim is simply to provide an indication of possible future population size and structure based on past trends.<sup>14</sup>

The trend-based approach used for the projections is consistent across all local areas. They cover a 25 year horizon, but the nature of projections means that there is greater degree of uncertainty the further ahead the projection is made. For this reason this section concentrates on the projections for 10 years from the base year (i.e. 2006 to 2016). The base year is 2006 MYE, which will differ from the 2008 MYE used to describe the current profile of the region's population earlier in the chapter.

### 4.1 Projections of total population change

The 2006-based SNPP projects that the East Midlands is expected to be the fastest growing English region between 2006 and 2016. The population of the region is projected to increase by 10.5%, to 4.8 million in 2016. This compares to average growth for England of 7.8%. This is shown in Table 4 and Chart 28.

**Table 4: 2006-based Sub-National Population Projections – key data for the English regions**

	2006 Population	2006-2016		2006-2026		2006-2031	
		000s	%	000s	%	000s	%
England	50,762.9	3,961.3	7.8	7,919.5	15.6	9,668.6	19.0
North East	2,555.7	82.7	3.2	174.2	6.8	213.4	8.3
North West	6,853.2	339.5	5.0	693.0	10.1	842.7	12.3
Yorkshire and the Humber	5,142.4	478.9	9.3	958.8	18.6	1,176.2	22.9
<b>East Midlands</b>	<b>4,364.2</b>	<b>460.4</b>	<b>10.5</b>	<b>922.0</b>	<b>21.1</b>	<b>1,126.5</b>	<b>25.8</b>
West Midlands	5,366.7	295.8	5.5	609.8	11.4	747.0	13.9
East of England	5,606.6	572.9	10.2	1,140.8	20.3	1,390.8	24.8
London	7,512.4	601.9	8.0	1,120.2	14.9	1,345.5	17.9
South East	8,237.8	632.8	7.7	1,285.5	15.6	1,576.0	19.1
South West	5,124.1	496.3	9.7	1,014.8	19.8	1,250.3	24.4

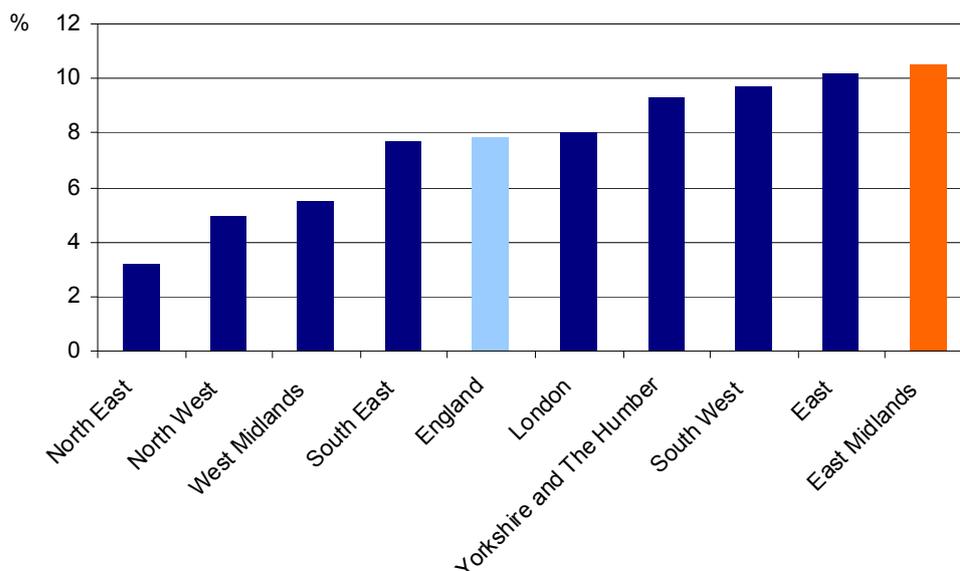
Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', June 2008.

<sup>14</sup> The projections used in this document are the main, published 2006-based SNPP. This is sometimes referred to as the 'central projection', in reference to a number of variant projections published at national level, which include higher or lower migration and natural change assumptions than those used in the central projection. The assumptions underpinning the central projection are based on past trends, higher or lower variant projections change those assumptions in order to investigate different trajectories than those previously experienced.

The East of England is projected to be the second fastest growing region, increasing in population size by 10.2% over the 10 years to 2016. The South East is projected to remain the most populous region, with the highest population increase in absolute terms, rising by 0.6 million to 8.9 million.

The North East is the region projected to have the smallest increase in population (in both number and percentage) by 2016, up by 3.2% (less than 0.1 million) to 2.6 million.

**Chart 28: Total projected population growth by region, 2006-2016 (%)**

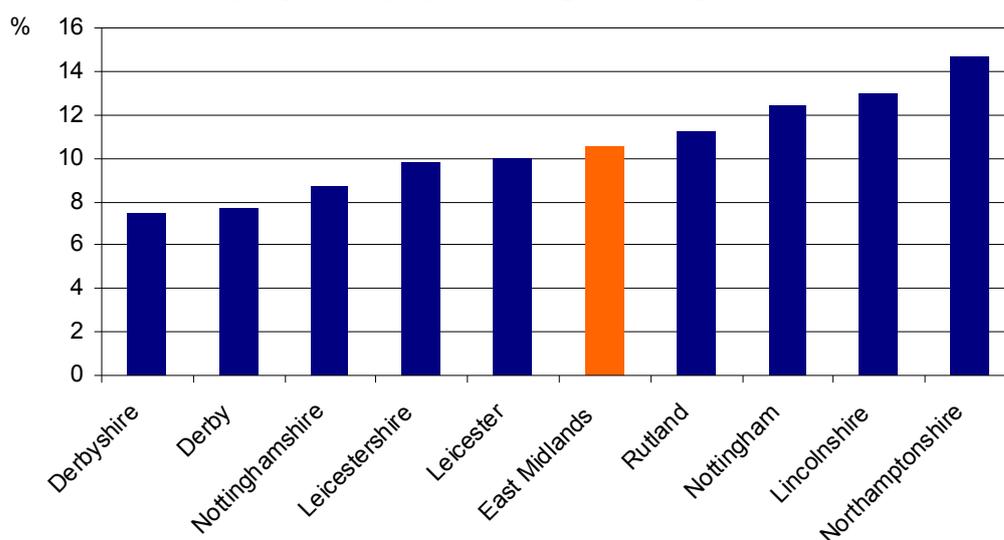


Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', June 2008.

Within the East Midlands, the Local Authorities in the south and east of the region are projected to experience the fastest growth rates, whilst those in the north and west of the region are projected to grow more slowly over the decade. Chart 29 shows that:

- Northamptonshire is projected to have the fastest growth rate between 2006 and 2016, at 14.7%, increasing from 669,300 to 767,400 residents over the decade;
- Lincolnshire is also projected to grow considerably, by 13%, from 686,300 to 775,500, 2.5 percentage points higher than average regional rate of growth. Nottingham City is also projected to grow at an above average rate, compared to the last decade (where it grew at a slower rate than the regional average). In 2016 the population of the city is projected to reach 321,900, an increase of 12.4% on 2006; and
- The lowest rates of growth are projected to be in Derbyshire, Derby City and Nottinghamshire, at 7.5%, 7.7% and 8.7% respectively over the decade. However, it is important to note that all three authorities are projected to grow at rates close to the national average. Even Derbyshire, with the lowest projected growth rate in the region, is still forecast to gain an additional 56,400 residents over the decade to 2016 (compared to 33,600 over the previous decade from 1996).

**Chart 29: Total projected population growth by LA/UA, 2006-2016 (%)**



Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', June 2008.

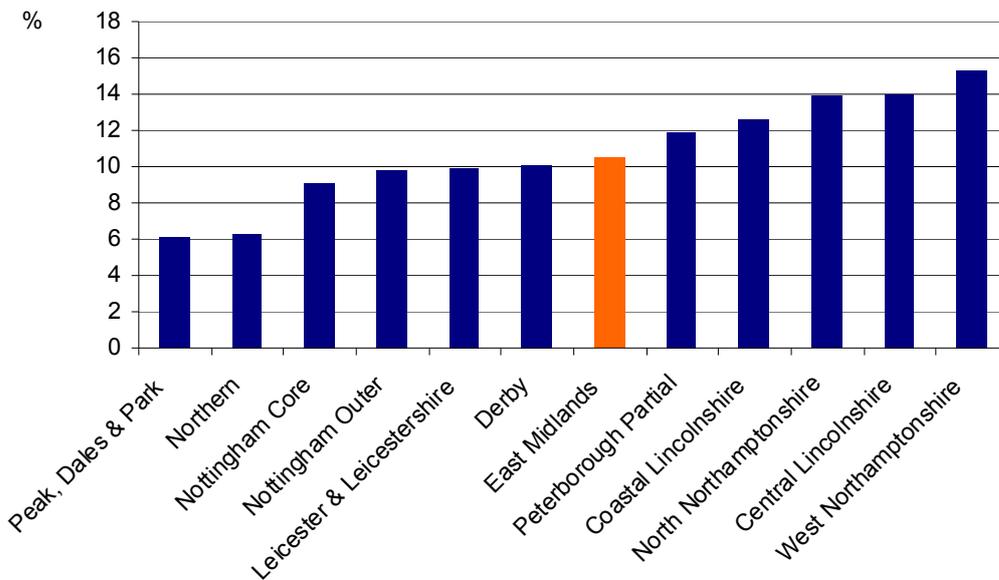
Chart 30 shows projected population growth rates between 2006 and 2016 for the region's Housing Market Areas (HMAs). In the previous discussion of recent growth since 1998, the division of the region into HMAs highlights the variation in population trends within counties (such as between Coastal and Central Lincolnshire) and the effect of combining city authority with districts that encompass their wider conurbation (Nottingham Core HMA compared to the Nottingham City Local Authority, for example). Key observations are as follows:

- The division of Northamptonshire into West and North Northamptonshire HMAs illustrates that the fastest growth is projected to be in the south of the county. West Northamptonshire is projected to grow by 15.3%, compared to 13.9% in North Northamptonshire HMA. West Northamptonshire is already the more populous of the two HMAs, and this growth rate will increase the relative population concentration in the south of the county further. Both HMAs are in the MKSM Growth Area;<sup>15</sup>
- In Lincolnshire, the projections suggest that, as in the case of past trends, the fastest future growth is projected to be in Central Lincolnshire, with significant but slower growth in the eastern, coastal districts. Central Lincolnshire is projected to experience population growth of 14%, compared to 12.6% in Coastal Lincolnshire. As in the case of Northamptonshire, Central Lincolnshire is already the more populous HMA so this growth pattern could increase concentration of population in the central part of the county;

<sup>15</sup> The Milton Keynes South Midlands (MKSM) Growth Area is one of the Government's designated areas for large scale housing development in order to ease pressures on London and the South East and to provide affordable accommodation for key workers. It incorporates all of Northamptonshire in the East Midlands, along with Milton Keynes, Aylesbury Vale, Bedfordshire, and Luton in the South East and East of England.

- Projected growth over the decade is considerably lower in Nottingham Core HMA, at 9.1%, which is below the East Midlands average and third lowest of the regions' HMAs (when Nottingham City was third highest of the nine County and Unitary Authorities); and
- The Peak, Dales & Park HMA is projected to grow at the slowest rate (6.1%), and was the least populous of all 12 HMAs in 2006. Its relative share of the region's total population could therefore decline by 2016 (from 3.7% to 3.5%).

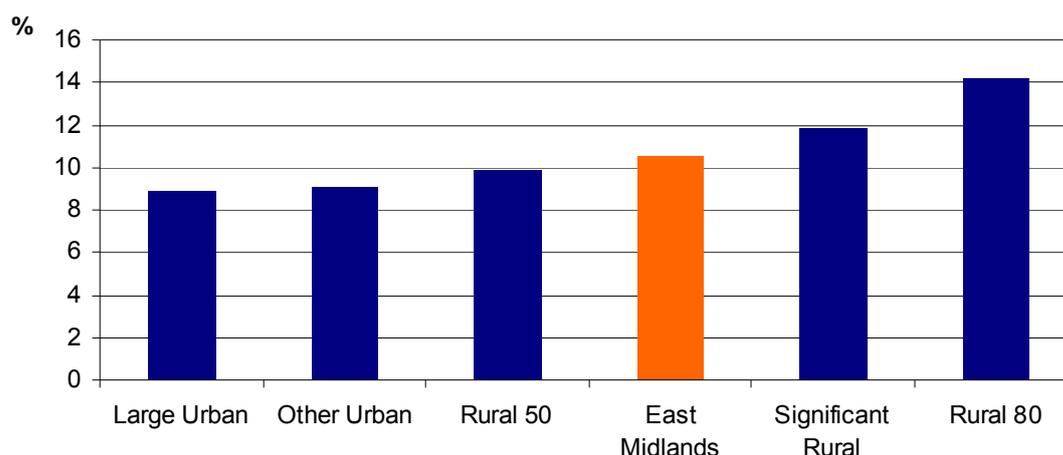
**Chart 30: Total projected population growth by HMA, 2006-2016 (%)**



Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', June 2008.

Chart 31 illustrates projected growth by the Defra urban and rural district classifications. This confirms the picture presented by the earlier analysis by County/UA and by HMA – that the most rural parts of the region are projected to experience the fastest rate of population growth. The average growth for the most rural district classification, 'Rural 80', is projected to be 14.2% between 2006 and 2016, almost 4 percentage points higher than the regional average. 'Significant Rural' districts are also projected to grow faster than average, at 11.9%. Both urban classifications in the East Midlands are projected to experience significantly slower rates of growth, at 9.1% for 'Other Urban' districts and 8.9% for 'Large Urban' districts.

**Chart 31: Total projected population growth by urban and rural classification, 2006-2016 (%)**



Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', June 2008.

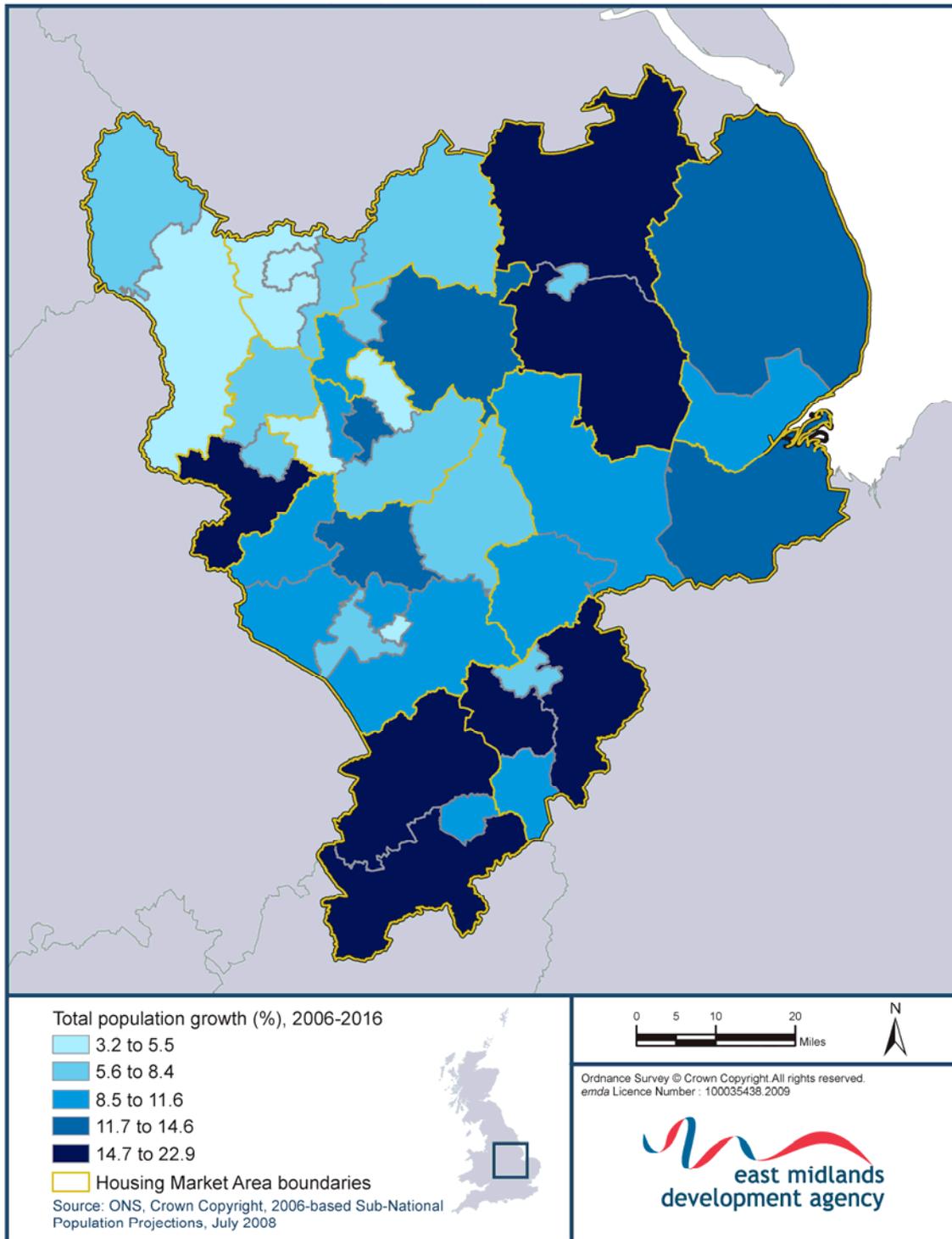
Map 6 shows projected growth rates for Local Authority Districts. This again shows high growth rates concentrated in the more rural south of the region. It also shows a stronger contrast between higher growth rates in the east compared to slower growth in the west of the region (again contrasting more rural with more urban areas).

South Northamptonshire, with a growth rate of 22.9% between 2006 and 2016, is projected to be the second fastest growing Local Authority in England (behind Camden). Daventry and East Northamptonshire are also projected to grow considerably faster than the regional average.

North Kesteven, in central Lincolnshire, is projected to be one of the fastest growing parts of the region (at a rate of 17.3%). Although the coastal districts of East Lindsey and Boston are both projected to grow at relatively strong rates (13.3% and 11% over the decade), this growth is significantly slower than North Kesteven.

The slowest growing areas are projected to be in the north of the region, particularly the Derbyshire Dales, at 3.3%, and North East Derbyshire, at 3.8%.

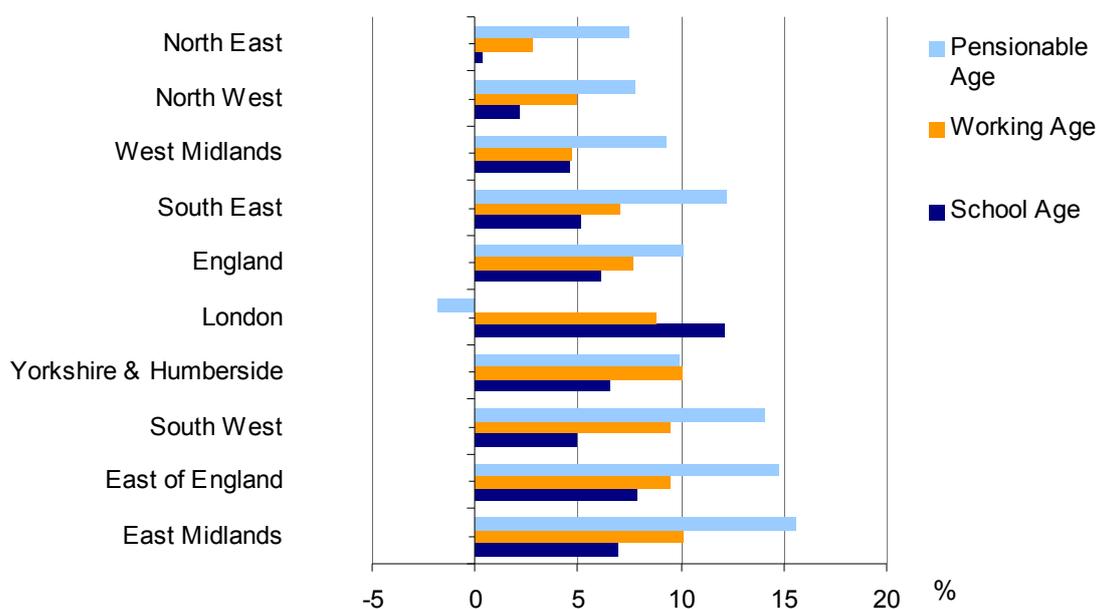
**Map 6: Total projected population growth by LAD/UA, 2006-2016 (%)**



## 4.2 Projections of future population change by age group

The SNPP provides detailed data by population age, enabling a discussion of how forecast population growth varies across the three broad age groups (school age, working age and pensionable age). The following projections take into account the implications of the changing legislation for the State Pension Age. Projections from 2006-2016 will be affected by legislation that will gradually extend the female state pension age to 65 between 2010 and 2020, bringing this into line with the male state pension age. This means that the projections for the broad age groups include progressive adjustments between the working age and pensionable age groups.<sup>16</sup>

**Chart 32: Projected population growth by broad age band, 2006-2016 (%)**



Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', June 2008.

Chart 32 shows that between 2006 and 2016, the East Midlands is projected to experience the fastest growth of all English regions both in the pensionable age group (15.6% compared to 10.1% in England overall) and the working age group (10.1% compared to 7.7% in England overall). The school age group is projected to grow at a slower rate (6.9%), although this still exceeds the growth of the age group in England overall (6.1%).

This profile of strong growth in the pensionable and working age groups and much slower growth in the school age group is similar to the East of England and the South West regions. London is projected to experience negative growth in the pensionable age group, with the strongest growth in the school age group (12.1%) of all English regions.

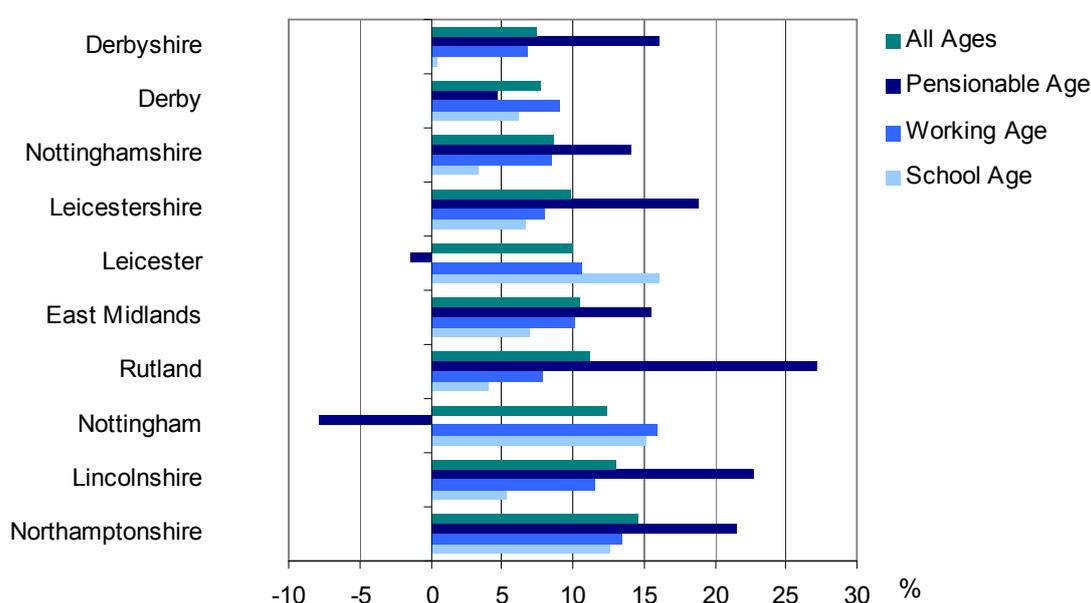
<sup>16</sup> To account for the change in the state pension age initiated by the 2007 Pensions Act, the 2006-based population projections adjust the working age and pensionable age groups, using a matrix that allocates an increasing proportion of women aged between 60 and 64 to the working age group between 2010 and 2019.

The outcomes on these differential growth rates on the region's age profile are as follows:

- The school age group could decrease in share of the total population, from 18.8% in 2006 to 18.2% in 2016;
- The working age group could also decrease slightly, from 62.1% to 61.9%; and
- The pensionable age group could increase from 19.1% to 20.0% over the decade.<sup>17</sup>

The impact of these changes on dependency (the relationship between the working age and the other two economically 'dependent' age groups) will be discussed later on in this section.

**Chart 33: Projected population growth by broad age band by County/UA, 2006-2016 (%)**



Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', June 2008.

Chart 33 illustrates the projections for growth by broad age group across the East Midlands County and Unitary Authorities. The chart is arranged by total population growth, illustrating the very different profiles for growth across the region:

- Northamptonshire and Lincolnshire have the strongest overall projected growth rates in the region and both have very strong projected growth in the pensionable age group (21.5% and 22.8% respectively) but also strong growth in the working age group (13.5% and 11.6% respectively);
- Nottingham is forecast to have the third fastest growth rate in the region, but this is in spite of significant negative growth in the

<sup>17</sup> These proportions will differ from those cited earlier in the chapter (based on the 2006 Mid-Year Estimates) due to rounding – with data from the 2006-based SNPP being rounded to the nearest 1,000.

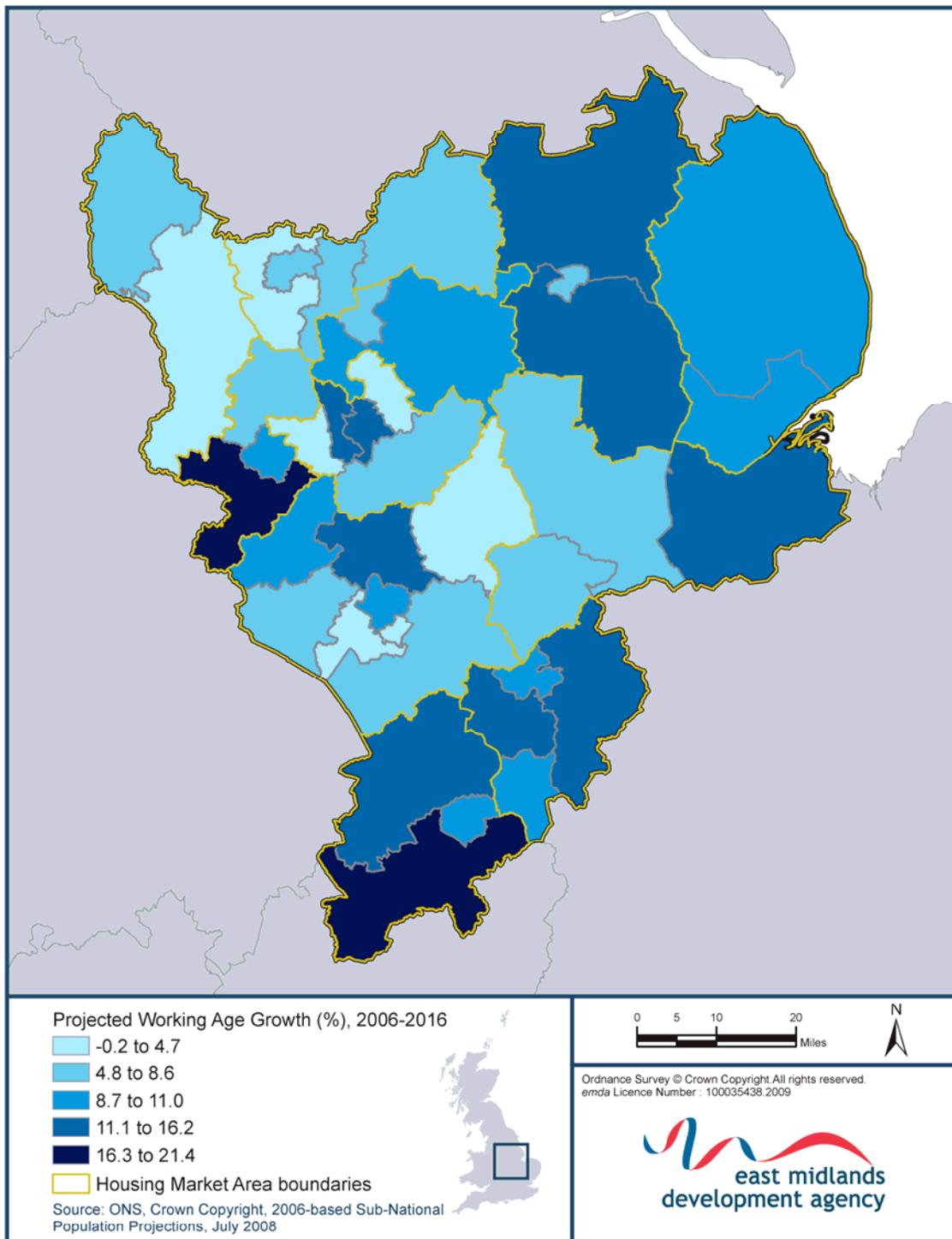
- pensionable age group (-7.8%) offset by very strong growth in the working age and school age groups (15.9% and 15.1% respectively);
- Rutland is projected to experience by far the fastest growth rate in the pensionable age group (27.2% over the decade), far outstripping growth in the working age (7.9%) and school age groups (4.1%); and
  - Leicester City is projected to see negative growth in the pensionable age growth, albeit at modest rate (-1.4%), whilst total growth is principally driven by the school age group (16%).

As Leicester City already has the youngest age profile in the region, this growth is likely to make this difference greater still – especially as many Local Authorities are projected to experience very small growth in their school age populations.

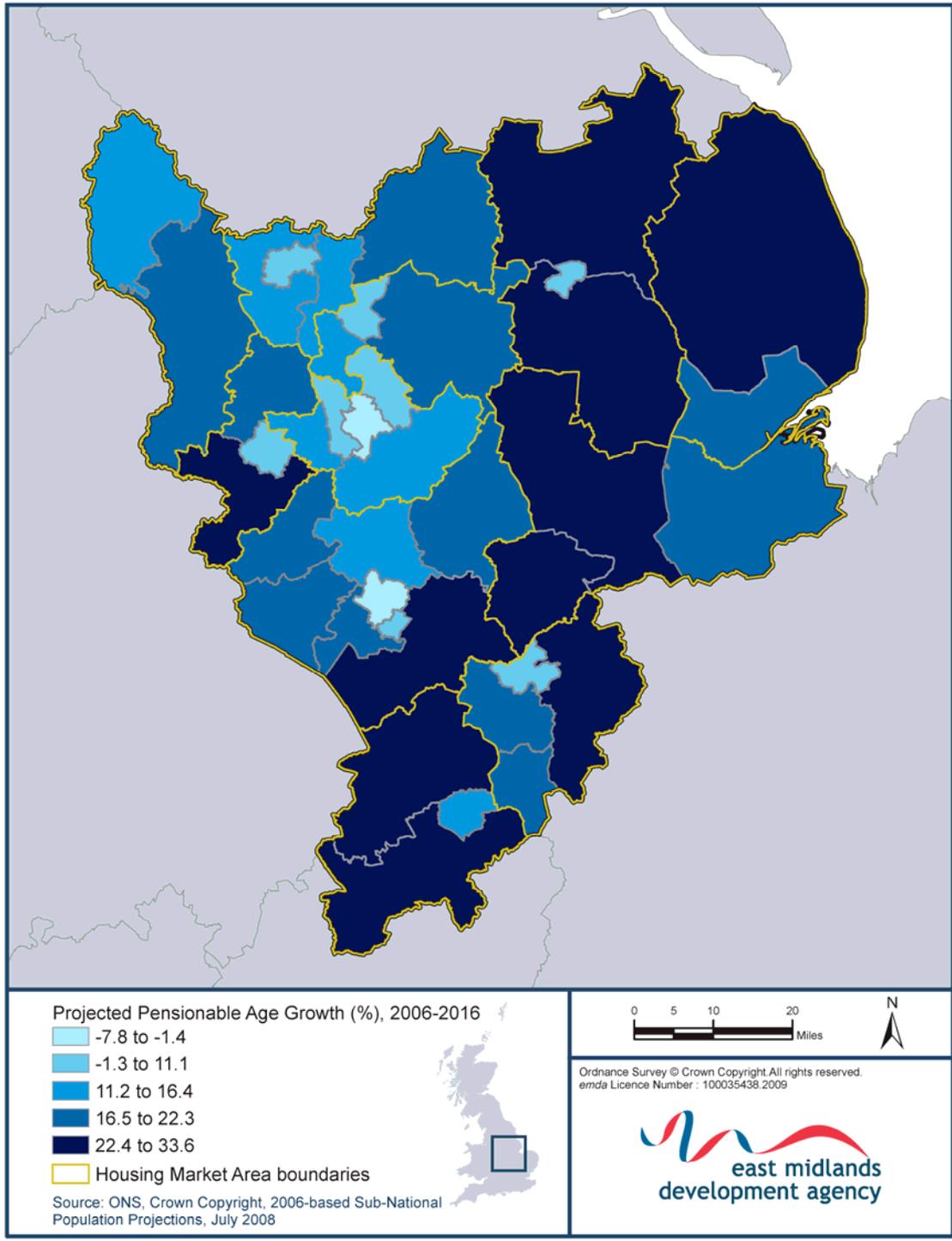
Maps 7 and 8 illustrate growth rates for the working age and pensionable age population groups by Local Authority District (school age is not shown as there is less variation in growth between most districts, with the exception of the strong growth in Leicester City and negative growth in parts of Lincolnshire). Map 7 shows that the fastest growth rates in the working age population could be in the south of the region and west Lincolnshire. South Northamptonshire is projected to experience a growth in its working age group of 21.4% between 2006 and 2016 and North Kesteven is expected to experience a growth rate of 16.2% in this group. South Derbyshire is also projected to experience strong growth in its working age population, at 18.8%. The slowest growth rates in this age group are projected to be in the far north of the region, with the working age population shrinking by -0.2% in the Derbyshire Dales over the decade.

Map 8 shows that the fastest rates of growth for the pensionable age group are projected for districts across Lincolnshire, but also in other more rural parts of the region, especially in the south. East Northamptonshire is projected to experience a growth rate of 33.6% for the pensionable age group, whilst this group in West Lindsey is projected to grow by 27.6% over the decade to 2016. The slowest rates of growth are again projected to be in the north of the region, but also in the three cities, with the pensionable age group in Nottingham City projected to decline by -7.8% over the decade.

**Map 7: Projected population growth for the working age group, 2006-2016 (%)**



**Map 8: Projected population growth for the pensionable age group, 2006-2016 (%)**



### 4.3 Impact of changing age profile on dependency ratios in the region

**Chart 34: Estimated and projected age structure of the East Midlands population: mid-2008 & mid-2031**

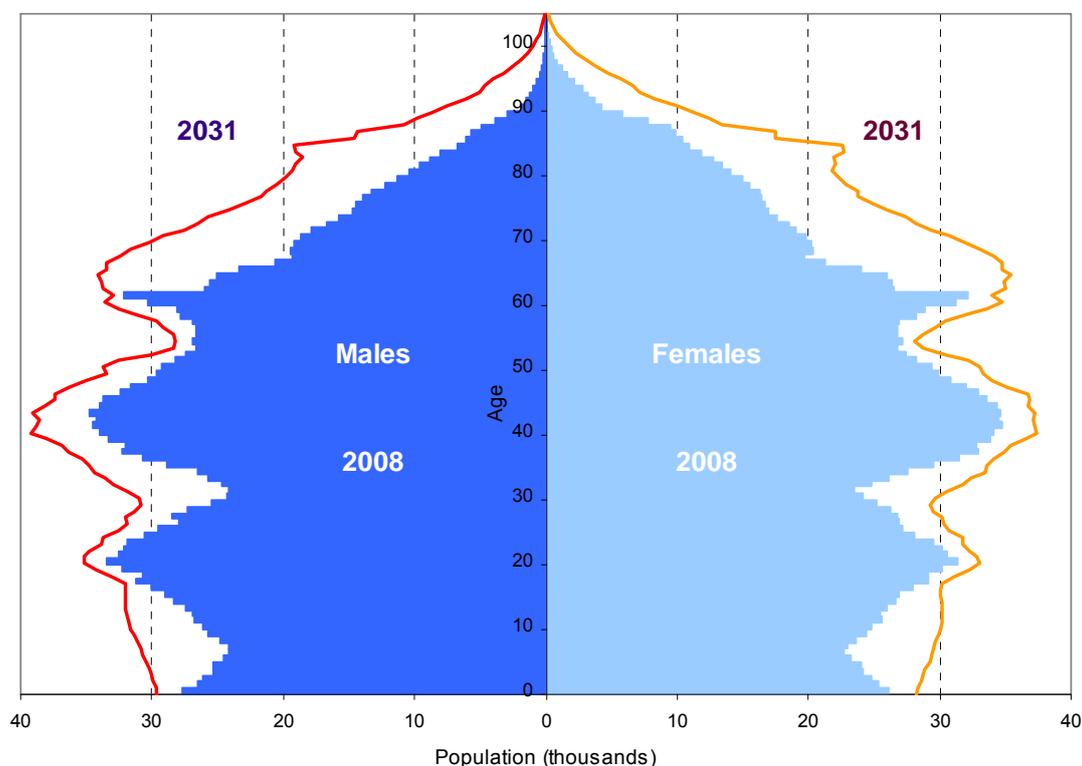


Chart 34 illustrates the long-term impacts implied by the 2006-based SNPP on the age profile of the East Midlands population, compared to the 2008 profile described earlier in this chapter. This chart shows that, although all age bands are projected to increase, the largest increases are to be expected amongst the upper age bands:

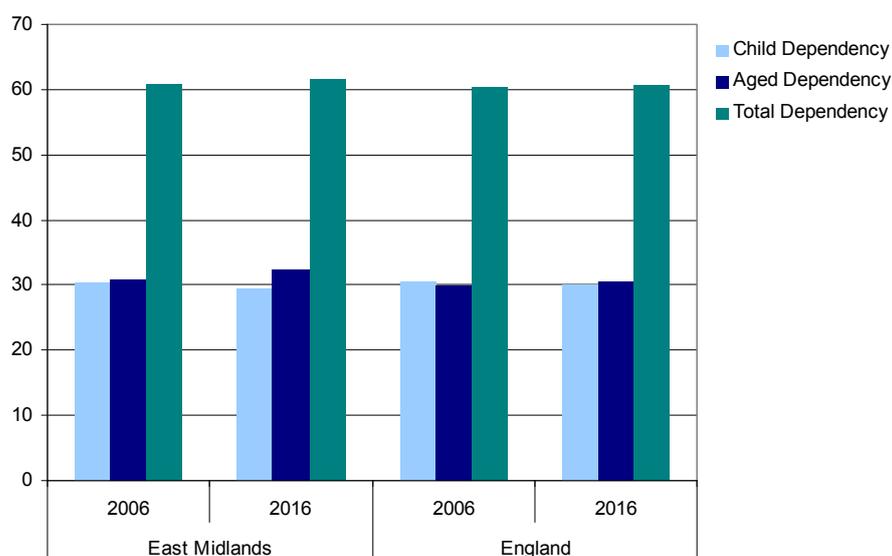
- The age groups that are projected to increase by the most, both in volume and percentage terms, are all in the upper age ranges. The 65-69 year old age group could increase by 121,400 individuals to 329,600, a growth of 58% between 2008 and 2031 (compared to a growth of 23% for all age groups over the period 2008-2031);
- Each subsequent age group is projected to increase by at least 50%, with the two oldest 5-year bands, 80-84 and 85 and over, projected to increase by 92% (or 98,800 additional individuals) and 137% (131,200 additional individuals) respectively; and
- Although growth in the younger age groups is projected to be less significant, there are a number of younger age bands projected to experience above average growth. In line with recent increasing birth rates, the 5-9 year age group is projected to increase by 25% (or 61,000 additional individuals), whilst 30-34 year olds are projected to increase by 26% (an additional 66,500 individuals).

Dependency ratios provide a useful means of assessing the impact of an area's changing age structure on its ability to support those parts of the

population that are 'dependent' on the working age group – i.e. children and pensioners. Through the three broad age groups used above, dependency ratios are calculated as follows:

- 'Child dependency': the school age group as a proportion of the working age group (school age/working age x 100);
- 'Aged dependency': the pensionable age group as a proportion of the working age group (pensionable age/working age x 100); and
- 'Total dependency': the sum of the school age and the pensionable age groups as a proportion of the working age group ((school age + pensionable age)/working age x 100).

**Chart 35: Dependency ratios in the East Midlands and England, 2006 and 2016**

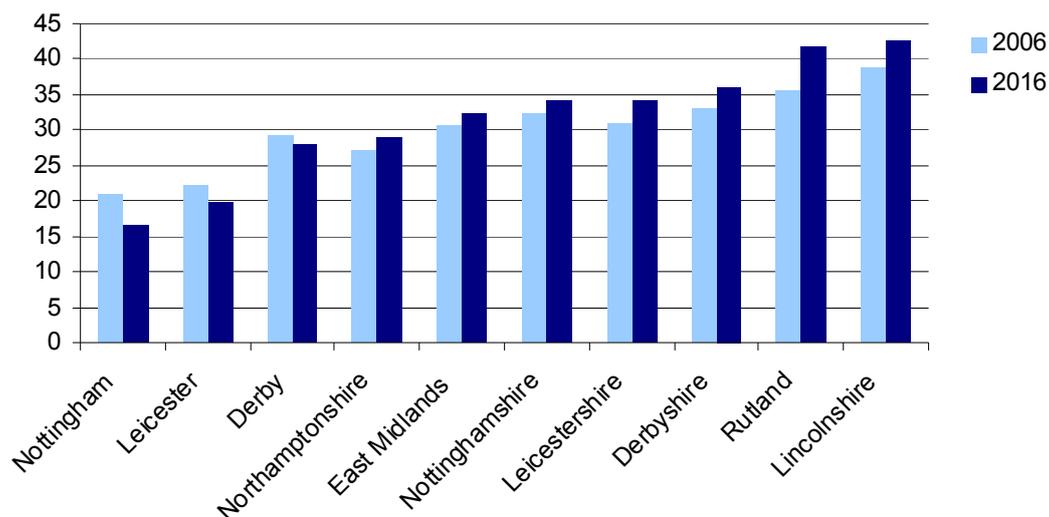


Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', June 2008.

Chart 35 shows that in the East Midlands aged dependency will increase significantly, whilst changes in child and total dependency ratios will be very slight.

Child dependency is projected to decrease in both the East Midlands and in England overall, as the working age population will grow more rapidly than the school age population over the decade. In the East Midlands, child dependency was 30.2% in 2006, and could fall to 29.4% in 2016 – compared to 30.6% (2006) and 30.1% (2016) in England overall. Aged dependency could increase from 30.8% to 32.3% in the East Midlands over the decade, compared to an increase from 29.9% to 30.6% in England overall. The outcome of these two trends is that total dependency could increase from 61% to 61.6% in the East Midlands, but could only increase by 0.2 percentage points to 60.7% in England overall.

**Chart 36: Aged dependency by County/UA, 2006-2016**



Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', June 2008.

Looking at dependency within the region, Chart 36 shows aged dependency ratios for the County and Unitary Authorities – as it is in aged dependency that the largest changes are projected to occur in most authorities. This shows a clear difference between rural and urban Local Authorities in the region:

- Lincolnshire and Rutland are both projected to experience considerable increases in their aged dependency ratios over the decade – from 38.8% to 42.7% in Lincolnshire and from 35.5% to 41.9% in Rutland. These future changes in the balance of dependency are likely to have implications for both service provision and levels of economic activity; and
- Nottingham, Leicester and Derby Cities are all projected to experience a decrease in aged dependency. Aged dependency in Nottingham could decrease from 20.8% in 2006 to 16.5% in 2016, in Leicester it could fall from 22.1% to 19.7% and in Derby it could fall from 29.2% to 28%. This could lead to a decrease in total dependency ratios in all three cities. In the case of Leicester City, the strong growth in the school age population (and resulting increase in child dependency) could mean that the decrease in total dependency is slight.

### **Key Points: Projections of future population change**

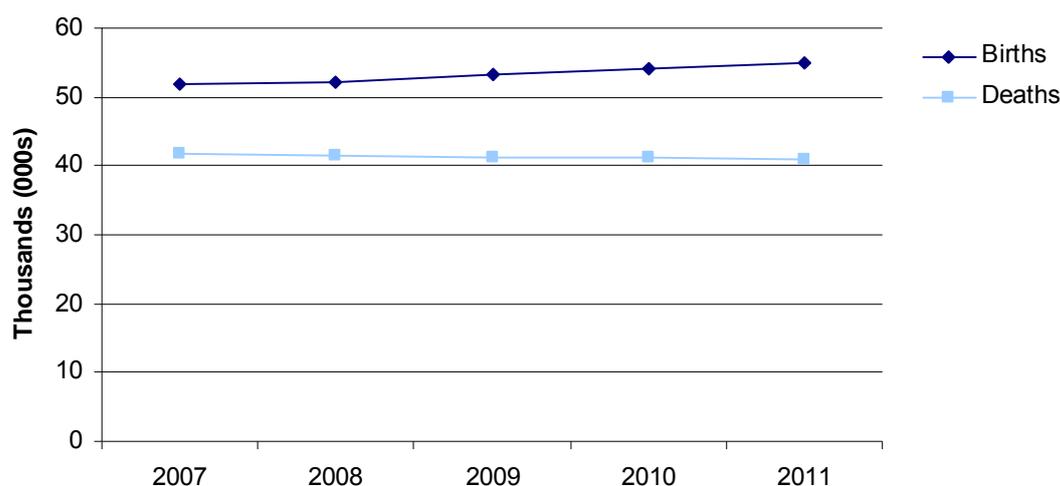
- The East Midlands is projected to experience the fastest population growth of any English region between 2006 and 2016, at a rate of 10.5% compared to 7.8% in England overall. This is equivalent to an additional 0.5 million residents over the decade.
- Northamptonshire is projected to be the fastest growing County or Unitary Authority. This is one of the fastest rates of growth of any Local Authority in England.
- Of the region's HMAs, West Northamptonshire is projected to grow at the fastest rate, at 15.3% over the decade. The Peak, Dales & Park HMA is projected to grow at the slowest rate, at 6.1%.
- The East Midlands is projected to experience the fastest growth of any English region in both the pensionable age and the working age groups. Between 2006 and 2016, the proportion of all East Midlands residents in the school age group could decrease from 18.8% to 18.2%, the proportion of the population in the working age group could also decrease from 62.1% to 61.9%, and the proportion in the pensionable age group could increase from 19.1% to 20%.
- Northamptonshire and Lincolnshire are both projected to experience strong growth in the pensionable age and working age groups, whilst both Nottingham and Leicester Cities are projected to experience a fall in the pensionable age group.
- The growth of the pensionable age group in the East Midlands overall could have significant implications for dependency in the region. Within the region, this could affect Lincolnshire and Rutland the most, whilst Nottingham, Leicester and Derby Cities could all see a decrease in aged dependency ratios.

### **4.4 Components of future population change**

The 2006-based Sub-National Population Projections include tables on components of population change, enabling a discussion of the possible balance between natural change and migration in population growth in the future. Again it is important to emphasise that these data are based on recent trends, and do not account for the impact of future policy changes (such as immigration policy), housing or infrastructure development. They only indicate what could happen if recently observed trends were to continue.

Chart 37 shows births and deaths in the East Midlands projected five years on from 2006. This shows that the contribution of natural change is likely to grow over time, as the number of deaths continues to fall with increasing life expectancy, and the number of births continues to increase. This means that the net contribution of natural change to the regional population could increase from 10,200 additional residents in 2007 to 14,000 in 2011, and to 15,800 by 2016. This trend of increasing births rates and falling death rates is also projected for England overall.

**Chart 37: Projected births and deaths in the East Midlands, 2007-2011 (thousands)**



Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', Table 6: Natural change and Migration summaries', June 2008.

However, it is important to emphasise that this trend cannot be isolated from migration. As stated earlier, migration affects the balance of births and deaths because migrants have different age profiles than non-migrants. Migrants that have moved to most parts of the region are significantly younger than non-migrants, and thus have higher fertility rates (with exceptions such as parts of Lincolnshire and Rutland, which have experienced significant in-migration of older people). This is because a large proportion of migration is for economic reasons, so migrants tend to be in fertile age groups. Work done for *emda* by Experian in 2007 demonstrated that the overall impact of migration has been to decrease the average age of the region's population.<sup>18</sup>

A key area of discussion around the 2006-based SNPP has been the impact that post-2004 migration from the Central and Eastern European Accession states may have had on skewing the projected extent of inward international migration. It has been suggested that including 2 years of above trend international migration in the 5 years preceding the 2006 base year in the latest SNPP could provide a higher net international migration component than is reasonably likely to occur, given the likelihood (also supported by recent administrative data) that A8 migration to the UK, and to the East Midlands, will begin to tail off. In response to this it is important to confirm two decisions taken by the ONS in producing the 2006-based SNPP, which effectively render such concerns unjustified:

<sup>18</sup> Experian, on behalf of *emda*, 'The Contribution of Migration Flows to Demographic Change in the East Midlands', March 2007.

International migration has increased the working age population in the region, whilst the outflow of older people overseas has also mitigated the ageing of the region's population. Whilst internal migration has acted to push up aged dependency ratios it has done so only marginally, as the region as a whole has been subject to substantial inflows of working age people from other regions as well as those of pensionable age. Nottingham and Leicester have witnessed a significant decline in the pensionable age population as a consequence of internal migration, while rural areas (particularly Rutland and Lincolnshire) have experienced an increase in both the working age and pensionable age population as a result.

- The projections only include long-term migrants (resident for more than one year). A large proportion of A8 migrants are treated as short-term migrants – and as thus not counted in the SNPP. The proportion classed as short or long-term migrants is based on figures used in the Mid-Year Population Estimates; and
- Furthermore, the SNPP sets international migration to tail off to nil-net migration (where out-migration equals in-migration) by 2012.

At a UK level, the Government Actuary's Department (GAD) and the ONS have published a number of variants on the 2006-based projections. In producing a zero net migration variant, the ONS demonstrate that migration has been the principal driver of the increasing contribution of natural change for this reason: even with zero net migration (i.e. in-migration artificially set to equal out-migration), some 69% of the projected population growth for the UK to 2031 would be directly or indirectly attributable to future net migration of all types.<sup>19</sup>

Chart 38 shows projected trends for inward and outward migration from the 2006-based Sub-National Population Projections for the East Midlands. This shows that inward international migration<sup>20</sup> to the region is projected to level off from 2008. The trend in outward international migration is projected to increase very slightly. Therefore, there will be a positive net gain from international migration of around 20,000 each year.

In terms of internal migration (from other English regions), both the inflow and the outflow are projected to increase, but, as Chart 38 illustrates, the outflow is projected to increase at a slightly faster rate, meaning that the balance of net internal migration will decrease. In 2007, the projections include 107,700 inward migrants from other English regions in that year, increasing to 111,500 by 2011 (an increase of 3,800). Outward migration to other English regions increases from 91,200 in 2007 to 96,500 (an increase of 5,300).

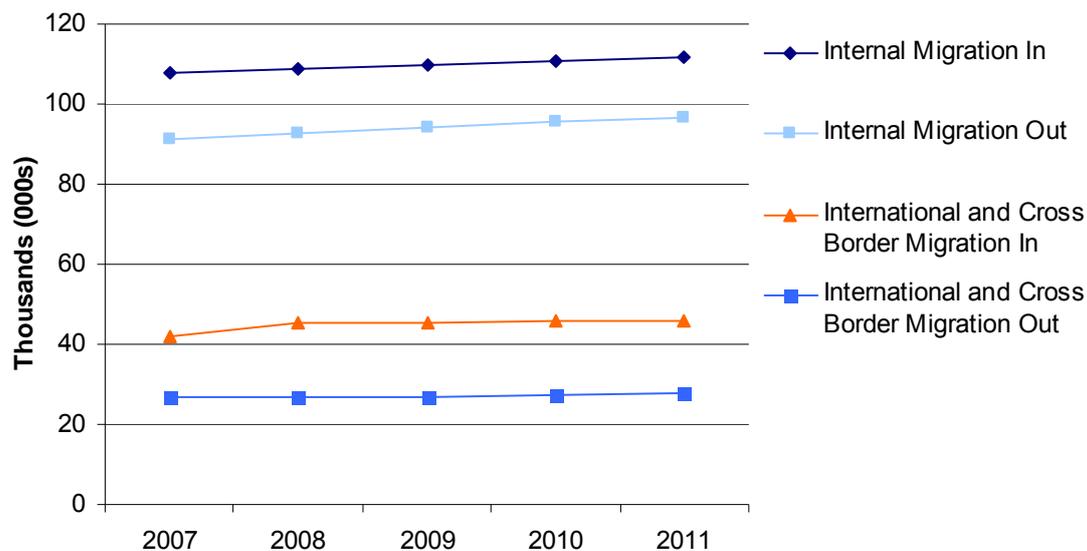
When international and internal migration flows are combined, the net contribution of migration peaks in 2008 (with the peak in the trend in international migration) at 34,900 additional residents that year, before decreasing year on year to 32,800 in 2011. By 2016, net migration is expected to decrease to 31,300.

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<sup>19</sup> Government Actuary's Department, 'Migration and Population Growth', article accompanying the 2006-based national population projections, 2007.

<sup>20</sup> This includes cross-border migration from other UK nations.

**Chart 38: Projected internal and international migration in the East Midlands, 2007-2011 (thousands)**

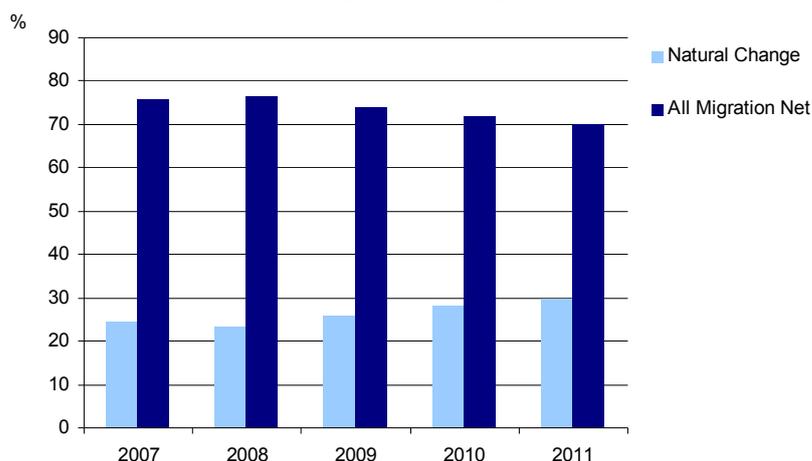


Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', Table 6: Natural Change and Migration Summaries', June 2008.

Chart 39 looks at the two components together, demonstrating the changing relative contribution over the five year period for which data is published. This shows that the balance of natural change compared to migration (both internal and international) is projected to shift over the period. The contribution of natural change could increase from 24.3% of total net population growth in 2007 to 29.9% in 2011. By 2016 it is projected to increase to 33.5%. However, it is still important to note that migration would still contribute by far the larger share in these projections (from three quarters in 2007 to two thirds by 2016), and, as stated above, is a key driver for increasing natural change (with migrants contributing to higher birth rates and lower death rates).

This trend is also the case in England overall, but to a lesser extent. It is important to note that the balance between the components is quite different, as the migration component for England does not include the internal migration between English regions (as this obviously does not affect the net change). In England over the period 2007 to 2011, the share of natural change in total population growth increases slightly from 53.7% to 54%, whilst migration decreases from 46.3% to 46%.

**Chart 39: Projected share of total annual population change in the East Midlands, natural change and migration (%)**

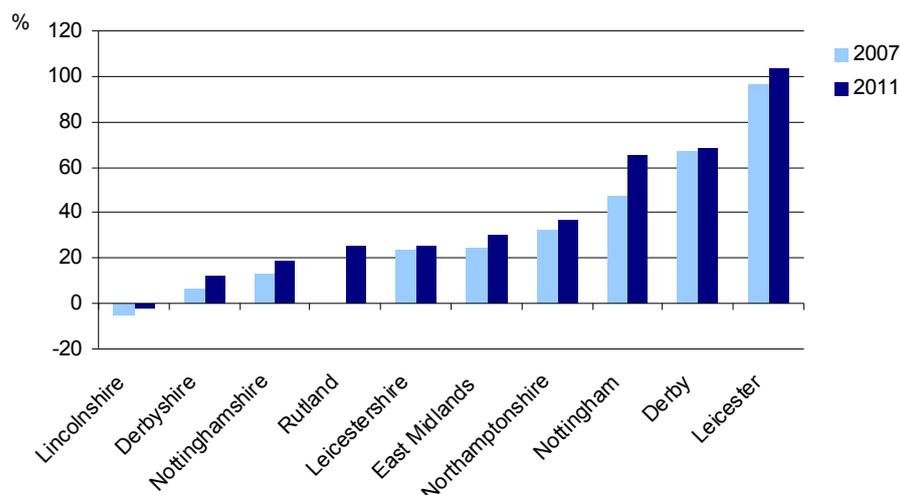


Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', Table 6: Natural change and Migration summaries...', June 2008.

Chart 40 summarises the changing balance between natural change and migration in the future for the region's County and Unitary Authorities by showing the proportion of total net growth accounted for by natural change alone, comparing the years 2007 to 2011. This shows that natural change could account for an increasing proportion of annual growth in 2011 compared to 2007 in all cases except for Lincolnshire (where, conversely, migration is increasing in relative terms):

- Leicester City is projected to experience negative net migration by 2011, losing around 100 people in the year. This is counteracted by natural change of 3,200 in 2011 (103% of total growth in that year);
- Nottingham and Derby are both projected to experience positive net migration, but this could decrease in relative share of total population growth over the period. Nottingham is projected to experience an absolute decline in net migration, from 1,900 additional residents in 2007 to 1,300 in 2011. Conversely, natural change in Nottingham is projected to increase from 1,700 to 2,500 between 2007 and 2011 (or from 47.2% to 65.8% of total annual growth);
- In Derby, migration is projected to increase between 2007 and 2011 – but the rate of growth is significantly lower than natural change. This means that the contribution of natural change in Derby could increase from 66.7% to 68.4% over five years. These trends in Nottingham and Derby are due to the young age profiles of both cities (and thus higher fertility) and out-migration of older people (leading to declining death rates); and
- In the other extreme, Lincolnshire – which is projected to experience the second fastest rate of total population in the region – is also projected to have a negative natural change contribution. Thus the full extent of population growth in the county could be driven by migration, which will account for 104.7% and 102.2% of total population growth in 2007 and 2011. This reflects the higher age profile of residents (especially in the Lincolnshire Coast) and thus lower fertility and higher death rates compared to elsewhere in the region.

**Chart 40: Projected share of total annual population growth accounted for by natural change by County/UA, 2007 and 2011 (%)**



Source: ONS Crown Copyright, '2006-Based Sub-National Population Projections', Table 6: Natural change and Migration summaries...', June 2008.

#### **Key Points: Components of future population change**

- The 2006-based projections suggest that the contribution of natural change to overall population growth is likely to grow over the next decade, with continued falls in the number of deaths and increasing birth rates. However, this trend cannot be separated from migration – as the two components are interdependent. Migrants tend to be younger, and more likely to start families, so migration is a factor in increasing net natural change.
- In the East Midlands, the contribution of natural change to total population growth will increase from 24.3% in 2007 to 33.5% in 2016. However, it is clear from this that migration will still continue to account for the largest share of population growth.
- Inward international migration to the region is projected to increase between 2006 and 2008, but then level off. Outward international migration is projected to increase slightly.
- In the case of internal migration between other English regions, both the outflow and inflow are projected to increase, but the outflow is projected to increase at a faster rate. This means that total net migration will make a decreasing, but still very significant, contribution to population growth over the decade 2006-2016.
- Leicester City is projected to experience net out-migration, which is counteracted by the increasing net contribution of natural change. Lincolnshire is projected to experience negative natural change alongside strong levels of migration.

## 5. Conclusions

Although the East Midlands has a relatively small population (4.4 million, or 8.6% of the total English population), it has experienced significant population growth in recent years. It is the only one of the northern or midlands regions to have experienced population growth in excess of the national average. However, the East Midlands remains one of the most sparsely populated regions in England, and much of this recent growth has been in more rural areas. The most densely populated areas of the region have experienced only modest rates of growth (Leicester, Nottingham and Derby).

In the future, the East Midlands is forecast to experience the fastest population growth of any English region. This growth is projected to be concentrated in the south and east of the region and in the more rural areas. The HMAs of West Northamptonshire, Central Lincolnshire, North Northamptonshire and Coastal Lincolnshire are projected to grow at particularly fast rates. Significant growth in rural areas to the south and east, and slower growth in the cities and the more urbanised north of the region suggests that the region's population could become increasingly dispersed if recent trends continue.

Although areas in Northamptonshire are projected to experience significant growth in their working age population, much of the growth in Lincolnshire and other more rural areas will be driven by the pensionable age group. This will have implications for economic activity, service provision, the type of dwellings required, and the kind of infrastructure required to support them. The age profile of the East Midlands is already slightly older than in England overall, but population projections suggest that this difference will become more significant over time.

However, it is important not to overstate the ageing population as a region-wide phenomenon. Strong growth in the working age population means that aged dependency will remain stable around the three cities and in the south of the region. Conversely, Leicester is projected to become younger over time, as high birth rates will contribute to the city being one of the few areas in England to experience a growing school age group. Population ageing is therefore a challenge that is likely to affect coastal Lincolnshire and parts of Derbyshire much more than the rest of the region.

In other parts of the region, the consequence of recent and forecast population changes is increased ethnic diversity. Overall, numbers of people who would categorise themselves as belonging to a BME group have grown faster than people who would categorise themselves as 'White'. Growth in the BME population has accounted for the largest share of overall population growth in some parts of the region, such as Leicester City. BME groups tend to have a much younger age profile than average, so this is associated with the increase in the school age group.

Migration has contributed to a more diverse and younger population in the East Midlands, and international migration has acted to slow population ageing in areas like Lincolnshire. However, with the exception of areas with

large student populations, such as Nottingham City and Broxtowe district, the scale of migration from other parts of the UK significantly outweighs the scale of international migration.

According to the most recent data, growth in migration appears to be levelling off. The final significant development observed in this chapter, therefore, has been the increasing contribution of natural change to overall population growth. As the region's birth rate increases, and the number of deaths falls year-on-year, natural change has accounted for an increasing share of population growth compared to migration, and is forecast to continue to do so. However, the two components cannot be separated, as migrants, being younger and thus more likely to start families, are a key driver of the increasing positive contribution of natural change.

In summary, recent population trends have seen the East Midlands become more dispersed and more diverse. Some of the areas that have experienced the largest population growth rates are more rural, and, in the case of coastal Lincolnshire, less well connected to the region's economic and administrative centres. These areas have also experienced the greatest growth in their pensionable age populations, whilst the working age has continued to grow in the better connected south and the three cities. The East Midlands has also undoubtedly been one of the fastest growing regions in England over the last 10 years, and if past trends continue, it will be the fastest growing region in future years.

## Annex 1: Spatial definitions

There are a number of different spatial definitions used to describe trends in the size and nature of the population and housing in the region. All are based on existing administrative areas, to ensure availability of consistent and comparable data. At the highest geographical level, the nine English Government Office Regions will be used to compare trends in the East Midlands to trends elsewhere in England.

Within the East Midlands, the top level of sub-regional comparison will be the nine County and Unitary Authority areas. To identify more detailed spatial variations, key variables for the 36 Local Authority Districts (plus the 4 Unitary Authorities) will be illustrated on thematically shaded maps. In certain cases, broad comparisons will be made on an additional aggregation of Local Authority Districts and Unitary Authorities – the urban and rural district classification published by the Department for the Environment, Food and Rural Affairs (Defra).

The urban and rural district classification is one of two approaches for defining rurality recommended by Defra. In 2004, a classification was developed, based on Census Output Areas that identified settlement types and then measured how 'sparse' that area was, in terms of population density. This hierarchical 'settlement morphology' grouped Output Areas as urban or rural, then 'sparse' or 'less sparse', and then, for the rural OAs, into settlements such as 'small town and fringe', 'village', or 'dispersed'. Defra recommend the OA classification for measuring population (such as the proportion of population living in rural settlements), but recognise that it can only be used for data that is available at OA level – principally Census or administrative data (such as benefit claimants).<sup>21</sup> For the purposes of comparisons over time and for use with sample surveys, Defra also commissioned a Local Authority District-based classification, which is used more widely in 'The East Midlands in 2010'. However, this second approach needs to be used with caution, as it classifies an entire district according to its dominant settlement type (so a 'Rural 80' district describes an area where at least 80% of the population live in rural areas – although up to 20% could live in settlements that could be described as 'urban').

In the district classification there are six urban/rural Local Authority (LA) Classifications:

Major Urban – which covers Local Authorities with either 100,000 people or 50% of their population living in urban settlements with a population greater than 750,000 (there are no Major Urban LAs in the East Midlands);

Large Urban – with either 50,000 people or 50% of population in urban settlements with between 250,000 and 750,000 people (there are 7 Large Urban LAs in the East Midlands);

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<sup>21</sup> See The Countryside Agency, Defra, ODPM, ONS, Welsh Assembly Government, 'Rural and Urban Area Classification 2004: An Introductory Guide', April 2005.

Other Urban – with less than 37,000 people or less than 26% of their population in rural settlements or market towns (there are 8 Other Urban LAs in the East Midlands);

Significant Rural – with more than 37,000 people or more than 26% of their population in rural settlements or market towns (there are 7 Significant Rural LAs in the East Midlands);

Rural-50 with at least 50% but less than 80% of their population in rural settlements and market towns (there are 8 Rural-50 LAs in the East Midlands), and;

Rural-80 – with at least 80% of their population in rural settlements and market towns (there are 10 Rural-80 LAs in the East Midlands).

A final level of geography covered in the Evidence Base is the Housing Market Areas (HMAs), which are: “geographical areas defined by household demand and preferences for housing. They reflect the key functional linkages between places where people live and work.”<sup>22</sup> HMAs are aggregations of Unitary and Local Authority Districts used in the Regional Spatial Strategy (RSS). They cover an area containing the majority (70%) of all household moves and have a close relationship to sub-regional labour markets.<sup>23</sup> Table 1 and Map 1 show the LAs covered by each HMA.

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<sup>22</sup> Communities and Local Government, ‘*Identifying Sub-Regional Housing Market Areas Advice Note*’, 2007.

<sup>23</sup> DTZ Pieda Consulting, on behalf of the East Midlands Regional Assembly and the East Midlands Regional Housing Board, ‘*Identifying the Sub-Regional Housing Markets of the East Midlands*’, April 2005.

**Table 1: East Midlands Regional Spatial Strategy Housing Market Areas (HMAs)**

HMA	Local Authority Districts/Unitary Authorities
<b>Central Lincolnshire</b>	Lincoln
	North Kesteven
	West Lindsey
<b>Coastal Lincolnshire</b>	Boston
	East Lindsey
<b>Derby</b>	Derby
	Amber Valley
	South Derbyshire
<b>Leicester &amp; Leicestershire</b>	Leicester
	Blaby
	Charnwood
	Harborough
	Hinckley and Bosworth
	Melton
	North West Leicestershire
	Oadby and Wigston
<b>North Northamptonshire</b>	Corby
	Kettering
	Wellingborough
	East Northamptonshire
<b>Northern (Sheffield/Rotherham)</b>	Bolsover
	Chesterfield
	North East Derbyshire
	Bassetlaw
<b>Nottingham Core</b>	Erewash
	Nottingham
	Broxtowe
	Gedling
	Rushcliffe
<b>Nottingham Outer</b>	Ashfield
	Mansfield
	Newark and Sherwood
<b>Peak, Dales &amp; Park</b>	Derbyshire Dales
	High Peak (plus Peak District National Park Area)
<b>Peterborough Partial</b>	Rutland
	South Holland
	South Kesteven
<b>Northampton (West Northamptonshire)</b>	Northampton
	Daventry
	South Northamptonshire

Source: Intelligence East Midlands, on behalf of the East Midlands Regional Assembly, 'East Midlands Regional Plan – annual monitoring report 2006/7', 2008.

**Map 1: The East Midlands Housing Market Areas (HMAs)**



## 2. Housing in the East Midlands

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# Housing in the East Midlands

## 2.1 Introduction

This Chapter looks at the demand for and supply of housing in the East Midlands. It uses the same spatial definitions as used in Chapter 1: the nine English Government Office Regions, County and Unitary Authorities and other aggregations of Local Authority Districts, including Housing Market Areas (HMAs) and urban and rural district classifications.

The housing market and the housing decisions taken by individuals and families are influenced by a combination of social, financial, and practical factors. This combination of factors means that clear relationships between demographic changes and demand for housing in a given location can rarely be identified. Even where a given trend is clear the housing outcomes can be complex. For instance, in-migration to an area because of the creation of new jobs could result in overcrowding or occupation of unfit dwellings, rather than a demand for new dwellings if the new jobs are poorly paid.

However, in order to plan for future housing development, it is important to have an understanding of all these factors and possible outcomes. Policy can be informed by identifying areas of likely housing pressure and concerns for affordability, and the extent to which current plans are likely to ease these pressures. An understanding of the demographic changes covered in Chapter 1 could also inform the type of housing likely to be required, such as the particular housing requirements of an ageing population in parts of Lincolnshire compared to a young population in Leicester City.

Section two of this Chapter will provide an introduction to the policy context for housing in England, and summarises some policy priorities in the East Midlands. The overriding policy objective is the Government's challenging target for house building across the UK in order to alleviate increasing affordability problems. The framework for this objective is provided by Planning Policy Statement (PPS) 3. The principal aim of PPS3 is to enable everyone to have the opportunity to buy or rent a decent home at an affordable price. It requires planning authorities to plan for affordable housing and to take into account the accommodation required by different household types. More recently, PPS4 emphasises the Government's view that sustainable development can best be achieved by concentrating new developments around existing infrastructure. Other recent developments have raised the importance of the quality of housing stock, including targets to increase the proportion of households assessed as 'decent'. Also, housing policy has increasingly become part of a broader place shaping agenda, where design of new developments should include a more holistic consideration of relationships with roads, footpaths and public spaces, and should encourage a sense of security and community identity. Finally, housing development is an important tool in moving towards a lower carbon future, and the aim of current policy is that new housing should increasingly meet sustainability performance standards.

Section three assesses trends and projections of the number of households and their composition. The East Midlands has the second smallest number of households out of the nine English regions but has experienced an above average rate of growth. The region is also projected to grow at a faster rate than any other English region in the future. Within the East Midlands, the West Northamptonshire HMA is projected to grow at the fastest rate between 2006 and 2016 whilst the Northern HMA is projected to grow the least. Generally, the more rural parts of the region are projected to grow at significantly faster rates than urban areas. Households are projected to get smaller over time, with one-person households growing at a particularly strong rate.

Section four provides an overview of housing supply by considering trends in the stock of dwellings. The East Midlands also has the second smallest number of dwellings out of the English regions, but this stock has increased at the second fastest rate out of the nine English regions between 1998 and 2008. Owner-occupied dwellings make up the largest share of stock in the region, but the number of dwellings rented from Registered Social Landlords has grown most rapidly over the last decade. This is principally due to transfer from Local Authority tenure.

Section five analyses recent trends in the housing market and outcomes in affordability. Up until 2008, house sales in the East Midlands grew at an above average rate but house prices increased in line with the national trend. With the onset of recession, house sales fell significantly in all regions. The recession also impacted upon house prices, with mean prices falling more rapidly between 2007 and 2008 in the East Midlands than nationally. More recent data also suggests that house prices in the East Midlands have also recovered less rapidly than elsewhere in the country through 2009.

Section six describes the condition of housing stock in the region. A slightly higher proportion of households lived in 'non-decent' dwellings in the East Midlands than in England overall, and unemployed or lone-person households in the region were particularly likely to be in 'non-decent' accommodation. However, households in the East Midlands were more likely to be satisfied with their accommodation than average, and less likely to be living in over-crowded or damp accommodation.

The final section goes on to summarise recent trends in house building, and notes that the net additions to housing stock in the East Midlands have decreased more in the last year, with the impact of recession, compared to other regions. Annual levels of net additions in the region are also significantly lower than the number of new dwellings implied by the housing and population projections. Finally, section seven looks at the quality of design and construction in the region, and how far this has met some of the objectives set out in recent government policy. An assessment of recent developments found that the East Midlands had the highest proportion of developments assessed as having 'poor' design standards of all nine regions, presenting significant challenges for policy makers in increasing the standard of design in the future.

## 2.2 The policy context for housing

### 2.2.1 National policy

The overriding policy priorities for housing in England are set out in the Government's housing Green Paper, 'Homes for the Future'. This responded to an independent review carried out by Kate Barker for the Chancellor of the Exchequer and Deputy Prime Minister, which recommended an ambitious programme of house building to alleviate the worsening problems of affordability.<sup>1</sup> By 2004, the average house price had increased to over eight times the average annual salary, which, the Government argued, was in part due to a historic shortfall in housing completions. Annual completions in England are almost half the 350,000 achieved in the late 1960s. With a growing population, this has caused demand to grow faster than supply, leading house prices to double between 1997 and 2007, and to rise more quickly than earnings in all regions.<sup>2</sup> The Government's policy response was to set a target for house building in England to rise over time to 240,000 additional homes a year by 2016, compared to estimates of 185,000 per year when strategy was published. Due to the impact of recession on the housing market and the construction sector, build rates are believed to have fallen significantly through 2008 and 2009. In total the Government identified a need for 3 million new homes by 2020, 2 million of which should be provided by 2016.

The Government's housing policy is implemented through planning policy statements (PPSs), with PPS3 setting out the planning policy framework for delivering the Government's housing objectives. The principal aim of PPS3 is to enable everyone to have the opportunity to buy or rent a decent home at a price they can afford, and in a place where they would want to live. If these objectives are to be met, it is expected that there will need to be a step-change in housing delivery to the scale set out in the 'Homes for the Future' Green Paper.

PPS3 sets the requirement for local planning authorities to identify and maintain a rolling five-year supply of deliverable land for housing. A key concept in PPS3 is one of achieving the right 'mix' of housing. Housing Market Areas should include some homes that are affordable and some that are at the market value, to widen the opportunities for home ownership, particularly for those who are vulnerable, and "address the requirements of the community". To plan for this 'mix' of housing, local planning authorities should develop a view of the different types of households likely to require housing during the planning period. In doing this, they should have regard to future demographic trends in order to accommodate the requirements of particular household types, such as families with children, disabled people and older people. This should inform the size and type of affordable housing

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<sup>1</sup> Kate Barker, on behalf of the Office of the Deputy Prime Minister and HM Treasury, 'Review of Housing Supply – Delivering Stability: Securing our Future Housing Needs', March 2004.

<sup>2</sup> Department for Communities and Local Government, Green Paper, 'Homes for the Future: more affordable, more sustainable', July 2007.

needed and the range of circumstances in which affordable housing will be required.

Housing policy is not just concerned with achieving a quantity of homes that meets demand and stabilises affordability, it is also increasingly concerned with ensuring a level of quality in housing stock. A key aspect of this is the concept of 'decent' housing. The 'Decent Homes Standard' is a minimum standard, initially applied to social housing and then extended to the private rented sector in 2002. A 'decent' home should be warm, weatherproof and have reasonably modern facilities (for further detail, see Section 2.6 on condition of housing stock). In the case of the private sector, the Government is particularly keen to reduce the number of vulnerable households living in non-decent homes.<sup>3</sup> The Government expects 95% of all social housing to be 'decent' by 2010, which means that delivery agencies will need to refurbish 3.6 million homes by this date.<sup>4</sup> Local Authorities are encouraged to meet this challenge by increased use of other bodies to manage housing stock, or direct transfer of that stock to other organisations. Strategies include: setting up Arm's Length Management Organisations (ALMO) to manage and renovate a council's housing stock; using Private Finance Initiative (PFI) to encourage extra private sector investment in partnership with public finance, and; transferring all or some of the stock to a Registered Social Landlord (RSL), leaving the Local Authority free to focus on more strategic housing functions. The Decent Homes Standard can therefore be seen as one of the policy developments that have contributed to declining stock held by Local Authorities and increasing stock held by RSLs and other organisations.

The importance of high quality building and design is also increasingly emphasised, especially in regards to how housing development can contribute to low carbon and place making/community cohesion objectives. In 1999, the Government established the Commission for Architecture and the Built Environment (CABE) to advise on architecture, urban design and public space. Working with the Home Builders' Federation, CABE produced the 'Building for Life Standards',<sup>5</sup> setting 20 criteria defining good design, which could be used to assess the quality of housing and neighbourhoods. Regional and local planning bodies must now include assessments of the quality of new housing development, using the Building for Life Standards, in their annual monitoring reports. This indicator would report the number and proportion of total new build completions of housing sites assessed as very good, good, average and poor against the 20 Building for Life criteria.<sup>6</sup>

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<sup>3</sup> For the purposes of the Decent Homes Standard, 'vulnerable households' are defined as those in receipt of at least one of the principal means tested or disability related benefits, such as income support or housing benefit.

<sup>4</sup> Communities and Local Government, 'A Decent Home: Definition and Guidance for Implementation – Update', June 2006.

<sup>5</sup> See CABE, 'Building for Life – 2008 Edition', 2008.

<sup>6</sup> The Building for Life Criteria are as follows:

**Environment and Community:** criteria 1-5 – the provision of community facilities (1), a mix of accommodation type (2) and tenure (3) that reflects the needs of the community; access to transport (4) and, features that reduce the environmental impact of the development (5).

**Character:** criteria 6-10 – design that is specific to the scheme (6), use of existing buildings, landscape and topography (7), distinctiveness of character (8), a logical and clear layout (9) and, streets that are defined by a well-structured building layout (10).

## 2.2.2 Regional policy

The current Regional Spatial Strategy (RSS) sets the framework for local strategies to deliver the objectives described in PPS3 and identifies particular regional priorities to direct planning decisions in each region. RSSs do not deal in site specific detail, but instead identify the scale and distribution of new housing across the region. Specific developments at a local level are detailed in Local Development Frameworks.

In the East Midlands, the RSS covers the period up to 2026. It is currently undergoing a process of partial review, but from April 2010 the adopted RSS was combined with the current Regional Economic Strategy to become the interim Regional Strategy, in line with the timetable set out in the policy guidance for the Local Democracy, Economic Development and Construction Act. Currently the RSS includes the following key policy objectives:

- The principal housing policy priority in the RSS is one of urban concentration: “in the next two decades development should be concentrated on the region’s major urban areas in ways that allow cities and towns to work together for mutual benefit while retaining their distinctive identity.” The rationale for this overarching policy is one of sustainability: the RSS argues that by focusing new development in and around centres of existing population, the need for individuals to travel will be reduced, and the impact on the environment will be lessened; and
- The principal of urban concentration is set out in Policy 3, which states that a “major proportion” of new growth should be concentrated in and around the Principal Urban Areas of Derby, Nottingham, Leicester, Northampton and Lincoln. Additionally, “appropriate development of a lesser scale” should be concentrated in towns designated by the RSS as ‘Sub-Regional Centres’, including: Boston, Grantham and Spalding in Lincolnshire; Daventry in Northamptonshire; Chesterfield and Swadlincote in Derbyshire; Mansfield, Ashfield, Ilkeston, Newark, and Worksop in Nottinghamshire; and Coalville, Hinckley, Loughborough, Market Harborough and Melton Mowbray in Leicestershire.<sup>7</sup>

In July 2008, the Government asked the Regional Assembly to undertake a Partial Review of the RSS, in response to both the housing Green Paper and recommendations from the Panel responsible for the RSS Examination in

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**Streets, Parking and Pedestrianisation:** criteria 11-15 – a building layout that takes priority over streets and car parking, so that highways do not dominate (11), well integrated car parking (12), pedestrian, cycle and vehicle-friendly streets (13), integration with existing streets, paths and surrounding development (14) and, public spaces and pedestrian routes that are overlooked and feel safe (15); and

**Design & Construction:** criteria 16-20 – public space that is well designed and suitable managed (16), buildings that exhibit quality architecture (17), internal spaces and layout allow for adaptation, extension or conversion (18), use made of advances in construction technology to enhance performance, quality and attractiveness (19) and, buildings and spaces that outperform statutory minima, such as building regulations.

<sup>7</sup> Government Office for the East Midlands, ‘East Midlands Regional Plan’, March 2009

Public (which reported in November 2007). This included requests to look in detail at the housing implications of the 2006-based population and household projections, affordable housing targets, transport, and issues around development in flood risk areas in Lincolnshire.<sup>8</sup> The Regional Assembly presented Partial Review Options in June 2009 for public consultation, which included a review of the transport strategy elements of the RSS to ensure that transport infrastructure and services meet the needs of a growing population in a sustainable manner.<sup>9</sup> After this consultation, elements of the review that looked at housing numbers were removed from the process, with the exception of housing in coastal Lincolnshire. To inform this, a major Lincolnshire Coastal Study was initiated to examine the scale of development in light of flood risk. The RSS has adopted a precautionary approach that limits housing numbers in the three Lincolnshire coastal districts to existing commitments. The RSS Partial Review was submitted to the Secretary of State in March 2010.

## **2.3 Estimates and projections of households in the East Midlands**

The term 'household' as defined by the ONS in the last Census, refers to one person living alone or a group of people who share the same address with common housekeeping as their only main residence. This is further clarified, for a group of people, as sharing at least one meal a day or sharing living accommodation (a living or sitting room). The occupant(s) of a bedsit who do not share a sitting or living room with anyone else comprise a single household.

Household projections are produced by calculating household formation rates from previous Censuses, and then applying these to the National and Sub-National Population Projections. The sub-national projections are initially made independently of the national projections, and then adjusted for consistency with the national data. Similarly, projections for sub-regional areas are adjusted for consistency with the regional projections.<sup>10</sup> Household projections are not an assessment of housing need and, like the population projections, do not take account of future policies or the capacity of private sector developers to deliver. They are an indication of the likely change in the number of households in the long-term if previous demographic trends continue. The latest household projections were published by the Department for Communities and Local Government (CLG) in March 2009, and are based on the 2006-based Sub-National Population Projections.

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<sup>8</sup> East Midlands Regional Assembly, 'Draft Partial Review Project Plan', October 2009.

<sup>9</sup> East Midlands Regional Assembly, 'Partial Review: Options Consultation', June 2009.

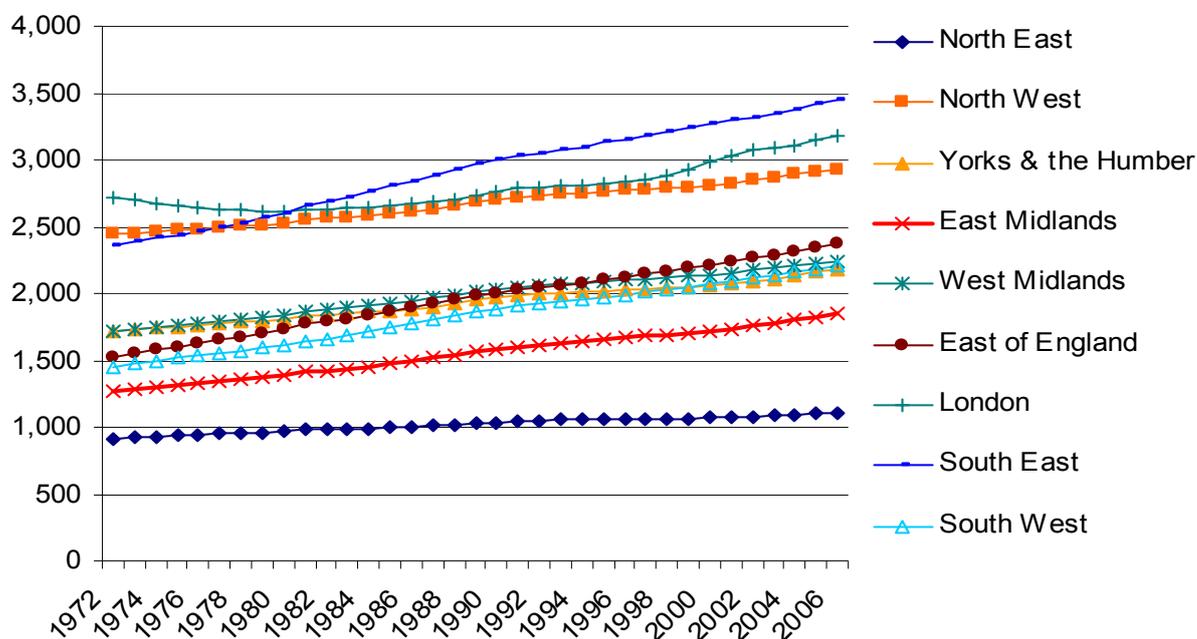
<sup>10</sup> The household projections are quality assured by an independent Advisory Group. This group includes national experts from Anglia Ruskin University, Cambridge University, CLG, Experian, GLA, ONS, NHPAU, Nottingham County Council, Oxford Economics and the University of Reading.

The data sources used for projecting household membership rates are the 2001 Census, special analyses of 10% samples of the 1971, 1981 and 1991 Censuses; the ONS Longitudinal Study samples from the 1971 and 1981 Censuses and the Labour Force Survey (LFS) from 2002 onwards. The LFS is considered the best available source of data about household membership rates after the 2001 Census.

Two further terms are used in conjunction with households: ‘need’ and ‘demand’. PPS3 defines ‘need’ as “the quantity of housing required for households who are unable to access suitable housing without financial assistance,” and ‘demand’ as: “the quantity of housing that households are willing and able to buy or rent.”<sup>11</sup>

The key sources for informing the current and likely future demand for housing are the household estimates and projections published by the Department for Communities and Local Government (CLG). The following sub-section looks at how the number of households has changed historically in the region, the projections for future change at a regional and HMA level, the changing composition of households, and the drivers of likely future change.

**Chart 1: Number of households by English region, 1972-2006 (000s)**



Source: Communities and Local Government, ‘Household Estimates by Region, 1972-2006’, Table 403, March 2009.

### 2.3.1 Key household trends

The household projections are accompanied with estimates of historic change in the number of households nationally. Chart 1 shows the number of households in each English region from 1972 through to 2006 (the base year for the projections). This illustrates that the East Midlands has the second smallest number of households out of all the English regions, but the rate of growth has been slightly higher than the national average. This means that the region’s share of the England total has increased over time, from

<sup>11</sup> Communities and Local Government, ‘Planning Policy Statement 3 (PPS3): Housing’, November 2006.

1,263,000 households in 1972, 7.8% of the national total, to 1,849,000 in 2006, 8.6% of the national total.

In light of the recession and the associated downturn in the housing market, there may be expectations that the trend could slow or even begin to fall during the period 2007-2009. However, looking at the long-term trend from 1972, there is little evidence from previous recessions that trends in household numbers are likely to change significantly. Households in the East Midlands increased every year since 1972, and it is not clear that periods of lower household growth can be linked to the economic cycle. For example, during the recession of the late 1980s / early 1990s, the number of households increased by around 1.5% per annum in the East Midlands, whilst during years of economic growth in the late 1990s, households increased by less than 1% per annum in the region. This is because household trends are far more closely linked to demographic phenomena, meaning that although recessions coincide with subdued housing market activity, the demand for housing associated with population trends continues to increase.

Chart 2 shows growth in the number of households in 10-year bands (with a final entry for total growth between 2006 and 2031, the extent of the projections). Between 1986 and 1996, the number of households in the East Midlands grew at a faster rate than the national average, at 11.8% compared to 8.9% in England overall. This was equivalent to an additional 176,000 households over the decade.

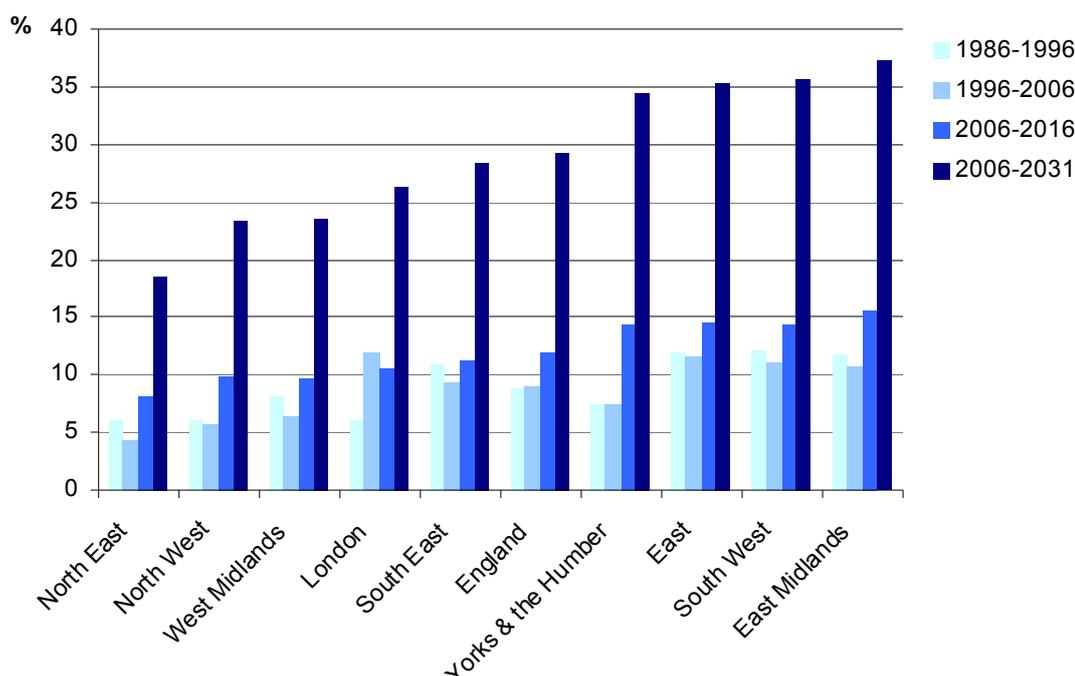
The fastest rate of growth was in the South West, at 12.2%. Between 1996 and 2006 the East Midlands also grew faster than the average for England, at 10.7% compared to 9%. This was equivalent to an additional 179,000 households in the region. London grew the fastest of all English regions over this decade, at 11.9%. Looking forward, Chart 2 also illustrates that over the decade from 2006 the East Midlands is likely to experience the fastest rate of growth of any other English region.

The East Midlands is projected to experience a growth rate of 15.6% over the decade to 2016, compared to the national average of 12%. This is equivalent to 289,000 households – increasing the East Midlands total to 2,138,000 households by 2016, or 8.9% of the total for England.

In addition:

- The next fastest rate of growth over the decade is projected to be in the East of England, at 14.5%. The largest absolute increase is projected to be in the South East, which will gain 391,000 additional households by 2016;
- The slowest rate of growth is projected to be in the North East, at 8.2%; and
- In terms of average annual increases, the East Midlands is projected to gain 28,900 households per annum between 2006 and 2016, compared to 39,100 in the South East and 9,100 in the North East. In England overall, an additional 259,100 households per annum are projected.

**Chart 2: Change in the number of households by English region, 1986-2031 (%)**



Source: Communities and Local Government, 'Household Projections by Region, 2006-2031', Table 408, March 2009.

The 2006-based household projections cover the period up until 2031. Due to the nature of projections, the margin for error increases the further the forecast goes into the future. For this reason, the reporting that accompanied the statistical release focuses on the period 2006-2016. However, the RSS Partial Review now looks forward to 2031, the full period covered by the 2006-based household projections. Key points for the period 2006-2031 are as follows:

- The number of households in the East Midlands is expected to increase to 2,539,000 by 2031. This represents a growth of 37.3% over the period 2006-2031, or an additional 690,000 households. This is the fastest rate of growth of any English region, and is significantly higher than the national average of 29.3%;
- The average annual increase in the East Midlands is 27,600 households over 25 years, which is slightly lower than the rate of growth projected over the period 2006-2016;
- The number of households in the East Midlands is projected to increase to 9.1% of the total for England; and
- The South West is projected to experience the next fastest growth, at 35.7%, whilst the North East is projected to experience the slowest growth, at 18.6%.

**Table 1: Household projections by Housing Market Area (HMA), 2006-2031 (000s and %)**

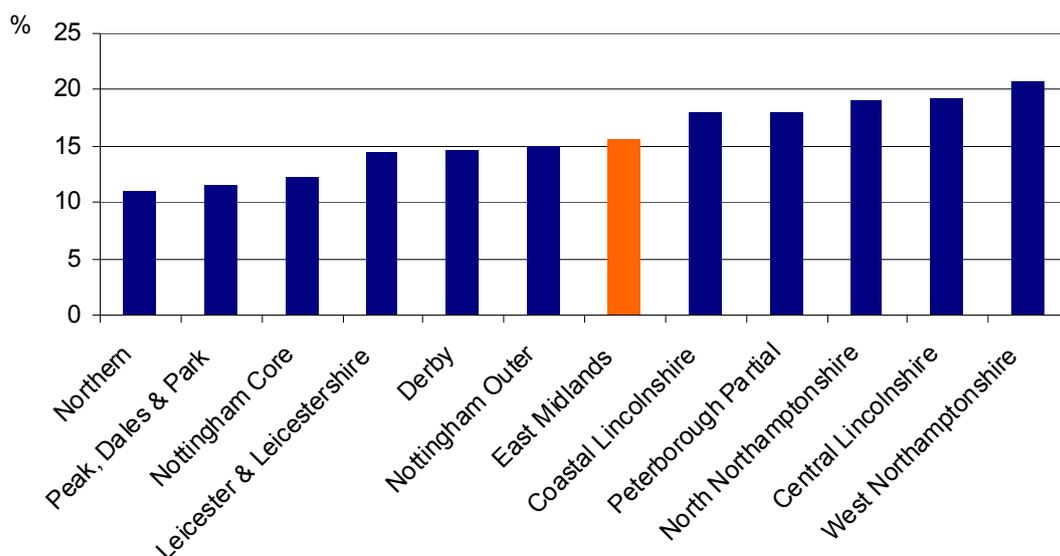
	2006	2016			2031		
	Households	Households	Increase %	Increase (numbers)	Households	Increase %	Increase (numbers)
Central Lincolnshire	118,300	141,000	19.2	22,700	172,200	45.6	53,900
Coastal Lincolnshire	86,100	101,600	18.0	15,500	123,500	43.4	37,400
Derby	188,700	216,300	14.6	27,600	255,100	35.2	66,400
Leicester and Leicestershire	376,800	431,300	14.5	54,500	508,900	35.1	132,100
North Northamptonshire	127,800	152,100	19.0	24,300	186,500	45.9	58,700
Northern	166,200	184,700	11.1	18,500	211,200	27.1	45,000
Nottingham Core	204,600	229,600	12.2	25,000	266,800	30.4	62,200
Nottingham Outer	140,700	161,800	15.0	21,100	191,700	36.2	51,000
Peak, Dales and Park	69,000	77,000	11.6	8,000	89,300	29.4	20,300
Peterborough Partial	217,300	256,500	18.0	39,200	305,700	40.7	88,400
West Northamptonshire	153,900	185,800	20.7	31,900	227,800	48.0	73,900
<b>East Midlands</b>	<b>1,849,000</b>	<b>2,138,000</b>	<b>15.6</b>	<b>289,000</b>	<b>2,539,000</b>	<b>37.3</b>	<b>690,000</b>

Source: Communities and Local Government, 'Household Projections by Region, 2006-2031', HMA calculations by East Midlands ONS Regional Team, April 2009.

Table 1 sets out the key points from the 2006-based household projections for the HMAs in the East Midlands and the overall rate of growth for each HMA between 2006 and 2016 is shown in Chart 3. This shows that the fastest growth in the region is projected to be in the southern and more rural HMAs, with the northern HMAs all growing below the regional average:

- West Northamptonshire is projected to experience the fastest rate of growth, with the number of households increasing by 20.7% over the decade, over five percentage points more than the regional average;
- The most populous HMA, Leicester and Leicestershire with 376,800 households in 2006, will grow slightly more slowly than the regional average, at 14.5%. However, it will experience the largest absolute increase – with an additional 54,500 households over the decade; and
- The Northern and the Peak, Dales and Park HMAs will grow at the slowest rates, at 11.1% and 11.6% respectively. However, it is important to note that this growth rate is still close to the English average of 12% between 2006 and 2016.

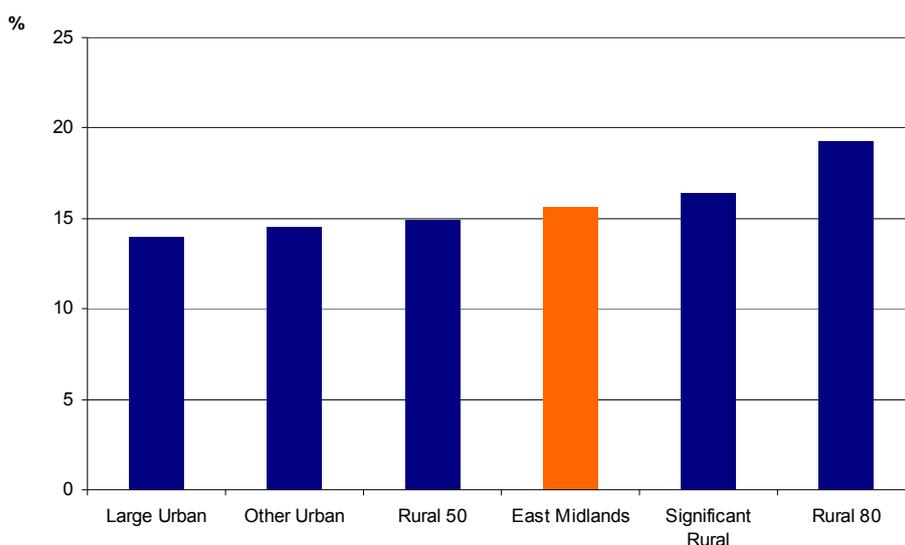
**Chart 3: Change in number of households by HMA, 2006-2016 (%)**



Source: Communities and Local Government, 'Household Projections by Region, 2006-2031', HMA calculations by East Midlands ONS Regional Team, April 2009.

Chart 4 summarises the differences in household growth between urban and rural areas by looking at the Defra district classifications. As in the case of population change, this illustrates that the highest growth rates are projected to be in the most rural, 'Rural 80', districts – where the number of households are projected to increase by 19.3% over the decade 2006-2016 (compared to the regional average of 15.6%). Both urban classifications are projected to experience slower than average growth in households, with 'Large Urban' districts increasing by 14%.

**Chart 4: Change in number of households by urban-rural district classification, 2006-2016 (%)**



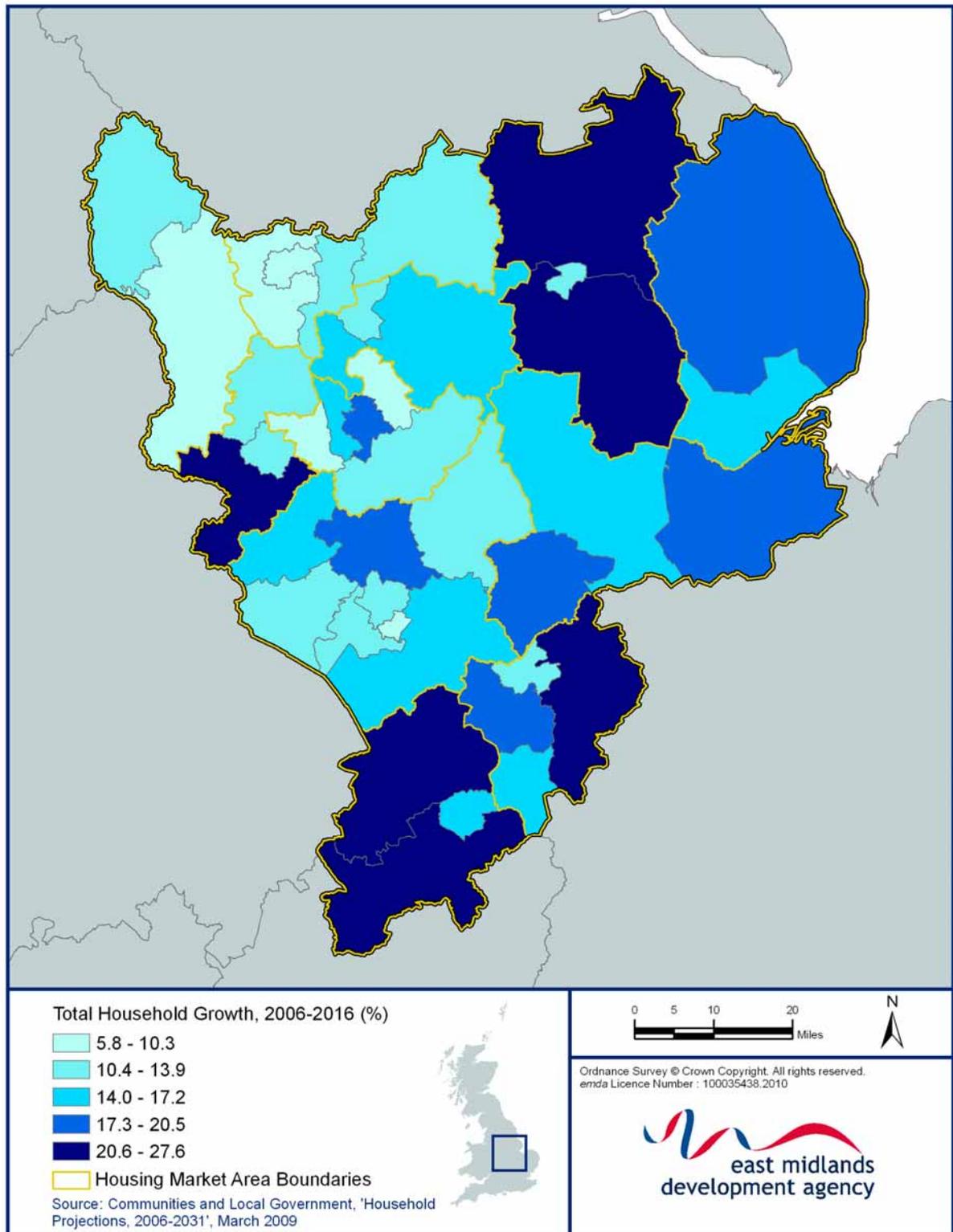
Source: Communities and Local Government, 'Household Projections by Region, 2006-2031', Defra urban-rural district calculations by East Midlands ONS Regional Team, November 2009.

Map 1 shows that the districts that are projected to experience the fastest rate of growth in the number of households will be in the far south of the region, in central Lincolnshire, and in other more rural districts, such as southern Derbyshire. The number of households is projected to increase by 27.6% between 2006 and 2016 in South Northamptonshire, and by 23.3% in East Northamptonshire. The number of households is forecast to grow by 22.8% in North Kesteven, whilst West Lindsey is projected to experience growth of 22%. South Derbyshire is projected to experience growth of 24.5%, the second fastest rate of growth in the region behind South Northamptonshire.

Growth in the number of households is projected to be slower in the far north of the region, at 8.6% in North East Derbyshire and 8.7% in the Derbyshire Dales. However, it is also projected to be relatively slow in a number of districts immediately adjacent to Leicester and Nottingham Cities. Oadby and Wigston, near Leicester, is projected the slowest growth rate in the number of households in the region, at 5.8%, whilst Gedling, near Nottingham, is projected to experience a growth of 9.4%.

This pattern of growth in the number of households broadly reflects the recent and projected distribution of population growth across the region.

**Map 1: Change in number of households by LAD/UA, 2006-2016 (%)**

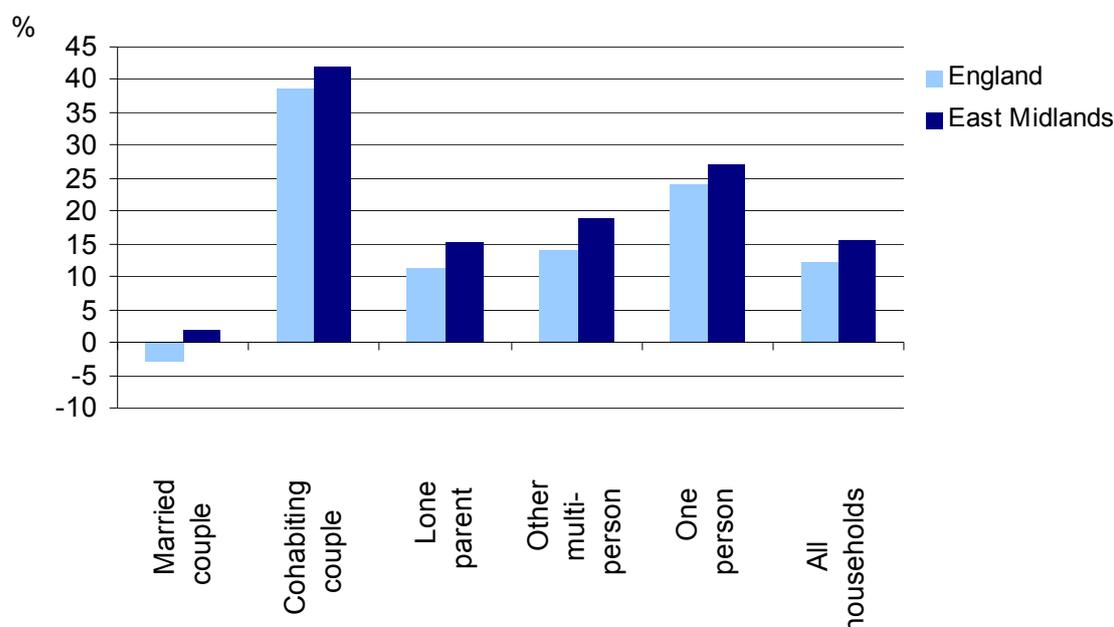


As well as overall numbers, the 2006-based household projections also include data on the changes in household composition. Composition is discussed in terms of five categories:

- Married couple households (which contain one or more married couple families);
- Co-habiting couples (containing one or more co-habiting couple families, but no married couples);
- Lone parent households (containing one or more lone parent families, but no married or co-habiting couples);
- Other multi-person households (containing neither a married or co-habiting couple family, nor a lone parent household – examples include unrelated adults sharing a house or flat or a lone parent with only non-dependent children); and
- One person households (one person living alone who shares neither housekeeping nor a living room with anyone else).

Chart 5 shows growth rates over the period 2006 to 2016 across these five groups. From this it is clear that co-habiting couple households are projected to have the highest rate of growth (at 41.8% in the East Midlands) whilst one person households are also projected to grow significantly (at 27.2%). Conversely, the number of married couple households are projected to decline slightly in England overall (by -3%) and increase only very modestly in the East Midlands (by 1.7%).

**Chart 5: Change in households by composition category, England and East Midlands, 2006-2016 (%)**



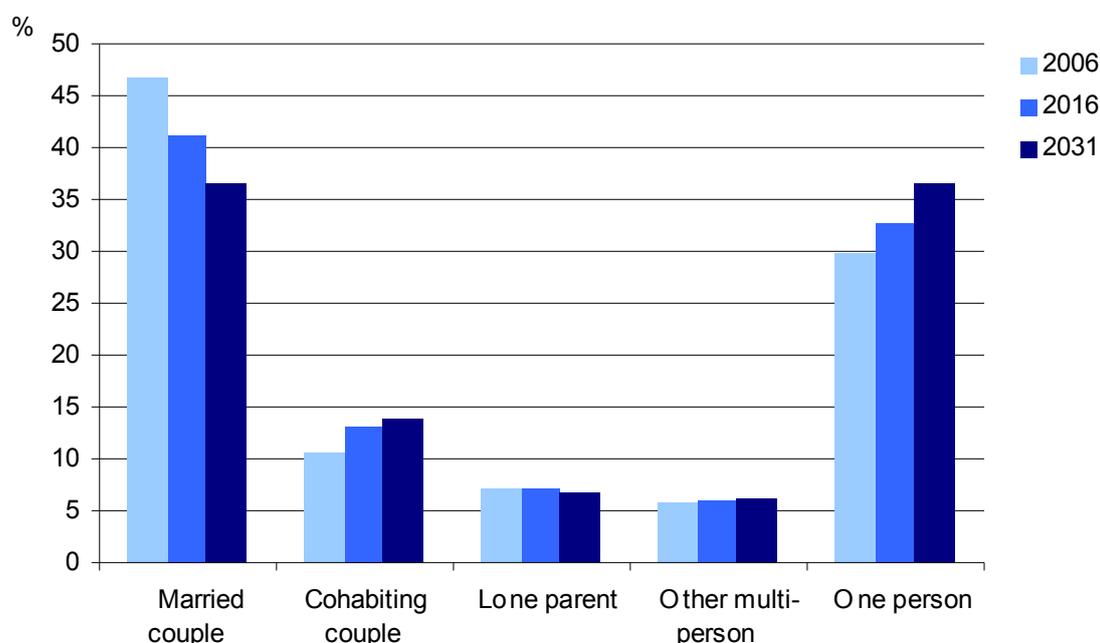
Source: Communities and Local Government, 'Household Projections by Region, 2006-2031', Table 404, March 2009.

Chart 6 shows how these differential growth rates will affect the composition of households in the East Midlands over the medium and long-term:

- In 2006, married couple families accounted for the largest share of households in the region, at 46.8%. The next largest proportion was accounted for by one person households, at 29.8%;
- The proportion of married couple households will decrease by 2016, to 41.2%, whilst co-habiting couple households will grow to 13% (from 10.6% in 2006) and one person households to 32.8%. The share made up of one parent and other multi-person households will stay static, around 7% and 6% respectively; and
- By 2031, one person households will grow to 36.6% of all households, whilst married couple households will continue to fall, also to 36.6%.

This illustrates that an increasing number of new household formation is projected to be from one person households, significantly changing the nature of housing required over the forecast period.

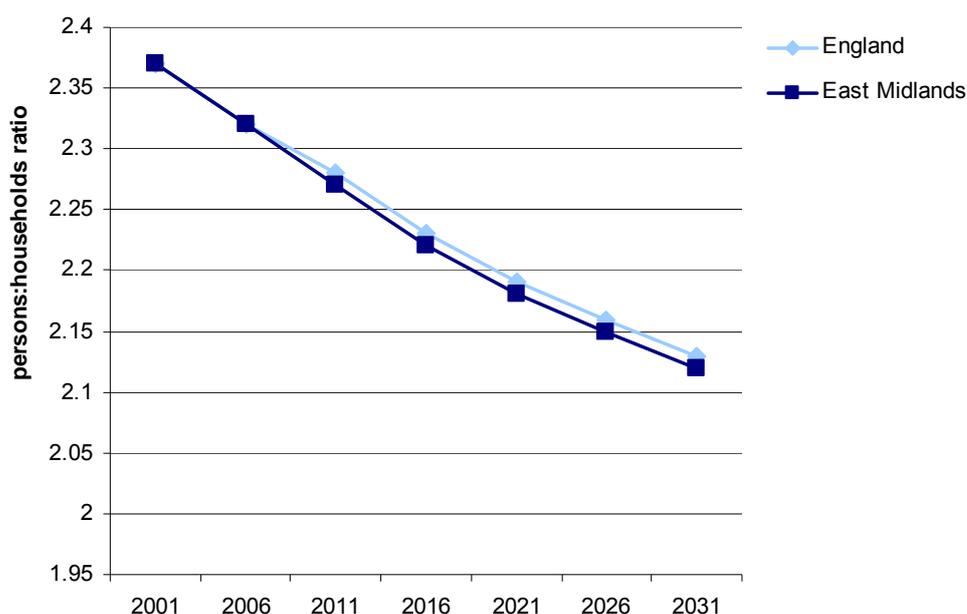
**Chart 6: Household composition in the East Midlands by category (%)**



Source: Communities and Local Government, 'Household Projections by Region, 2006-2031', Table 404, March 2009.

Chart 7 shows the impact of the changing balance of household composition on overall household size. The ratio of the number of people to number of households has fallen steeply over time, and is projected to continue to fall. In 1997, there were 2.41 people to each household in both the East Midlands and England. The chart shows five year intervals from 2001, which illustrates that the rate of decrease in the East Midlands becomes slightly more rapid than England from 2006 onwards. In 2006 the ratio was 2.32 both regionally and nationally. By 2016, the ratio is projected to be 2.22 in the East Midlands and 2.23 in England, falling to 2.12 in the East Midlands and 2.13 in England by 2031. As Chart 6 suggests, the declining size is largely due to the rapid increase in one person households.

**Chart 7: Ratio of people to households, England and East Midlands, 2001-2031 (ratio, five year intervals)**



Source: Communities and Local Government, 'Household Projections by Region, 2006-2031', Table 404, March 2009.

### 2.3.2 Components of household growth

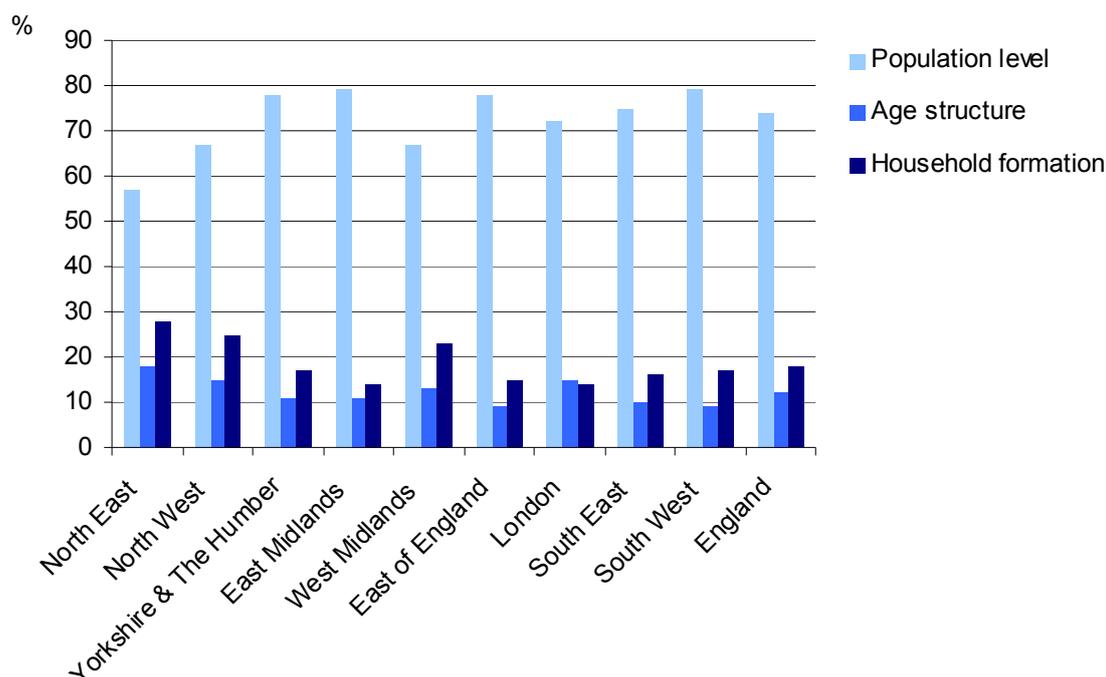
The Department for Communities and Local Government (CLG) have investigated the impact of the different components of household growth. This is done by running the projection model and holding the factor of interest constant, allowing all the other factors to change – and observing what effect this has on the resulting number of households compared to the main projection.

The three components investigated in this way were:

- Population level – where all the demographic factors (age structure, and level of population due to migration and natural change) are held constant;
- Age structure – where just the age structure of the population is held constant; and
- Household formation – where all the demographic factors are allowed to change and just the household formation rate is held constant.

The three components are closely interrelated, so the impact all three have on the total household group add up to more than 100%.

**Chart 8: Components of household growth by English region, 2006-2031 (%)**



Source: Communities and Local Government, 'Household Projections by Region, 2006-2031', Table 415, March 2009.

The impact of these three components on total household growth by region is shown by Chart 8. This illustrates that, in all regions, the main driver for projected growth in households is the increase in population, which reflects the combined effects of increasing fertility rates, rising life expectancy and net inward migration. In the East Midlands, factors associated with population change account for 79% of total household growth between 2006 and 2031, compared to 74% in England overall (CLG estimate that, of this national figure, 33% can be attributed to net migration).

Age structure alone contributes 11% to household growth over the projection period in the East Midlands, compared to 12% for England overall. Outcomes of changing age structure relevant to household growth include the growing number of one person pensioner households.

Finally, household formation rates alone contribute 14% to total household growth in the East Midlands, compared to 18% in England overall. All three components have a positive impact on total household growth in all regions, with London being the only region where age structure makes a slightly higher contribution than household formation (with London being an atypical region with a particularly young age profile).

### 2.3.3 Additional demand for accommodation

In addition to having regard to estimates of household population, Local Authorities are also required to monitor other indicators of demand for

potential housing, especially regarding vulnerable groups. The Housing Act of 1996 places a statutory requirement on Local Authorities to assist families who are homeless or threatened with homelessness, by securing accommodation in certain circumstances: “they must secure suitable temporary accommodation until a settled home becomes available.” Other duties are for Local Authorities to provide help to households in accessing information and applying for assistance. They are also encouraged to work closely with social services and other statutory, voluntary and private sector partners to tackle homelessness more effectively.<sup>12</sup>

The Government’s suggested measure for tracking progress is achieving a reduction in the number of households living in temporary accommodation under homeless provision (National Indicator 156). This data is now published on a quarterly basis, and the following analysis looks at the first quarter (1st January – 31st March) for each year between 1999 and 2009 in order to make consistent comparisons between years:

- In the first quarter of 2009, the East Midlands accounted for the second smallest proportion of homeless households in temporary accommodation of the nine regions, at 1.5% of the English total, with 930 households. This share has decreased from 3.5% of the national total in the first quarter of 1999;
- The number of homeless households in temporary accommodation has fallen significantly in the East Midlands, by -53.3%. The trend has been quite volatile, with the number increasing to 3,030 in the first quarter of 2005, before falling again. However, the East Midlands’ trend compares favourably to the national picture, where the number of homeless households has increased by 13.1% between quarter one 1999 and quarter one 2009; and
- London accounts for by far the largest share of the national total, at 47,780 households in the first quarter of 2009, or 74.7% of all homeless households in temporary accommodation in England.<sup>13</sup>

Equivalent data is not available for all nine of the Upper Tier Authorities in the East Midlands, so only regional comparisons can be presented here.

Local Authorities also have a statutory duty to accommodate gypsy and traveller households. Data on this is provided by the count of gypsy and traveller caravans<sup>14</sup> (known as the ‘caravan count’), which is undertaken for

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<sup>12</sup> Communities and Local Government, ‘Homelessness Code of Guidance for Local Authorities’, July 2006.

<sup>13</sup> Communities and Local Government, NI 156, analysis provided by the ONS East Midlands Regional Team.

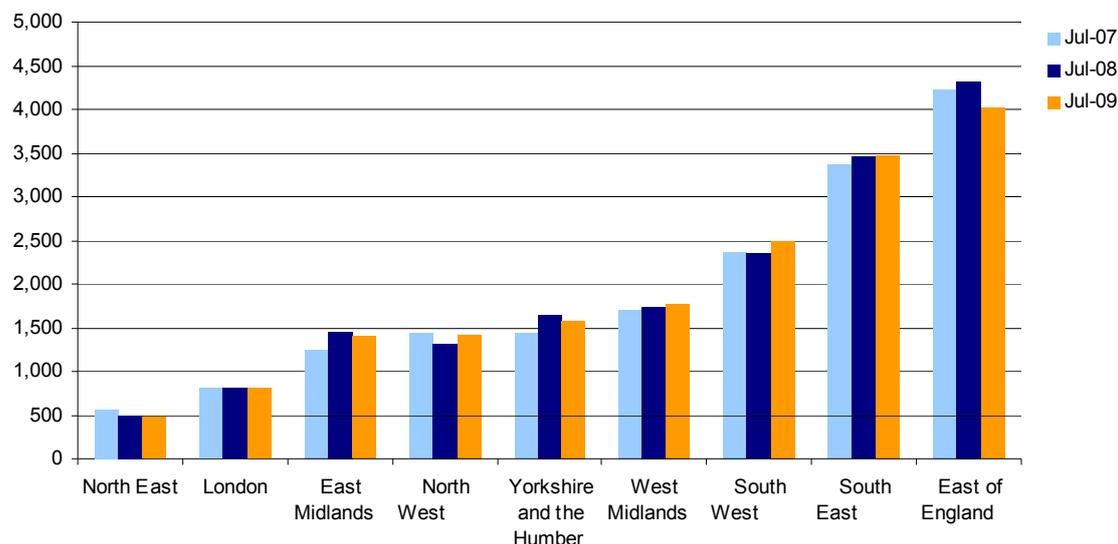
<sup>14</sup> A ‘caravan’ is defined in the Caravan Sites and Control of Development Act 1960 as “any structure designed or adapted for human habitation which is capable of being moved from one place to another (whether by being towed or by being transported on a motor vehicle or trailer) and any motor vehicle so designated or adapted”. The count should include all mobile homes, ‘trailers’ and converted vehicles which fall within the definition of a ‘caravan’ and are occupied by ‘gypsies’, which are defined as “persons of nomadic habit of life, whatever their race or origin”. Local Authorities should include in the count return only those ‘touring’ caravans which are used as additional sleeping accommodation on a permanent or semi-permanent basis.

each Local Authority and reported to the Department for Communities and Local Government in January and July each year. The Government also collect information on the size and nature of sites provided for gypsy and traveller caravans, whether they have planning permission, and whether they are 'tolerated' by Local Authorities if they do not have planning permission.<sup>15</sup>

Chart 9 shows the total number of caravans counted in each English region in the July count of 2007, 2008 and 2009 (the January count is not included due to seasonal variation). This shows that the count of gypsy and traveller caravans fluctuated in most regions between 2007 and 2009, with no consistent trend. In the East Midlands, the count has increased from 1,248 caravans in July 2007 to 1,452 in July 2008, but then decreased to 1,402 in July 2009.

- This is the third lowest count of the English regions, with the North East having the lowest number of caravans throughout the period.
- However, the overall rate of increase in caravan count in the East Midlands between July 2007 and July 2009 is the highest of all English regions, at 12.3%, compared to a 1.7% increase in England overall. This is also the largest absolute increase – with an additional 154 caravans in July 2009 compared to July 2007.
- This means that the East Midlands' share of the total English caravan count has increased over the three year period, from 7.3% to 8% between July 2007 and July 2009.
- The largest number of caravans was in the East of England, which had a count of 4,025 in July 2009, 23.1% of the total for all England.

**Chart 9: Count of gypsy and traveller caravans by English region, July 2007- July 2009 (total number of caravans)**



Source: Communities and Local Government, 'Count of Gypsy and Traveller Caravans, last five counts', 16th July 2009, Table 1, downloaded 25th February, 2010

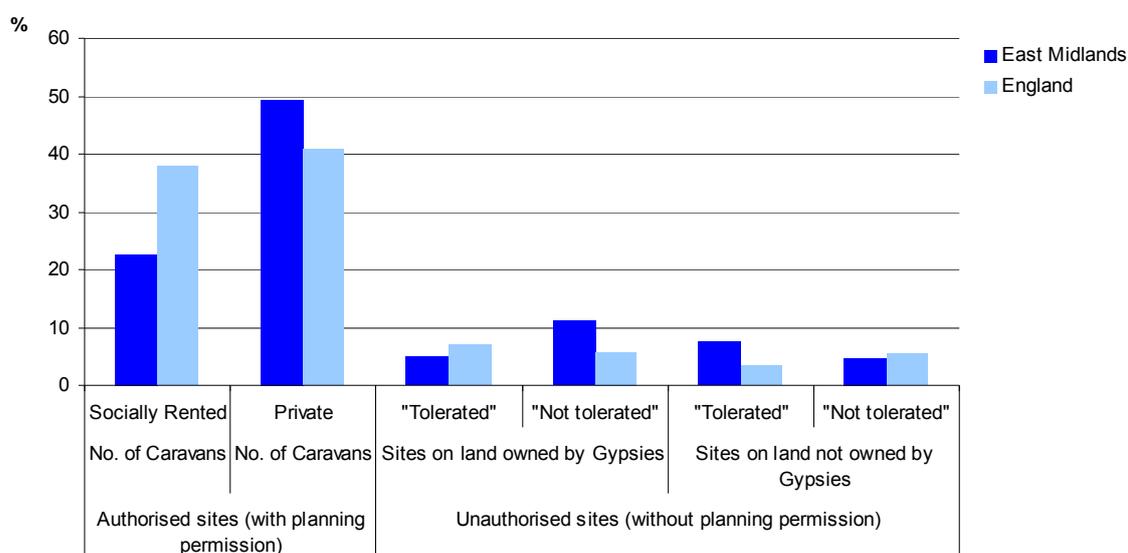
<sup>15</sup> 'Tolerated' caravan sites that do not have planning permission are those sites against which the planning authority has decided not to take action. Where a site is 'not tolerated', the planning authority or land owner will have decided to seek the removal of the caravans.

Chart 10 shows how the number of caravans in the East Midlands is distributed across the different kinds of site ownership, the proportion of caravans on unauthorised sites that were 'tolerated' by planning authorities, and how this differs from the national average:

- The East Midlands has a smaller share of caravans located on authorised sites rented from Local Authorities or Registers Social Landlords (socially rented) than in England overall, at 22.5% compared to 37.9%. Conversely, it has a larger proportion of caravans located on private sites, at 49.3% compared to 40.7%;
- The East Midlands had a larger share of the total count of caravans located on unauthorised sites owned by the gypsies or travellers that were 'not tolerated' by the planning authorities, at 11.1% compared to 5.7% in England overall; and
- There was a larger share of caravans on unauthorised sites that were not owned by the gypsies or travellers but were still tolerated by the planning authorities, at 7.4% compared to 3.3% nationally.

The region has experienced an above average growth in caravans over the three year period, and this may explain why there is a larger proportion of caravans on unauthorised sites not owned by gypsies or travellers tolerated by land owners or planning authorities.

**Chart 10: Count of gypsy and traveller caravans, July 2009**  
(% of total number of caravans)

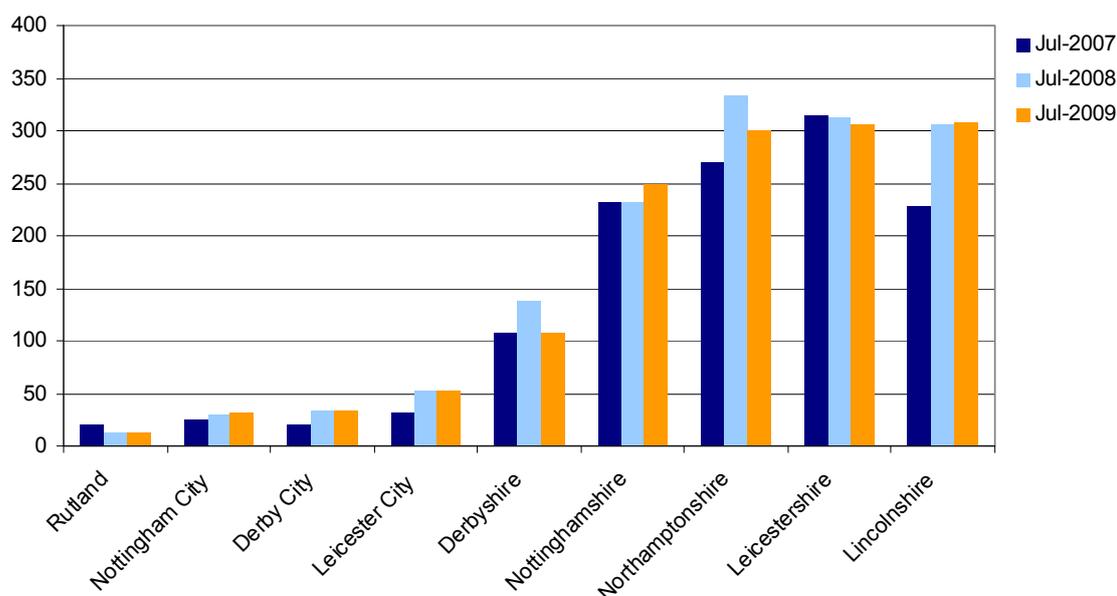


Source: Communities and Local Government, 'Count of Gypsy and Traveller Caravans, last five counts', 16th July 2009, Table 1, downloaded 25th February, 2010.

Chart 11 shows how the total caravan count for the East Midlands is distributed across the nine Upper Tier Authorities. Some areas, such as Lincolnshire, have experienced a significant increase over the period, whilst the trend has been less clear in other areas. Leicestershire and Northamptonshire had the largest shares in July 2007 and July 2008 respectively, but the rate of change in Lincolnshire was such that the county recorded the largest caravan count in the region in July 2009, with 22% of the East Midlands total. Chart 11 also suggests that the more rural Local

Authorities in the region are significantly more likely to be accommodating gypsy and traveller communities than elsewhere. Nottingham, Derby and Leicester City all have relatively small caravan counts (with a combined total of 8.3% in July 2009). With the exception of Rutland (with only 0.9% of the region's caravans), this data suggests that the accommodation of gypsy and traveller communities is principally a rural issue.

**Chart 11: Count of gypsy and traveller caravans by Local Authority/Unitary Authority, July 2007- July 2009 (total number of caravans)**



Source: Communities and Local Government, 'Count of Gypsy and Traveller Caravans, last five counts', 16th July 2009, Table 1, downloaded 25th February, 2010.

Finally, Local Authorities provide information on the nature and capacity of sites allocated for gypsy and traveller communities. In July 2009, there were 259 'pitches' in the region provided by Local Authorities and Registered Social Landlords, 5.4% of the total for England, providing capacity for 449 caravans (5.6% of the total capacity provided for England). This is the second smallest capacity of the English regions (with the North East providing 4.5% of pitches and 4% of total national caravan capacity). This share is significantly lower than the East Midlands share of the total national caravan count (8%) and may explain why the region has a higher proportion of caravans located on privately owned sites than in England overall.

The largest number of Local Authority or Registered Social Landlord pitches for gypsy or traveller caravans in the East Midlands is provided by Lincolnshire County Council, with 76 pitches. However, these pitches provide capacity for 109 caravans, which is lower than the capacity in Northamptonshire. In July 2009, Northamptonshire provided capacity for 135 caravans across 75 pitches.

This includes the largest site in the region, Ecton Lane Park Caravan Site, which includes 35 pitches and has a capacity for 70 caravans.<sup>16</sup>

**Key Points: Household trends and additional demand for housing**

- The East Midlands has the second smallest number of households of the nine English regions, but the number has increased at a faster than average rate.
- In 2006, there were 1,849,000 households in the East Midlands, 8.6% of the English total.
- Between 2006 and 2016, the number of households in the East Midlands is projected to grow faster than any other region, at a rate of 15.6% compared to 12% in England overall. By 2016, there will be 2,138,000 households in the region.
- The West Northamptonshire HMA is expected to experience the greatest rate of growth within the East Midlands, followed by Central Lincolnshire.
- The more urban HMAs, Derby, Leicester and Leicestershire and Nottingham Core, will all grow below the East Midlands regional average. The slowest rate of growth is projected to be in the Northern HMA.
- Co-habiting couples and one person households are the composition categories that will grow the fastest. A significant proportion of growth in the future will be accounted for by the formation of new one person households. By 2031, one person households will make up the same proportion of the total household population as married couple households.
- The average size of households will continue to get smaller over the forecast period, and at a slightly faster rate in the East Midlands.
- The biggest drivers for household growth are the increasing size of the population due to migration, natural change and changing age structure. This accounted for 79% of household growth in the East Midlands over the projection period (2006-2031).
- The East Midlands has a relatively small share of homeless households in temporary accommodation, and this has decreased over time.
- The region's share of gypsy and traveller caravans increased between 2007 and 2009. Larger numbers of caravans were located in the more rural Local Authorities, especially Lincolnshire, which accounts for the largest share of the region's caravan count.
- Possibly because of a smaller proportion of sites provided by Local Authorities and Registered Social Landlords in the region, gypsy and traveller caravans were more likely to establish authorised settlements on privately owned sites. Of non-authorised settlements, planning authorities in the region were more likely to 'tolerate' caravans on sites that were not owned by the gypsies or travellers themselves in the region than in England overall.

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<sup>16</sup> Communities and Local Government, 'Gypsy sites provided by Local Authorities and Registered Social Landlords in England', Table 2, 16th July 2009, downloaded 25th February, 2010.

## 2.4 Dwelling stock

If household estimates can be used to represent the demand for housing, an indication of the quantity of supply is provided by estimates of dwelling stock.

Data on dwellings use the latest applicable Census definition. In the data used in this section, the 2001 Census definition applies. This describes dwellings as either containing a single household space or several household spaces sharing some facilities and designed as a self-contained unit of accommodation. Self-containment is where all of the rooms (including bathroom and toilet) are behind a single door which only that household can use. Non self-contained household spaces at the same address should be counted together as a single dwelling. Therefore a dwelling can consist of one self-contained household space or two or more non self-contained household spaces at the same address. The term 'multiple occupancy' refers to a single dwelling containing more than one household.

The 2001 Census defines dwelling by type as follows: houses, bungalows, flats, maisonettes, and bedsits. However, no clear definition for each is available. Houses include single story bungalows. Flats are particularly difficult to define, but the Building Regulations (2000) defines a flat as follows: "A flat is a separate and self-contained premises constructed or adapted for use for residential purposes and forming part of a building from some other part of which it is divided horizontally." A maisonette is a flat encompassing more than one story.<sup>17</sup>

Another type of dwelling is a 'communal establishment', i.e. an establishment providing managed residential accommodation. These are usually not counted in overall dwelling stock data, but include university and college student accommodation, hospital staff accommodation, hotels and hostels, defence establishments and prisons.

Non-permanent or 'temporary' dwellings – which include caravans, mobile homes, converted railway carriages and houseboats – are included if they are the occupants' main residence and council tax is payable on them. Permanent gypsy and Traveller pitches are also counted if they are, or likely to become, the occupants' main residence. In all stock figures, vacant dwellings and second homes are included.

The dwelling stock statistics used in this section are published in the CLG annual 'Housing Statistics' release, and are based on Local Authority Housing Flows Reconciliation returns, whilst more detailed data, such as age of stock, is estimated on the basis of the latest Survey of English Housing (a national sample survey carried out on behalf of the Government).

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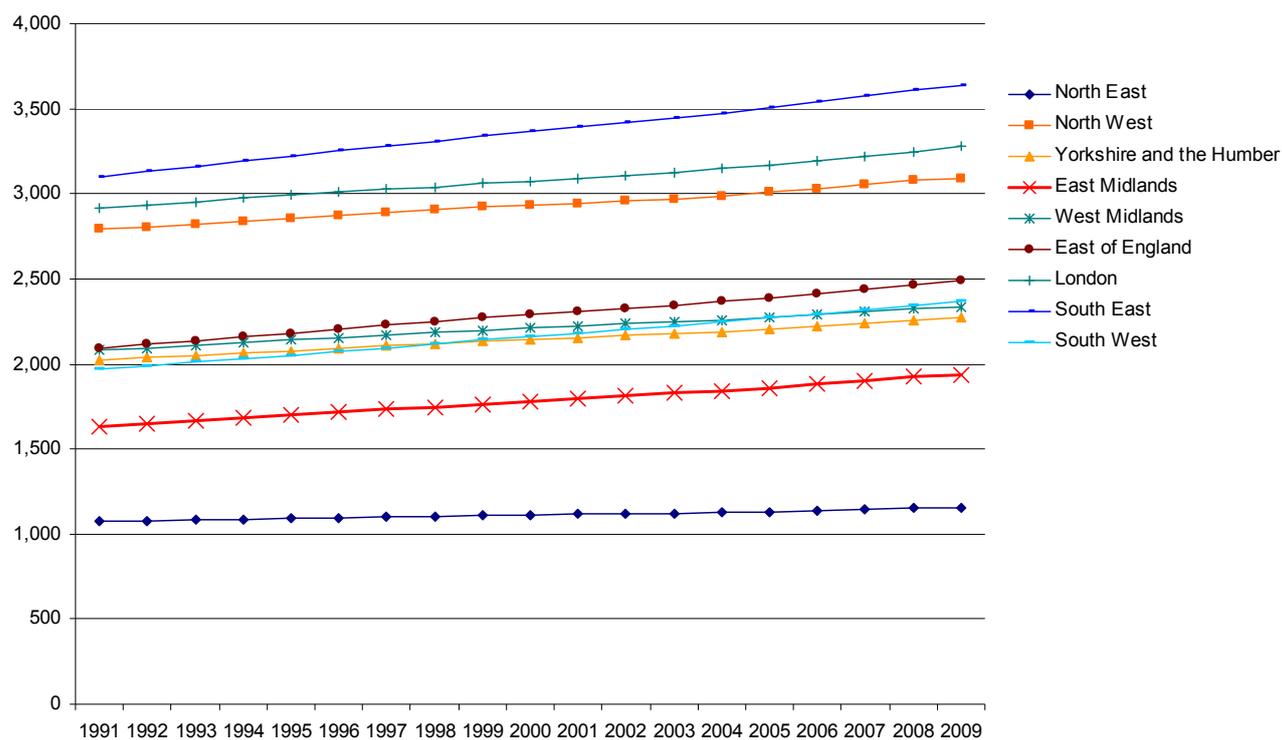
<sup>17</sup> Communities and Local Government, 'Housing Statistics 2008', December 2008.

### 2.4.1 Key trends in dwelling stock

Charts 12 and 13 shows the change in the number of dwellings over time, illustrating that the trend in dwelling stock follows the trend in households (shown in Chart 1) quite closely in each English region:

- Chart 12 shows that dwellings have increased in all regions, but the East Midlands has consistently had the second smallest dwelling stock of the nine regions, at 1,937,000 in 2009 (8.6% of the total for England). However, this share has increased over time as dwelling stock in the East Midlands has increased at a faster rate than the English average;
- To compare to recent population trends described in Chapter 1 (1998-2008) and household trends in Section 2.3 of this Chapter (1996-2006), two different time periods have to be used. Dwelling stock in the East Midlands increased at a faster rate than population between 1998 and 2008, at 10% compared to a population growth rate of 7.3%, but at a slower rate than numbers of households between 1996 and 2006, at 9.5% compared to 10.7%;
- The faster rate of household growth compared to population growth can be attributed to the decline in the number of people per household and increasing number of single person households;
- In both periods, dwellings in the East Midlands increased at a faster rate than the English average. Between 1998 and 2008, dwellings in the East Midlands increased from 1,748,000 to 1,923,000. This is the second highest growth rate of the nine English regions over this period; and
- The number of dwellings has remained higher than the number of households throughout the period 1996 to 2006, although the difference between the two has decreased from 47,000 to 31,000 over the period. This is because of vacant dwellings and second homes.

**Chart 12: Number of dwellings by English region, 1991-2009 (000s)**

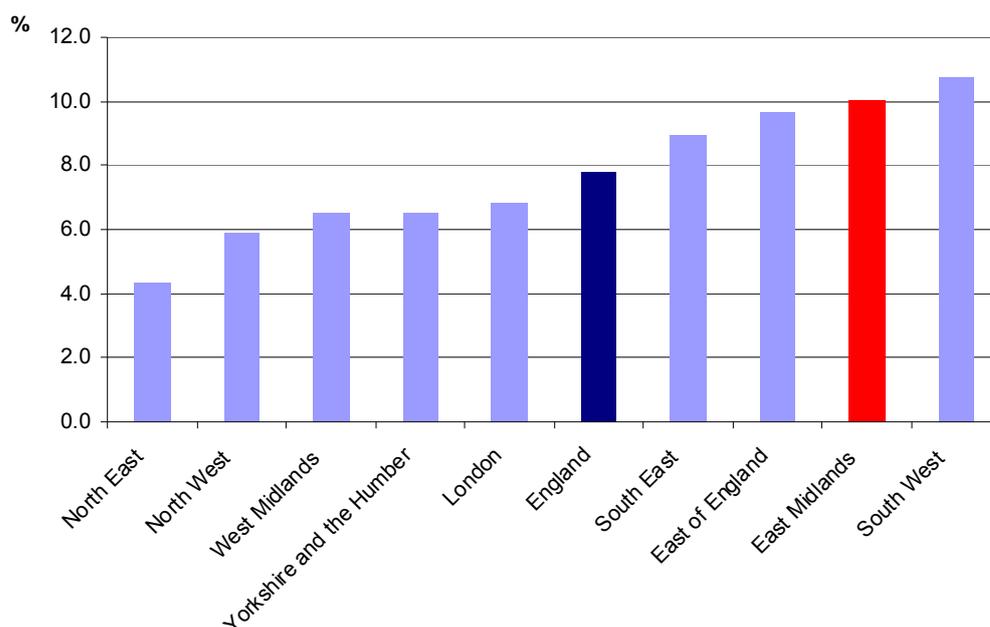


Source: Communities and Local Government, 'Dwelling Stock by Tenure and Region', Table 109, December 2010.

Note: data for 2002 to 2009 is provisional.

If trends in the number of households are not affected by recession, growth rates in the number of dwellings clearly are, given the impact recession has on the house building sector (Chapter 8, Transport and Infrastructure, examines construction trends in detail). Chart 12 illustrates that the increase in dwellings slowed between 2008 and 2009 compared to the long-term trend. In the East Midlands, the number of dwellings in 2009 increased by 0.7% on 2008, the smallest annual increase for the period 1991-2009.

**Chart 13: Growth in dwellings by region, 1998-2008 (%)**



Source: Communities and Local Government, 'Dwelling Stock by Tenure and Region', Table 109, December 2010.

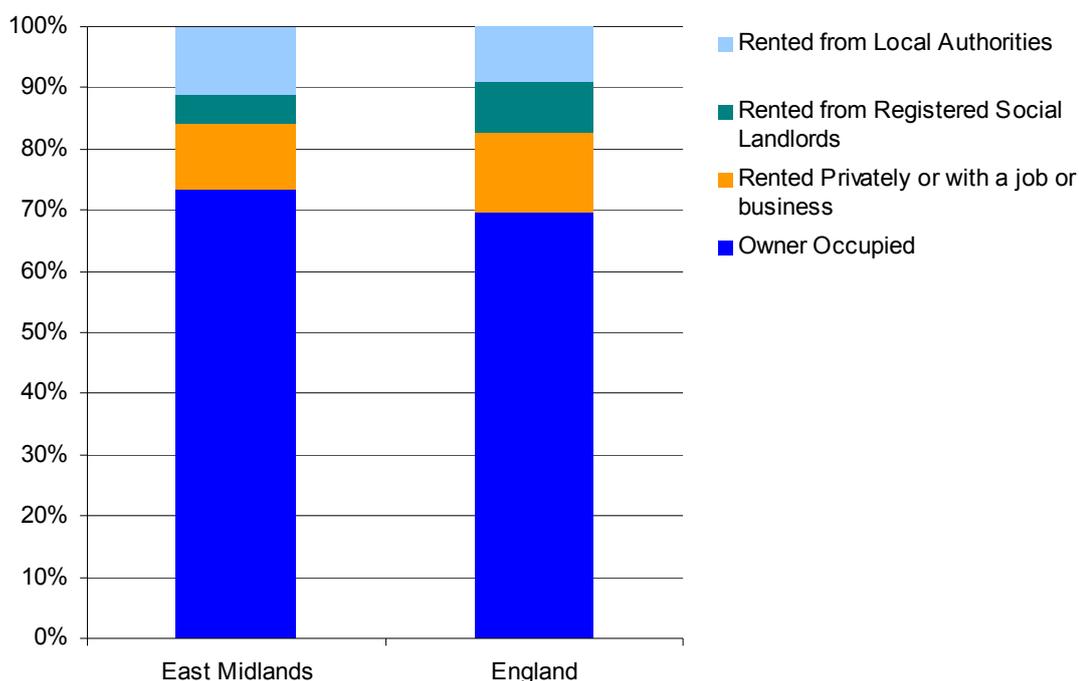
There are four categories of tenure used to describe dwelling stock and household data:

1. **Owner-occupied:** this includes accommodation that is owned outright or is being bought with a mortgage;
2. **Rented privately:** this is defined as all non-owner-occupied property excluding that which is rented from Local Authorities and Registered Social Landlords or accommodation provided by private or public bodies as part of an employment contract. This includes property occupied rent-free by someone other than the owner. Collectively, owner-occupied and private rented dwellings are referred to as 'private sector dwellings';
3. **Rented from Registered Social Landlords (RSLs):** this is the technical name for social landlords that are registered with the Tenant Services Authority (TSA), the regulator for social housing. Most are Housing Associations (HAs), but there are also trusts, co-operatives and companies. HAs are independent societies, bodies of trustees or companies established for the purpose of providing low cost social housing for people in housing need on a non-profit making basis. Much of the supported housing accommodation in the UK is provided by HAs, with specialist projects for people with mental health or learning disabilities, substance misuse problems, the formerly homeless, young people, ex-offenders and women fleeing domestic violence. HAs not registered with the TSA are not strictly RSLs unless otherwise stated, but these make up a very small proportion of RSLs in the UK. RSL housing is usually grouped as 'public sector dwellings'; and
4. **Rented from Local Authorities:** this category represents all dwellings owned and built by Local Housing Authorities under the Housing Act of 1985. Statistics in this category also include dwellings built by New Towns

and other Government Departments (such as the Ministry of Defence) because the numbers involved are very small. These dwellings are also referred to as 'public sector dwellings'.<sup>18</sup>

The most recent data for which there is a breakdown of dwelling stock by tenure relates to 2007. In these categories, the profile of dwelling stock in the East Midlands is very similar to that for England overall, as shown in Chart 14. However, the region has a higher proportion of owner occupied dwellings (at 74% compared to 70% in England) but lower proportions of dwellings rented privately (11% compared to 13%) and rented from RSLs (5% compared to 9%). The East Midlands also has a higher proportion of dwellings rented from Local Authorities than nationally (11% compared to 9%).

**Chart 14: Dwellings by tenure, England and East Midlands, 2007 (%)**



Source: Communities and Local Government, 'Dwelling Stock by Tenure and Region', Table 109, December 2010.

Chart 15 illustrates trends in the stock of dwellings in the East Midlands by tenure. This shows that:

- The largest tenure category, owner occupied dwellings, increased significantly, from 1,158,000 in 1991 (71% of all dwelling stock in the region) to 1,398,000 in 2007 (74% of dwelling stock). Over the decade 1997-2007, the number of owner occupied dwellings in the East Midlands increased by 12.9%;
- The fastest growth rate has been in dwellings rented from RSLs, at 91.7% over the decade 1997-2007, principally due to transfer from the Local Authority sector. However, it must be noted that although RSL dwellings have more than doubled as a proportion of the regional total since 1991 (from 1.7% to 4.8%), absolute numbers remain comparatively small. In

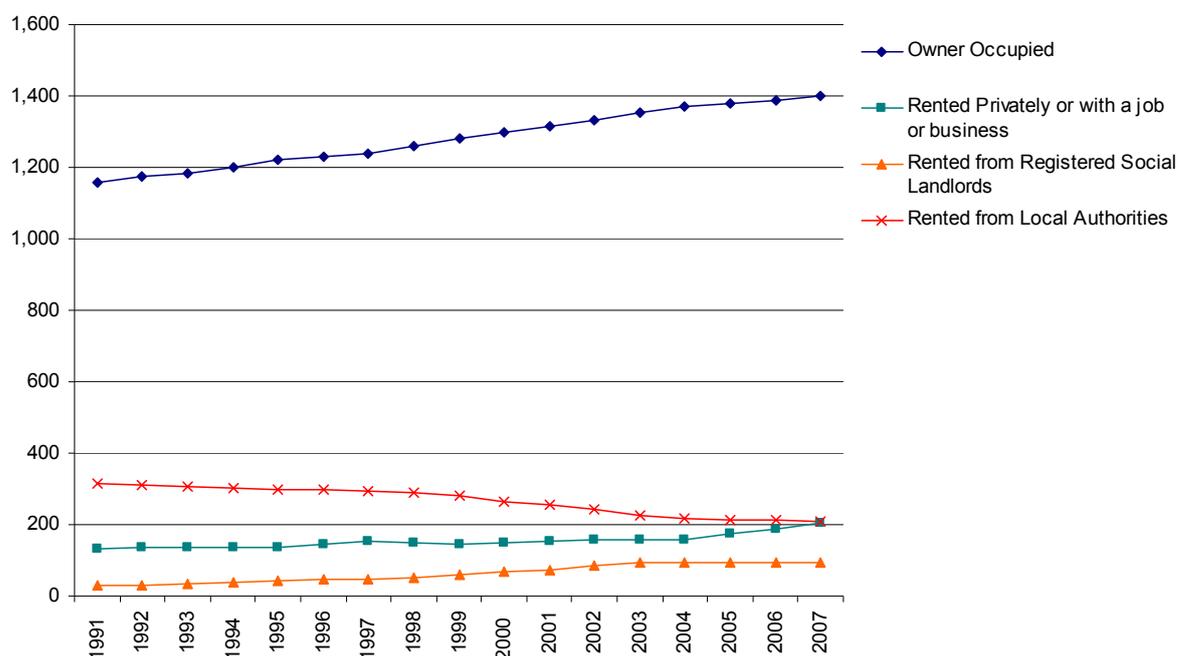
<sup>18</sup> Ibid, 'Housing Statistics 2008'.

1991, there were an estimated 28,000 dwellings in RSL tenure in the East Midlands, by 2007 this had increased to 92,000; and

- Local Authority (LA) owned stock decreased by -28.7% in the East Midlands between 1997 and 2007. Since 1991, the share of total housing stock in Local Authority tenure has decreased from 314,000 dwellings in 1991 (19% of all East Midlands stock) to 209,000 (11% of stock) in 2007.

The trend of declining numbers of Local Authority stock, and higher numbers of RSL stock, is due to a number of developments in the management of public sector housing over the last two decades. New Housing Associations have been formed to move stock across from the Local Authority to the RSL sector, known as Large Scale Voluntary Transfer (LSVT), whilst developments such as ‘the right to buy’ offered to Council housing tenants has led to LA stock moving into the private sector. According to the Government Office for the East Midlands, there were eight Large Scale Voluntary Transfers in the period 1997-2007, accounting for a total of 35,608 dwellings (almost 40% of which were from districts in Lincolnshire). Of relevance to the discussion later in this section, 10,505 were classed as ‘non-decent’, reflecting practice of transferring LA stock in need of repair to the RSL sector.<sup>19</sup> RSLs have also been able to increase their stock due to access to new funding, which has not been available to Local Authorities.

**Chart 15: Trends in dwellings by tenure in the East Midlands, 1991-2007 (000s)**



Source: Communities and Local Government, ‘Dwelling Stock by Tenure and Region’, Table 109, December 2008.

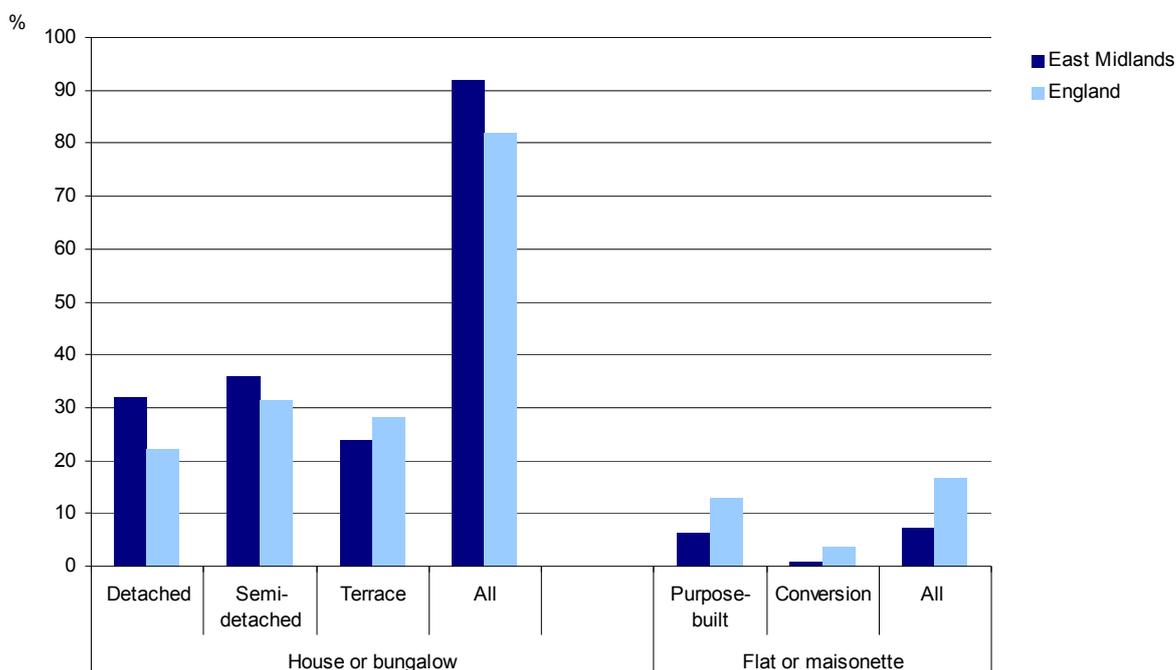
Chart 16 details dwelling stock by type of dwelling. This shows that the East Midlands has a greater proportion of houses or bungalows than in England overall, with 92% of stock categorised as such compared to a national

<sup>19</sup> Government Office for the East Midlands, ‘Completed LSVTs’, October 2009.

average of 82%. Within this broad category, the region has higher proportions of both detached and semi-detached houses and bungalows, but a lower proportion of terraced houses. Conversely, the East Midlands has a lower proportion of dwellings categorised as flats or maisonettes than in England overall (7% compared to 17%).

Comparisons with the national average are somewhat misleading, as it is skewed by the atypical nature of dwelling stock in London (55% of which are houses or bungalows, 43% are flats or maisonettes). However, although dwelling stock in the other eight regions has a similar profile, the East Midlands still has the highest proportion of dwellings classed as houses or bungalows and the lowest classed as flats or maisonettes.

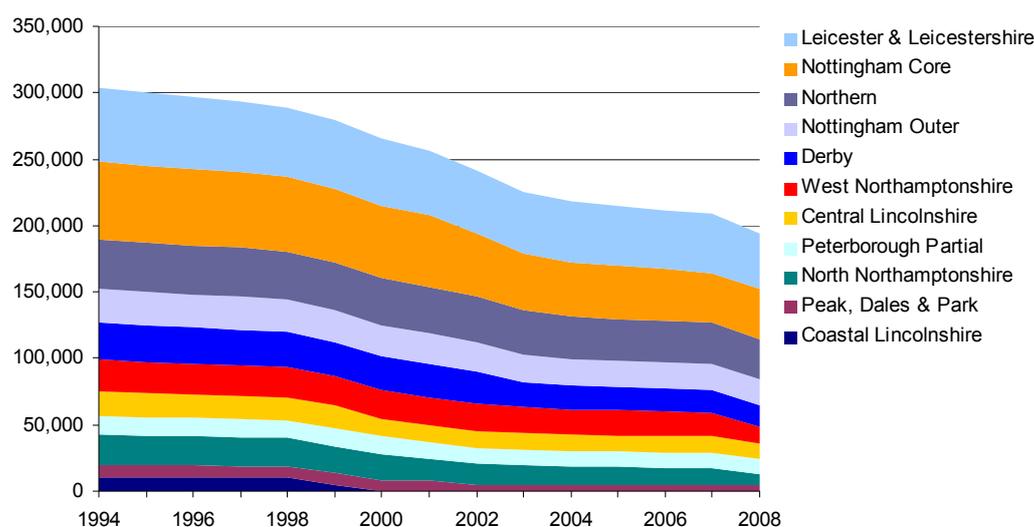
**Chart 16: Dwelling stock by type, England and the East Midlands, 2007 (%)**



Source: Communities and Local Government, 'Dwelling Stock, England: type of accommodation, by region', Table 117, from 2007-2008 Survey of English Housing.

Sub-regional data on dwelling stock is limited. No overall totals are available because data on private sector housing (both owner-occupied and privately rented) is not published at Local Authority level. Data is instead limited to RSL rented stock and Local Authority owned stock, although it must be noted that for most areas these categories of tenure account for the minority of total housing stock (see Chart 14).

**Chart 17: East Midlands Local Authority owned dwelling stock by HMA, 1994-2008**



Source: Communities and Local Government, HMA calculations produced by East Midlands ONS Regional Team, November 2009.

Chart 17 shows the East Midlands total of Local Authority owned stock split by HMA. This shows that Local Authority owned stock has been declining in all HMAs for the period 1994-2008. In the case of some HMAs (e.g. Coastal Lincolnshire) where some of its constituent Local Authorities have become Large Scale Voluntary Transfer authorities, the stock has reduced to zero or a very small number. For other HMAs, this decline has been more gradual. To be consistent with earlier time series, looking over the decade 1998-2008:

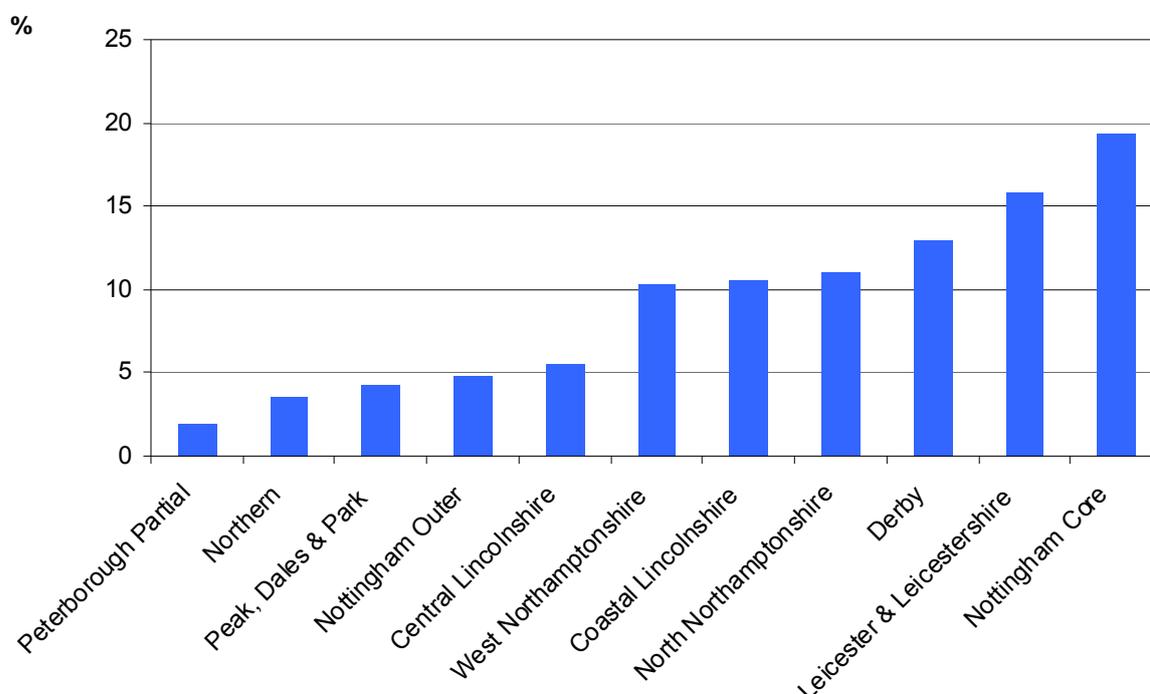
- Leicester and Leicestershire HMA had the largest share of LA stock in the region, at 41,629 dwellings in 2008. This has declined by -20.8% since 1998, compared to a decline of -32.9% in the region overall;
- The fastest rate of decline has been experienced by North Northamptonshire, at -59.2% over the period. However, in Coastal Lincolnshire HMA, Large Scale Voluntary Transfer meant that the 10,171 LA owned dwellings in 1998 reduced to zero by 2008. Across Lincolnshire, dwellings rented from the Ministry of Defence make up a significant proportion of LA stock; and
- Nottingham Core, Derby, West Northamptonshire, Central Lincolnshire, and Peak, Dales and Park HMAs also all experienced decreases in their LA stock in excess of 30% over the decade 1998-2008.

Chart 18 shows the distribution of rented dwelling stock managed by Registered Social Landlords (RSLs) across the region's HMA. This data has remained fairly stable between 2002 and 2008, but there was a significant change in the definition from 2002 (with the addition of bed spaces to the self-contained units that were previously measured), which means that earlier data is not comparable. The share of the East Midlands total of RSL stock by HMA differs from the distribution of LA owned stock. As established earlier, this is partly a function of the transfer of LA stock to RSLs through Large Scale

Voluntary Transfer, meaning that some of the areas with the smallest shares of LA stock have higher shares of RSL stock:

- The HMAs that cover the three largest cities account for the largest proportion of RSL stock. Nottingham Core HMA had 21,084 self-contained units and bed spaces rented by RSLs, 19.3% of the total for the region. Leicester and Leicestershire and Derby HMAs account for 15.8% and 12.9% of the regional total respectively;
- Whilst Coastal Lincolnshire had very small numbers of LA stock, it accounts for a significant proportion of the region's RSL stock, accounting for 10.6% of the East Midlands total with 11,553 self-contained units or bed spaces; and
- Some of the more rural HMAs account for relatively small shares of RSL stock, with Peterborough Partial, Northern and Peak, Dales & Park having the smallest numbers in the region.

**Chart 18: Share of RSL stock by HMA, 2008 (%)**



Source: Communities and Local Government, HMA calculations produced by East Midlands ONS Regional Team, November 2009.

### 2.4.2 Vacant dwellings

In profiling the extent of the region's dwelling stock, it is important to summarise trends in the number of vacant dwellings. Data on vacant dwellings is only available for public sector stock (Local Authority and RSL) which, as demonstrated earlier in this section, accounts for a relatively small share of total dwelling stock.

Data from 1999 to 2009 shows that vacant stock in Local Authority ownership has declined significantly in all regions. In the East Midlands, the number of

vacant dwellings in LA ownership fell from 5,400 in 1999 to 3,300 in 2009, a decrease of -39%. This fall has been slower than many other regions, with vacant LA dwellings falling by -59% in England overall. This means that the East Midlands share of total LA vacant dwellings in England has increased over the decade, from 6.4% in 1999 to 9.5% in 2009.

However, as Chart 15 demonstrated, the total number of dwellings in LA tenure has been decreasing in both the East Midlands. Therefore the proportion of all LA dwellings that are vacant has remained fairly flat in both the region and in England overall. In 1999, 1.9% of all dwellings in the East Midlands in LA tenure were vacant, compared to 1.8% in 2009.

It is important to emphasise that LA dwellings can be vacant because they have been taken into council ownership and closed for clearance or to make way for new development. Therefore it is important to distinguish between dwellings that are vacant, and those that are vacant and available for immediate letting, or which will be available after only minor repairs. These dwellings are known as 'management vacant'. Throughout the period 1999 to 2009, there has been a higher proportion of LA dwellings classed as 'management vacant' than in England overall, meaning a higher proportion of this stock could represent viable additional accommodation. In 2009, 57.6% of vacant LA stock (1,900 dwellings) in the East Midlands was 'management vacant', compared to 47.1% in England overall.<sup>20</sup>

Looking at stock in RSL tenure, the number of vacant dwellings has also decreased, although at a slower rate than LA owned vacant dwellings in the East Midlands, falling from 2,198 in 1999 to 1,535 in 2009, a decrease of just over -30%. In England overall, vacant RSL stock has remained fairly stable, decreasing by only -1%. As a proportion of all RSL stock, vacant dwellings have decreased quite significantly, from 3.8% in 1999 to 1.8% in 2009. As total RSL stock increased over the same period, this is likely to be a function of Large Scale Voluntary Transfer from LA tenure: with Local Authorities transferring vacant stock that can be quickly let to the RSL sector, which then rapidly becomes occupied once in RSL tenure. This interpretation is supported by the fact that a higher proportion of RSL stock is 'management vacant' compared to LA stock. In 2009, 63% of vacant RSL stock in the East Midlands was 'management vacant', over five percentage points higher than the proportion of LA stock described as 'management vacant'.<sup>21</sup>

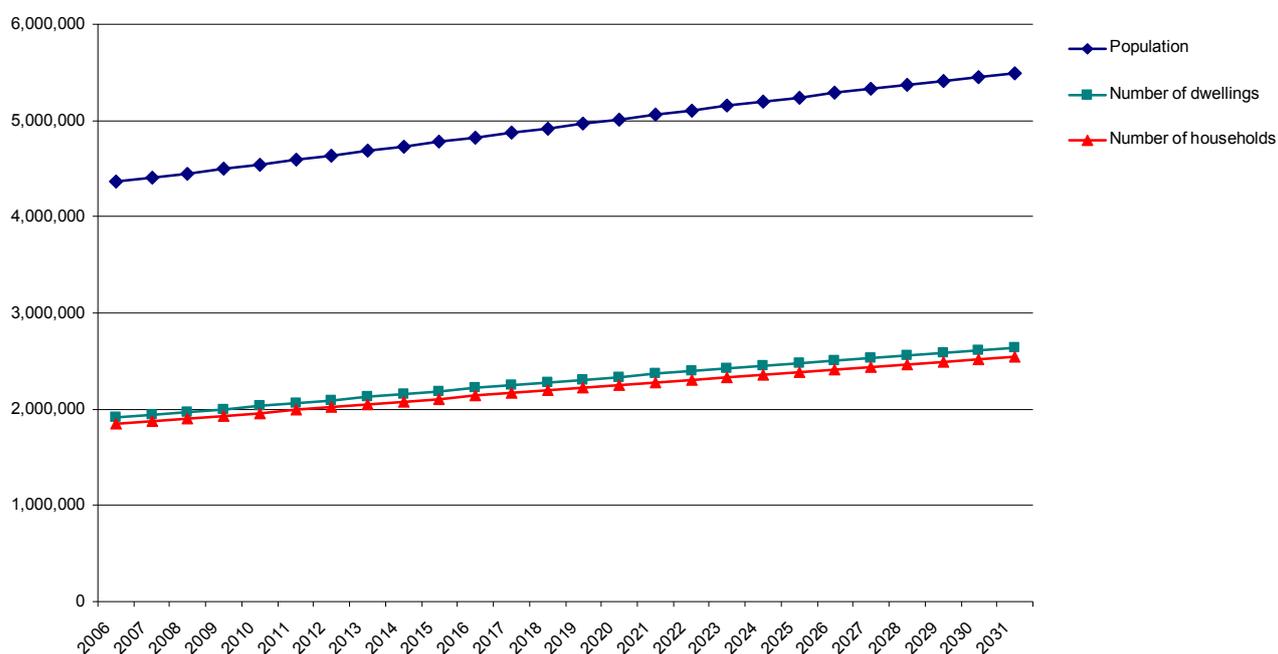
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<sup>20</sup> Department for Communities and Local Government (CLG), 'Vacant Dwellings: local authority vacant dwellings, by region: England 1989 – 2009', Table 611, November 2009.

<sup>21</sup> CLG, 'Vacant Dwellings: RSL vacants, by region, from 1994', Table 613, September 2009.

## 2.4.3 Projections of future dwelling stock

**Chart 19: Projections of population, dwellings and households in the East Midlands, 2006-2031**



Source: Simpson, L, et al., Population Studies and Projection Services, University of Manchester, on behalf of the East Midlands Regional Assembly, 'Demographic Projections for the East Midlands, Local Authorities and Housing Market Areas', June 2009.

Finally, this section presents the possible future demand for dwellings associated with population and household projections.

Chart 19 presents the official 2006 based projections for population and households to 2031 alongside dwelling numbers. This is based on work undertaken by the University of Manchester, using the ONS 2006-based Sub-National Population Projections. The dwelling figures are therefore trend based: they do not take into account planned housing developments, future policy change, or the capacity for local areas to accommodate this growth. The dwelling projections are produced by estimating rates of households sharing dwellings, vacant dwellings and second or holiday homes. These assumptions are based on the 2001 Census, adjusted in some cases by data from Local Authority Council Tax records. Chart 19 demonstrates that:

- Over the period 2006 to 2031, the projections assume 1.04 dwellings to every one household across the East Midlands as a whole. As stated above, the number of dwellings exceeds the number of households because of second homes, vacant dwellings, etc;
- Based on this ratio, an average increase of 27,570 households per annum would result in a demand for 28,600 additional dwellings per annum; and

- This would lead to a total requirement for 2,633,000 dwellings in 2031, representing 715,000 additional dwellings since 2006.

The above projections can be compared with estimates of actual dwelling stock for the period 2006 to 2009 (introduced in Section 2.4.1). This enables a comparison of actual increases in dwelling stock to the demand for additional dwellings associated with projected population growth:

- Official estimates of dwelling stock indicate an average of 19,250 additional dwellings per annum between 2005-2006 and 2008-2009. However, this includes a significant fall in the rate of increase in 2008-2009 (with only 14,000 additional dwellings over the year, compared to 21,000 in 2007-2008 and 22,000 in 2006-2007).
- The projections for the same period suggest a need for an additional 28,700 dwellings per annum, with no corresponding fall between 2008 and 2009. This is because the projections are trend based and cannot account for the impacts of the recession on house building. The projection for 2009 is for 2,002,000 dwellings, compared to the official estimate of dwelling stock of 1,937,000, a 3.4% difference.
- Two observations can be made from this. Firstly, the relatively small difference between the projections for 2009 and the estimates of actual dwelling stock suggests that the projections provide a reasonably accurate picture of likely requirement for housing in the short to medium-term. Secondly, the fact that population trends are not affected by recession in the same way as growth in dwelling stock suggests that there could be an accumulation of latent demand for housing during the current period of subdued construction activity.

### **Key Points: Dwelling stock in the East Midlands**

- Historically, the number of dwellings has closely followed the number of households in most regions. However, there are higher numbers of dwellings than households both regionally and nationally, due to vacant dwellings and second homes. In 2009, there were 1,937,000 dwellings in the East Midlands, 8.6% of the English total.
- Between 1998 and 2008, the number of dwellings in the East Midlands increased at a faster rate than the population, at 10% compared to 7.3%. However, for the period for which we have estimates of recent household trends, 1996 to 2006, the number of dwellings increased at a slower rate than households. The faster rate of household compared to population growth can be attributed to the decline in the number of people per household and increasing number of single person households.
- Dwellings in the East Midlands increased at a faster rate than the English average. Between 1998 and 2008, the rate of growth in East Midlands dwelling stock was the second fastest of the nine English regions.
- However, there is evidence to suggest that the recession has had an impact on the growth in dwelling stock in the region. Between 2008 and 2009, dwelling stock increased by only 0.7%, the smallest annual increase for the period 1991-2009.
- A larger proportion of dwellings are owner-occupied in the East Midlands than nationally, at 74% compared to 70%. The East Midlands also has a higher proportion of Local Authority owned stock than in England overall.
- However, stock owned by Registered Social Landlords has grown faster than other tenure categories over the decade to 2007, principally due to transfer from the LA sector.
- The East Midlands has the highest proportion of dwelling stock classed as houses or bungalows, and the lowest classed as flats or maisonettes of all English regions.
- Dwelling stock owned by Local Authorities has declined in all HMAs over the decade. Leicester and Leicestershire HMA accounts for the largest proportion of LA owned stock in the region whilst North Northamptonshire experienced the fastest rate of decline over the decade 1998-2008.
- The most urban HMAs account for the largest share of stock rented by RSLs. RSL stock has grown over time whilst LA owned stock has declined due to Large Scale Voluntary Transfer of public sector housing stock from LA to RSL tenure.
- The number of vacant dwellings in both LA and RSL tenure in the East Midlands has declined over time, but there is a higher proportion of vacant stock in the RSL sector that can be described as 'management vacant' – i.e. available for immediate letting or requiring only minor repairs. This may reflect the fact that Local Authorities transferred larger proportions of stock that was ready to let to RSLs, whilst vacant stock in LA tenure includes dwellings that have been taken into council ownership to be cleared for new development.
- Dwellings projections, derived from the 2006-based population and household projections, suggest that there could be a requirement for an additional 28,600 dwellings per annum if past trends continue. This would result in a total dwelling stock of 2,633,000 by 2031.

## 2.5 House prices and affordability

This sub-section describes recent trends in the housing market across the English regions and in the HMAs within the East Midlands. This will begin with an assessment of trends in house sales and house prices as context for the discussion of affordability that will follow.

Housing market trends are closely related to conditions in the wider economy. Chart 19 shows data reported by HM Land Registry for property sales between 1998 and 2008 (the latest year for which annualised data is available – thus only the first year of the slump in sales due to the recession is shown here). This illustrates that all English regions experienced overall increases in house sales over the period, but that the trend has been extremely volatile. There was a significant dip in 2005 for all regions, followed by a recovery in 2006 and 2007, and a subsequent steep decline in 2008 as the recession began to take effect. The Barker Review notes that volatility has been a significant feature of the UK housing market from the 1970s, characterised by successive periods of strong house sales and house price growth followed by slumps in sales and real house price decline. The Review also found that such fluctuations are more likely to have wider impacts on the economy, as household spending in the UK is more sensitive to the real and perceived performance of the housing market than in other European countries.<sup>22</sup>

### 2.5.1 House sales and prices

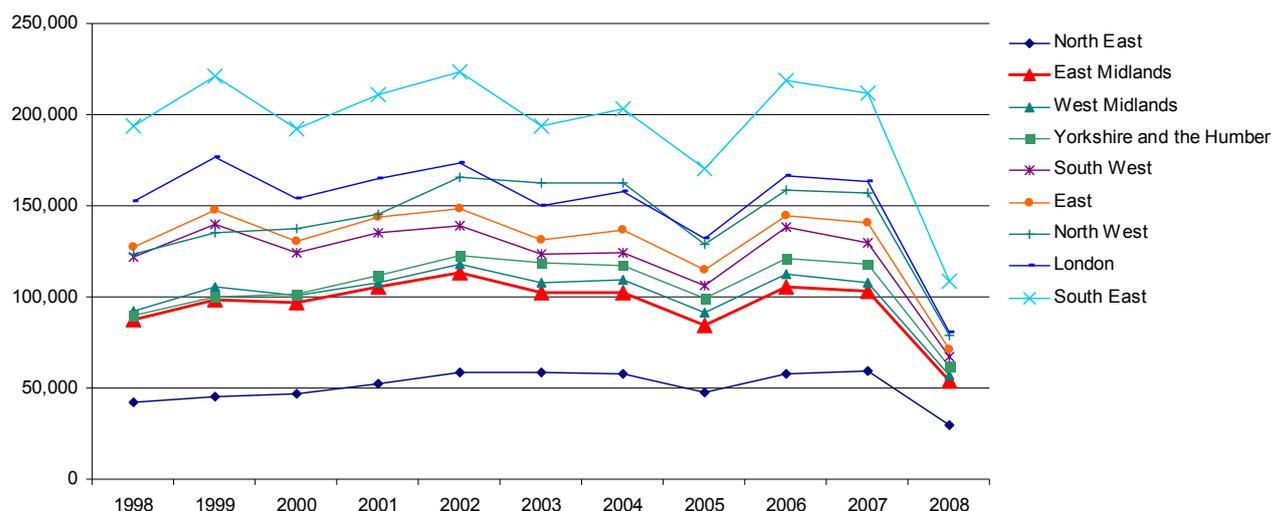
As shown in Chart 20, the South East, the region with the largest stock of dwellings (see Chart 11) has consistently recorded the highest volume of sales over the period 1998-2008. The South East also demonstrates some of the largest year-on-year fluctuations, with one of the steepest falls in sales between 2004 and 2005 and 2007 and 2008. Indeed, the most striking observation from this chart is the massive drop in sales across all regions between 2007 and 2008, as the housing market responded to the impact of the 'credit crunch' that became a full blown recession from the fourth quarter of 2008 (the second successive quarter of negative growth).

In the East Midlands, sales fell from 102,840 properties in 2007 to 54,200 in 2008 – meaning that the number of properties sold almost halved. Throughout the period the East Midlands has had the second smallest volume of sales, and has closely followed the trend of sales in the West Midlands and Yorkshire and the Humber, illustrating the inter-relationship of these housing markets. Prior to the contraction of the housing market through 2007 and 2008, sales in the East Midlands had been increasing at a somewhat faster rate than average in England (growing by 17.5% between 1998 and 2007, compared to 15.4% in England overall).

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<sup>22</sup> Kate Barker, on behalf of the Deputy Prime Minister and Chancellor of the Exchequer, 'Review of Housing Supply – Securing our Future Housing Need', Interim Report – Analysis, December 2003.

**Chart 20: Property sales by English region, 1998-2008**



Source: Communities and Local Government, 'Table 588: Housing Market – property sales based on Land Registry Data, by district, from 1996', May 2009.

Chart 20 also demonstrates that another impact of the recession was to reduce the disparity in property sales between regions. In 2007, there were 152,190 more property sales in the South East (the largest housing market) compared to the North East (the smallest), but in 2008 this difference had more than halved to 78,840. However, it is likely that the disparities in sales between regions will increase as the housing market recovers, with different regions recovering at markedly different rates.

Within the East Midlands, Leicester and Leicestershire HMA, which accounts for the largest dwelling stock, also accounts for the largest volume of sales, at 19.1% of the regional total in 2008. This was equivalent to 10,370 property sales. The other HMAs containing the region's largest cities, Nottingham Core and Derby, also account for large shares of the regional total, at 15.6% and 10.6% in 2008. Peak, Dales and Park HMA accounted for the lowest volume of sales in 2007, at 1,670 or 3.1% of the East Midlands total.

Alongside volume of sales, HM Land Registry also publishes trends in house prices. Chart 21 shows house prices for the English regions between 1998 and 2008. This shows that, unlike sales, there has been a steep and consistent year-on-year increase in most regions up until 2007-2008, when the impact of the recession becomes visible with an abrupt flattening out of the trend.

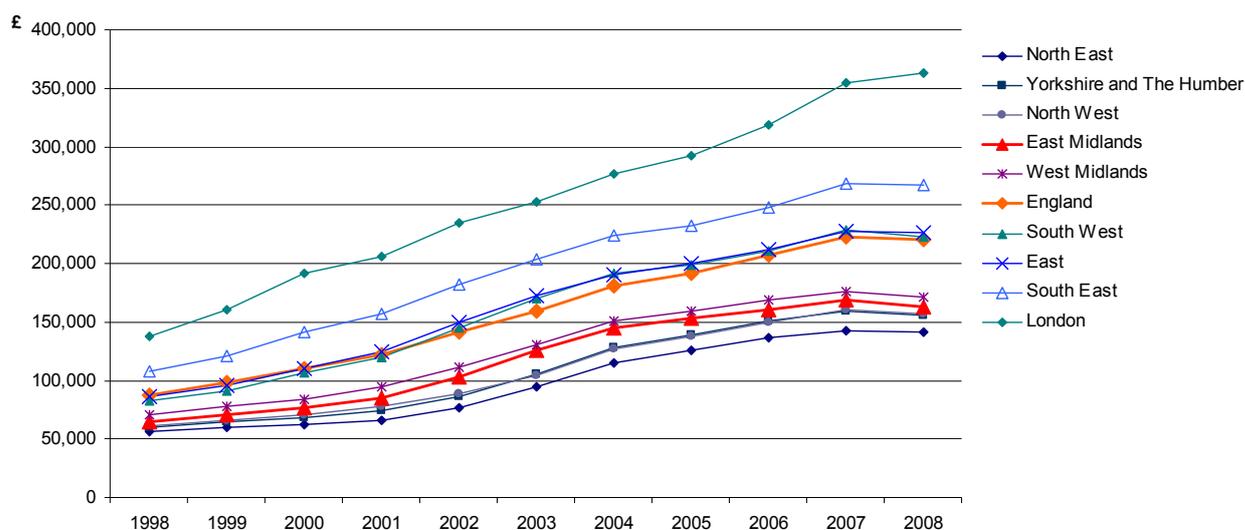
The Barker Review noted that the UK was unusual in terms of house price trends in particular. Over the past 30 years there has been a long-term upward trend in real house prices of around 2.5% per annum, a rate of growth that has been broadly in line with incomes. This has meant that, unlike many other goods and services, housing has not become cheaper over time compared to income. Rate of increases in many other European countries, such as France and Germany, have been lower. This is because of a number of factors, including the UK's small land mass relative to its population. This causes prices to increase quickly because land is a relatively scarce commodity. But policy and cultural factors have also had an impact. The UK

has historically had a low rate of house building compared to other countries, whilst there is an established tendency, supported by successive Government incentives, for people to aspire to purchase property rather than to rent. In Continental European countries renting remains much more prevalent.

Chart 21 demonstrates that house prices in the East Midlands have remained below the English average throughout the time-series shown.

In 2008, the mean house price in the East Midlands was £163,300, down -3.3% from £168,800 in 2007. This decrease is greater than the national average, where mean house prices fell from £222,600 in 2007 to £220,300 in 2008, a fall of -1%. Up until 2008, house prices in the East Midlands increased broadly in line with the national trend, although remain consistently lower than the English mean (by around 28% each year). However, house prices in the East Midlands have remained consistently higher than the means for Yorkshire and the Humber, the North East and North West. London is a significant outlier, with a mean house price of £362,800 in 2008 (over twice that of the East Midlands), and the gap between house prices in London and the national average has increased over the period. London is also the only English region to have experienced house price increases between 2007 and 2008, at 2.3%.

**Chart 21: Mean property prices by English region, 1998-2008**



Source: Communities and Local Government, 'Table 585: Housing Market – mean house prices based on Land Registry data, by district, from 1996', August 2009.

The Land Registry provides the latest official estimates of house prices, which are based on total registered sales for all property types. However, because these are estimates of all sales, there is a substantial time lag, with 2008 being the most recent year for which data is available. Clearly in light of the recession and early indications of a recovery in the economic indicators, it is important to provide a more recent snap shot on housing market conditions.

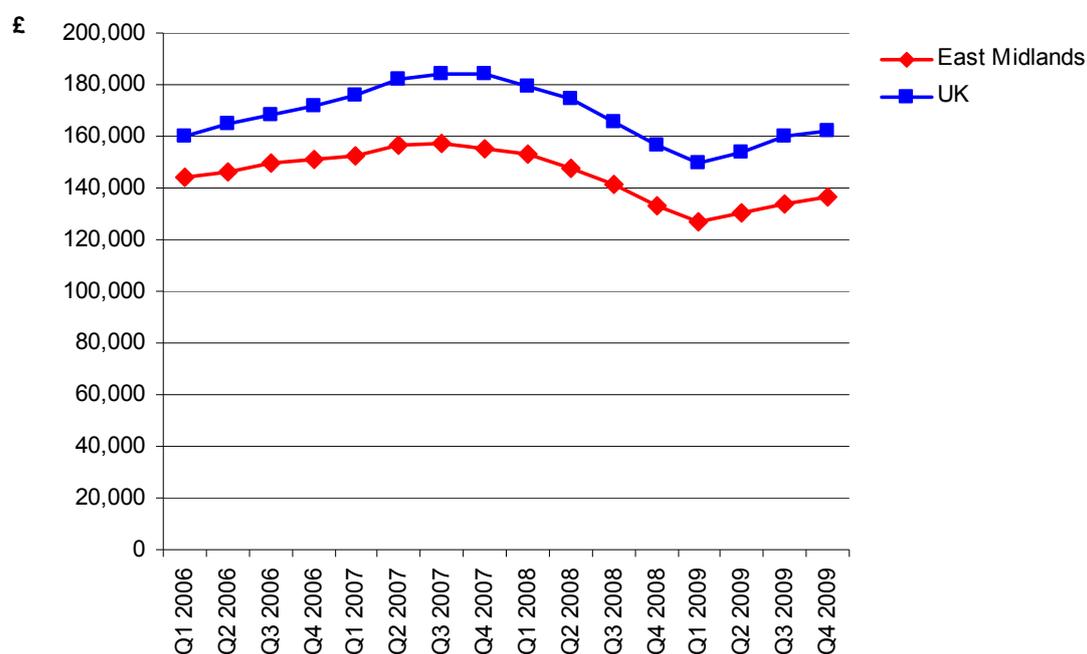
This is available from quarterly data published by the Nationwide Building Society.<sup>23</sup>

Chart 22 shows quarterly average house prices recorded by the Nationwide between the first quarter of 2006 and the fourth quarter of 2009, for the UK as a whole and for the East Midlands region. Broadly this shows that the rising trend up to 2007 illustrated in the Land Registry data in Chart 20 peaked in quarter 3 of 2007 in both the East Midlands and the UK before falling though 2008.

In the first quarter of 2006, the average value for new loans written in the East Midlands was estimated to be £143,840, compared to £160,319 in the UK. This increased to £156,924 in quarter 3 of 2007 in the East Midlands, before falling quarter-on-quarter to £126,673 in the first quarter of 2009. This represents a decline of -11.9% between quarter one of 2006 and quarter 1 of 2009, a steeper fall than the -6.6% experienced nationally.

However, from the second quarter of 2009, house prices have started to increase each quarter, to £136,492 in the East Midlands in quarter 4 of 2009, compared £162,116 in the UK. This represents a 2.5% increase on the fourth quarter in 2008, which is lower than the increase in the UK of 3.4%. This suggests that the housing market in the East Midlands is recovering less rapidly than other regions in the country.

**Chart 22: Nationwide estimates of quarterly average house prices, quarter 1 2006 – quarter 4 2009 (£)**



Source: Nationwide House Price Index (HPI), quarterly regional house price estimates, downloaded on 5th March, 2010.

<sup>23</sup> This is not comparable to the Land Registry estimates used elsewhere in this section because it is based on the sample of new loads written by Nationwide (rather than all sales recorded with the Land Registry), and it is adjusted for type of property and also seasonally adjusted. This data is broadly similar to data published by the Halifax, which uses a comparable methodology.

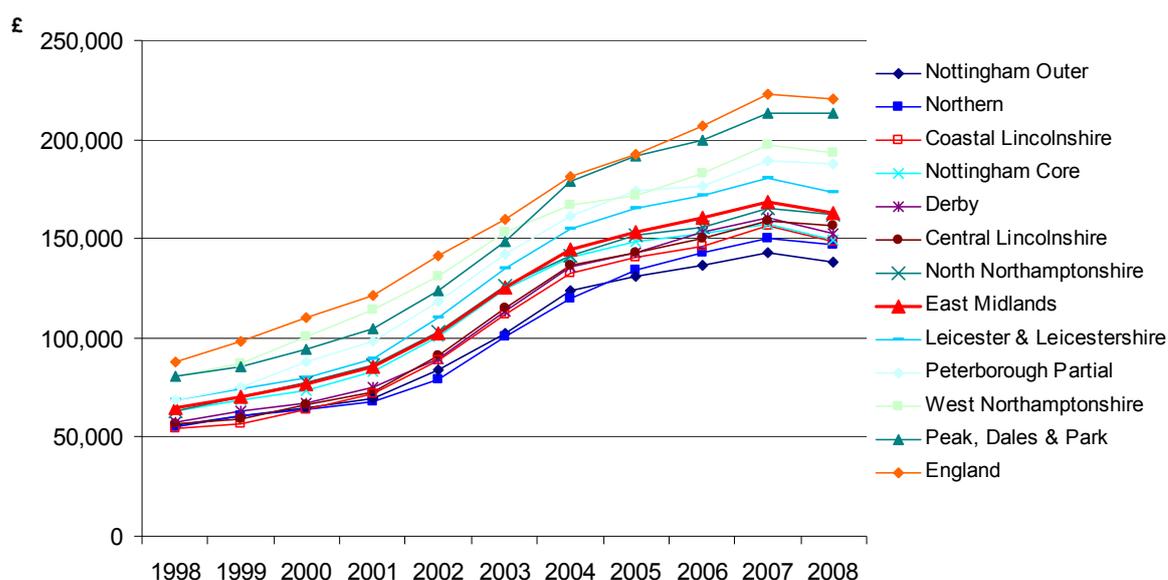
The annual Land Registry data is the only source of data that allows an assessment of house prices within the region. Chart 23 shows mean house prices for each of the region's HMAs, compared to the mean for the East Midlands overall and for England.

The first observation from this chart is that no HMA in the East Midlands has house prices that are above the mean for England, although the Peak, Dales and Park HMA is close, at £213,400 in 2008. It is important to note that this is the HMA with one of the lowest volumes of private sales and one of the smallest stocks of public sector dwellings, suggesting that, along with the attractive environment that characterises this area, limited supply has contributed to relatively high house prices.

The Nottingham Outer and Northern HMAs have the lowest mean house prices, and the trend in house price increase in recent years slowed in Nottingham Outer prior to the impact of the recession. Both HMAs have had relatively low rates of household growth, but Nottingham Outer experienced significant growth in house sales, whilst both HMAs have experienced significant rates of internal migration over the last decade. This could suggest that rather than weak demand for housing per se, there is little pressure on house prices from the earnings of people resident in the area, due to persistent deprivation and weak local employment opportunities, addressed in the Deprivation and Economic Inclusion chapter.

Chart 23 also shows that the impact of recession on house prices in 2008 varied across the region's HMAs. Peak, Dales and Park, the HMA with the highest house prices, saw little decrease in mean prices (from £213,500 in 2007), whilst some of the more urban HMAs saw very significant falls. Mean house prices in Nottingham Core HMA fell by 5.3% between 2007 and 2008, and fell by 5% in Derby HMA.

**Chart 23: Mean property prices by HMA, 1998-2008 (£)**



Source: Communities and Local Government, 'Table 585: Housing Market – mean house prices based on Land Registry data, by district, from 1996', August 2009.

## 2.5.2 Affordability

The above discussion of house prices provides context to the question of the affordability of housing in the East Midlands. 'Affordable housing' describes accommodation that is provided to specified individuals whose needs are not met by the market. This includes social rented and intermediate housing. Affordability is defined as a "cost low enough to afford, determined with regard to local incomes and local house prices."<sup>24</sup>

Affordability was prioritised by the Barker Review as an issue that affects both the general welfare of the population in the UK as well as acting as a serious and worsening barrier to social equity. Increasingly unaffordable housing affects general welfare by inducing households, developers and landlords to make more intensive use of existing housing, either through multiple occupancy or through developing and occupying smaller dwelling spaces. This can lead to overcrowding, impacting upon social cohesion problems and putting undue demands on local infrastructure. It can also lead households to substitute their desired form of tenure ('getting on the ladder' of home ownership) with rented dwellings, or moving to a different, more affordable location than desired. The 'distributional impacts' of poor affordability impede social equity, because lack of affordable housing has a disproportionate impact on lower income households. It can thus compound social exclusion.<sup>25</sup>

For this reason, the Government's favoured indicator of affordability is the ratio of house prices that fall in the lower quartile range of all house prices against earnings that fall in the lower quartile range of all earnings. This is in order to focus discussion of affordability on providing access to housing to those most likely to be excluded from property sold at the market price. This is based on data from the Land Registry (house prices) and the HCA, and Local Authorities (for rental prices) and the Annual Survey of Hours and Earnings (ASHE), an ONS survey based on a sample of PAYE employers.

The National Housing and Planning Advice Unit (NHPAU) estimated that nationally this ratio stood at 4 in 2000. In other words, a house in the lower quartile of the total price range was, on average, four times the price of annual earnings that fall into the lower quartile range. By 2006 this ratio had deteriorated to 7.25. The NHPAU go on to predict that even if the level of building currently set out in the emerging RSSs is achieved, affordability would still worsen to a ratio of 8.6 by 2026.<sup>26</sup>

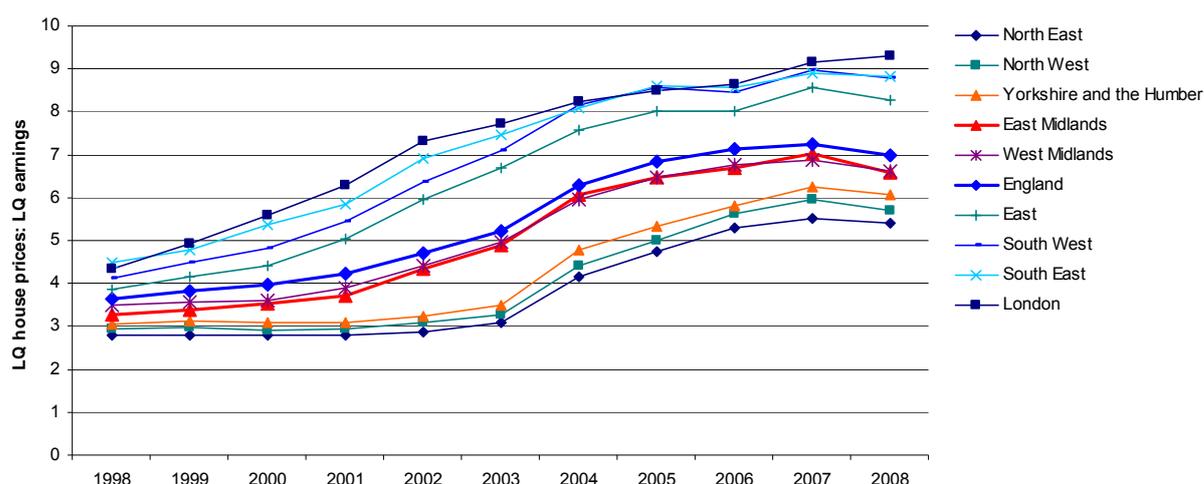
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<sup>24</sup> Ibid, 'Housing Statistics 2008'.

<sup>25</sup> Ibid., Barker, Interim Report – Analysis, December 2003.

<sup>26</sup> National Housing and Planning Advisory Unit (NHPAU), 'Meeting the housing requirements of an aspiring and growing nation: taking the medium and long-term view – advice to the Minister about the housing supply range to be tested by Regional Planning Authorities', June 2008.

**Chart 24: Ratio of lower quartile house prices to lower quartile earnings by English region, 1998-2008**



Source: Land Registry, Communities and Local Government and ONS Crown Copyright, presented by the ONS East Midlands Regional Team, March 2009.

Chart 24 shows lower quartile house prices to lower quartile earnings ratios for the nine English regions between 1998 and 2008.<sup>27</sup> This illustrates a widening gap between the north and the south of the country, with trends in affordability in the East Midlands and West Midlands closely tracking the national average. In 2008, the affordability ratio in the East Midlands was 6.6, compared to an average for England of 7.0.

Regions in the Greater South East have experienced steadily increasing affordability ratios throughout the decade, whilst the North East, North West and Yorkshire and the Humber maintain stable affordability from 1997 to 2002, before sharply increasing from 2003 onwards. Affordability ratios in the East and West Midlands have remained higher than the three northern regions throughout the period, but the gap has significantly increased from 2000, as the trend in both regions went up in line with the national average.

In the East Midlands, affordability ratios have almost doubled over the 10 years for which data is available. In 1998, the average house in the lower quartile of the house price range was 3.4 times the average lower quartile salary. By 2001 this had increased to 3.7, and then the year-on-year changes increase markedly, with the region's affordability ratio reaching 7 by 2007, before decreasing to 6.6 in 2008 as house prices began to fall with the impact of the recession. However, although the house price data may suggest that affordability issues may have eased, increasing difficulties in accessing finance following the 'Credit Crunch' that preceded the recession means that housing has remained out of reach for many. For other regions, the chart shows that:

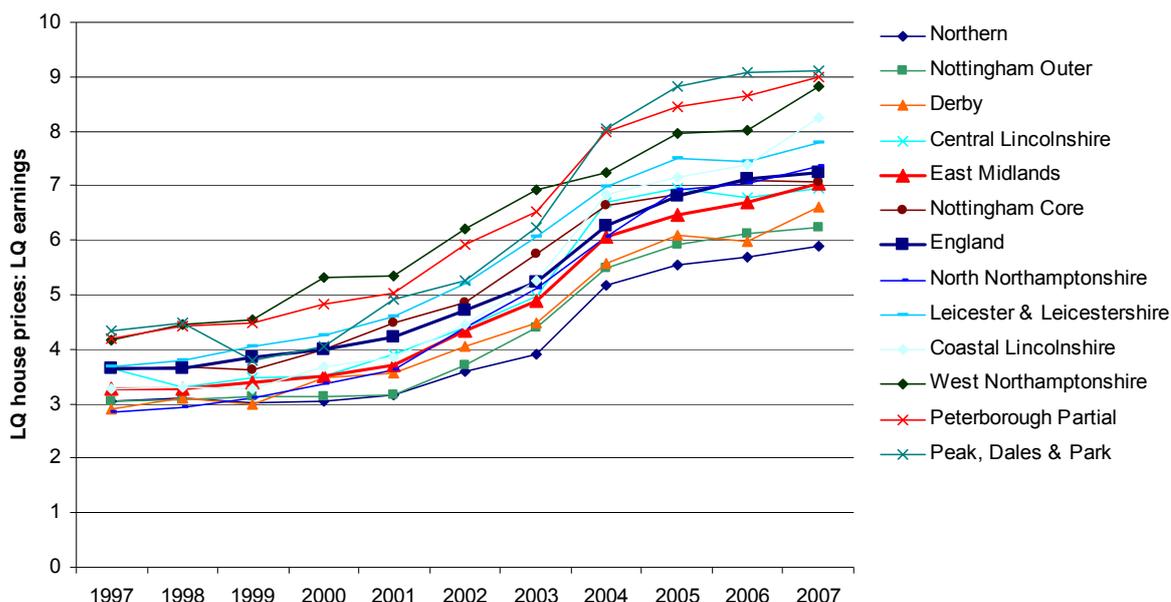
<sup>27</sup> 2008 data for the ratio of lower quartile house prices to lower quartile earnings had recently been published at the time of writing for regions and Local Authority Districts, but the necessary data to calculate ratios for aggregate geographies, such as HMAs, was not available for 2008, as 2007 remained the latest year for which published annual house price data was available.

- Affordability ratios have been similarly high in London, the South East and South West throughout the period. Affordability ratios in London and the South East in 1998 were 4.9 and 4.8 respectively. By 2007, they had risen to 9.1 and 8.9.
- Affordability ratios fell in all regions except London between 2007 and 2008. In London, they increased slightly to 9.3. The biggest fall was in the East Midlands (with a decrease of 0.4 points from 7 to 6.6), whilst ratios in the East of England and the West Midlands both decreasing by 0.3 points.
- Affordability ratios remained lowest out of the nine regions in the North East throughout the period, between 2.8 in 1998 and 5.4 in 2008.

The necessary data to calculate ratios for 2008 at HMA level was not available at the time of writing, so Chart 25 shows trends in affordability ratios over time across the HMAs between 1997 and 2007. As well as a clear upward trend over the decade (particularly after 2001), it illustrates quite a wide distribution of ratios, from under six to over nine in 2007. It also shows that affordability in the region has diverged over time: ratios being grouped between three and just over four in 1997.

- The Peak, Dales and Park HMA was least affordable in both 1997 and 2007 (with ratios of 4.3 and 9.1 respectively).
- Peterborough Partial, Central Lincolnshire and West Northamptonshire have consistently recorded relatively high affordability ratios throughout the time series.
- In 2007, the HMAs in the north of the region were most affordable, with the Northern HMA most affordable (with a ratio of 5.9), whilst in 1997 Derby and North Northamptonshire were most affordable, with ratios of 2.9 and 2.8 respectively.

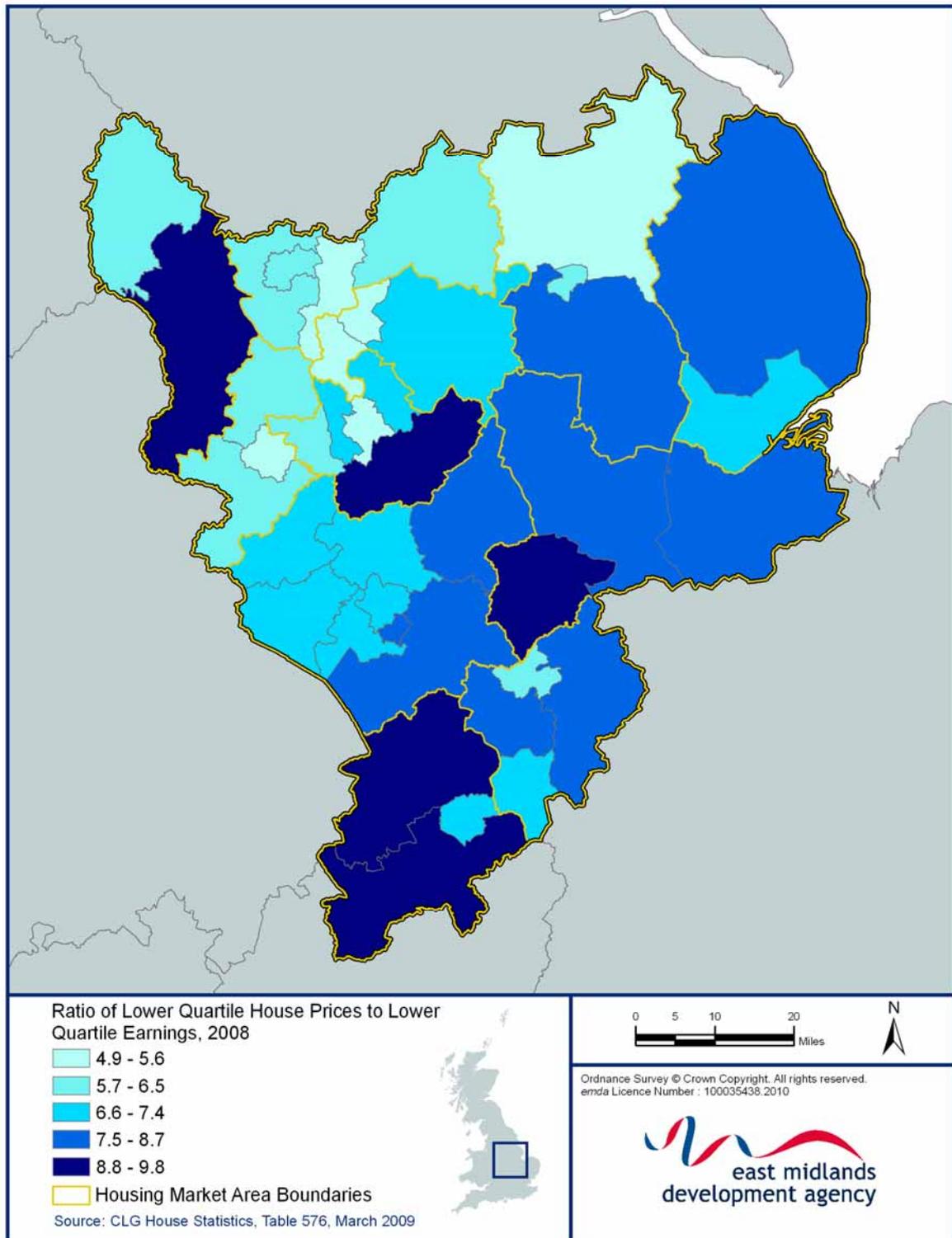
**Chart 25: Ratio of lower quartile house prices to lower quartile earnings by HMA, 1997-2007**



Source: Land Registry, Communities and Local Government and ONS Crown Copyright, presented by the ONS East Midlands Regional Team, March 2009.

Map 2 shows that although affordability ratios are generally higher in the more rural south and east of the region, there are three clear 'hotspots' (one of which is in the north west of the region). The Derbyshire Dales had the highest ratio of lower quartile house prices to lower quartile earnings in the region in 2008, at 9.8, followed by South Northamptonshire at 9.7 and Rushcliffe (south of Nottingham City) at 9.3. In all three districts, high house prices are the principal reason for poor affordability. However, the district of East Lindsey also has a relatively high affordability ratio, at 8.4. In this case it is not due to house prices, which are relatively modest, but low wages. This is an example of an area where quality of employment is the principal driver of poor affordability, illustrating the close relationship between housing supply issues and labour market conditions.

**Map 2: Ratio of lower quartile house prices to lower quartile earnings by Local Authority District / Unitary Authority, 2008**



### **Key Points: Affordability**

- Housing market trends are closely related to conditions in the wider economy. House prices in the UK are particularly volatile compared to other European countries, and have grown at a similar rate to income, meaning that, unlike other goods and services, housing has not become cheaper over time compared to income.
- The Barker Review prioritised affordability as an issue that affects both the general welfare of the population, through inducing over-crowding and the development and occupation of less desirable dwellings, and acts as a barrier to social equity, by disproportionately affecting lower income households.
- The number of houses sold in the East Midlands almost halved between 2007 and 2008 with the onset of recession and associated contraction of the housing market. Prior to this, house sales in the region had been increasing at a faster rate than the national average, at 17.%% between 1998 and 2007, compared to 15.4% in England overall.
- Leicester and Leicestershire HMA accounted for 19.1% of sales in 2008, the largest share of the East Midlands housing market.
- House prices in the East Midlands have remained below the English average, but have closely followed the national trend. House prices increased year-on-year until 2007, before falling in 2008. The decrease in mean prices in the region between 2007 and 2008 was faster than in England overall, at -3.3% compared to -1%.
- Quarterly data shows that house prices both regionally and nationally began to fall after the third quarter of 2007, with the value of loans written in the East Midlands reaching a low point of £126,673 in the first quarter of 2009. House prices appear to have recovered both regionally and nationally after this point, with prices for the fourth quarter of 2009 2.5% higher than the first quarter. However, house prices in the East Midlands appear to be recovering at a somewhat slower rate.
- No HMA in the region records a mean house price in excess of the English average. Although there is generally a north/south divide in house prices in the region, the HMA with the highest mean house price is the Peak, Dales and Park HMA. The Nottingham Outer and Northern HMAs have the lowest house prices in the region.
- Affordability has been worsening in the UK as a whole, and the NHPAU estimate that the national affordability ratio will increase from 7.2 in 2006 to 8.6 in 2026.
- In 2008, East Midlands house prices in the lower quartile were 6.6 times earnings in the lower quartile. This has almost doubled since 1998, but is lower than the ratio of 7 in England. Regions in the south of England have considerably higher affordability ratios than regions in the midlands and the north.
- Affordability ratios for HMAs are not available for 2008, but in 2007 the Peak, Dales and Park HMA was the least affordable in the East Midlands, with lower quartile house prices 9.1 times higher than lower quartile earnings. The most affordable HMAs on this measure are the Northern HMA and Nottingham Outer HMA.
- Rural areas tend to be less affordable than the more urban parts of the region.
- The Coastal Lincolnshire HMA has a relatively high affordability ratio although house prices are relatively low. This is due to lower residence based earnings. This shows that income deprivation can affect lower quartile affordability as well as housing market issues.

## 2.6 Conditions of stock

In order to assess how effectively the region's supply of dwellings meets the current and expected future requirements of the population, it is important to discuss issues of quality as well as quantity. This section will look at the proportion of homes categorised as 'decent', those that are overcrowded, and those that are failing to meet other standards of adequacy, such as lacking central heating or suffering from damp, as well as households' overall satisfaction with their accommodation.

According to the Government's housing strategy, the vast majority of landlords will be expected to ensure that homes are 'decent' by 2010. 'Decent' homes are defined as accommodation that is free of 'category 1 hazards' (as set in the Housing Health and Safety Rating System (HHSRS), which came into effect in April 2006). A decent home should also:

- Be in a reasonable state of repair. A home would not be 'decent' if one or more key building components was found to be old, and because of this, needed replacement or major repair;
- Have reasonably modern facilities and services, i.e. a kitchen that is less than 20 years old, and;
- Should provide a reasonable degree of thermal comfort, meaning that the dwelling should have both effective insulation and efficient heating.<sup>28</sup>

This is a minimum standard that should trigger remedial action on behalf of the landlord (i.e. renovation, replacement or repair). The proportion of homes that fail to meet these criteria are estimated at a regional level through the English House Condition Survey (EHCS), which combines three separate but related surveys that take place over two consecutive years. These comprise an interview with the household, a physical survey of the dwelling carried out by a surveyor, and a market value survey of a dwelling. This section uses the 2005-2006 EHCS, which covers the combined results of field work conducted through 2004-2005 and 2005-2006. Analysis on the East Midlands content of the EHCS was conducted by the National Centre for Social Research (NatCen) on behalf of *emda*.<sup>29</sup>

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<sup>28</sup> Communities and Local Government, 'A Decent Home: Definition and Guidance for Implementation – Update', June 2006.

<sup>29</sup> NatCen, on behalf of *emda*, 'Evidence Base for the Single Regional Strategy – NatCen contribution', March 2009.

### 2.6.1 Decent homes

In the East Midlands in 2005-2006, a slightly higher proportion of private households lived in dwellings that were classified as 'non-decent', at 35% of all households, compared to 34% in England overall.<sup>30</sup> Table 2 shows how the region compares to the national average across the different categories of household used in the survey, with the following statistically significant differences:

- The region has a slightly lower proportion of private households who own their home outright living in 'non-decent' accommodation, but has a significantly higher proportion of households in private rented accommodation living in 'non-decent' dwellings, at 58% compared to 47% nationally.
- There is also a significant difference in the proportion of households who have been living in their dwelling for three – four years that are in 'non-decent' accommodation (38% in the East Midlands compared to 29% in England overall).
- Households where the Household Reference Person (HRP, the person with the highest income, or the oldest in a joint-income household where the incomes are equal) is unemployed are particularly likely to be in 'non-decent' accommodation in the East Midlands compared to England overall, at 57% compared to 42%.
- The household composition category most likely to be in 'non-decent' accommodation regionally is lone parent households (where 43% are in 'non-decent' dwellings, compared to 33% in England overall). However, nationally it is single person households aged under 60 that are most likely to be in 'non-decent' accommodation (at 39% in England, compared to 38% in the East Midlands).

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<sup>30</sup> The 2005-2006 EHCS uses a definition of 'decent homes' updated to reflect the Housing Health and Safety Rating System (HHSRS) criteria of hazards. This means that this data is not comparable to earlier surveys, and results in a significantly higher proportion of dwellings identified as 'non-decent' (for example: on the old definition, 27% of dwellings would be classed as non-decent in 2005-2006; using the updated HHSRS definition, this increases to 35%).

**Table 2: Households in 'non-decent' dwellings, 2005-2006 (%)**

2005-2006		Households in 'non-decent' dwellings – HHSRS (%)	
		East Midlands	England
Household tenure type	Own with mortgage	33	33
	Own outright	34	36
	Private rented	58*	47
	Social rented	29	28
Length of residence	Less than 1 year	37	36
	1-2 years	33	32
	3-4 years	38*	29
	5-9 years	31	32
	10-19 years	29	33
	20-29 years	38	37
	30+ years	43	43
HRP economic activity status	Full-time work	32	34
	Part-time work	43	36
	Unemployed	57*	42
	Retired	34	35
	Other Inactive	39	34
Household composition	Single person aged <60	38	39
	Single person aged 60 or over	35	38
	Couple <60	35	35
	Couple aged 60 or over	37	32
	Couple with dependent children	30	31
	Lone parent with dependent children	43*	33
	Other	37	37
<b>All households</b>		<b>35</b>	<b>34</b>

\* Indicates a statistically significant difference between an estimate for the East Midlands and the corresponding estimate for England at the 5% level.

The base is all private households, where the unweighted base was 1,403 in the East Midlands and 15,648 in England.

Source: NatCen, on behalf of *emda*, 'Evidence Base of the Single Regional Strategy – NatCen Contribution', Appendix A, EHCS tables: Table E.1 and E.2, Decent Homes – HHSRS Definition.

Table 3 shows the proportion of dwellings classed as 'non-decent' in 2005-2006 by the different categories of dwelling used in the EHCS. The same proportion of all dwellings were classed as 'non-decent' in the East Midlands as England overall, at 35%. However, there are a number of statistically significant differences in the dwelling categories in the East Midlands compared to the national picture:

- Terraced houses in the East Midlands were considerably more likely to be 'non-decent' than in England overall, at 45% compared to 39%;

- Flats were considerably less likely to be ‘non-decent’ in the East Midlands than nationally, at 29% compared to 38%; and
- Older dwellings were more likely to be ‘non-decent’ in the East Midlands, with 65% of dwellings built before 1919 classed as ‘non-decent’ in the region compared to 58% nationally. Dwellings built between 1919 and 1944 were also more likely to be ‘non-decent’ in the East Midlands, at 45% compared to 40% nationally.

In addition it should be noted that ‘non-decent’ dwellings were most likely to be in city and urban areas in the East Midlands, with 45% classed as ‘non-decent’ in such areas regionally, compared to 42% nationally. However, in England overall, dwellings in rural areas were the most likely to be classed as ‘non-decent’, at 43%, compared to 41% in the East Midlands.

**Table 3: Dwellings classed as ‘non-decent’, 2005-2006 (%)**

2005-2006		Dwellings that are ‘non-decent’ – HHSRS (%)	
		East Midlands	England
Dwelling type	Terraced	45*	39
	Semi-detached	37	34
	Detached	32	32
	Bungalow	23	25
	Flat	29*	38
Dwelling age	Pre-1919	65*	58
	1919 to 1944	45	40
	1945 to 1964	34	32
	1965 to 1980	26	30
	Post-1980	11	12
Type of area	City and other urban centres	45	42
	Suburban residential areas	31	30
	Rural areas	41	43
<b>All dwellings</b>		<b>35</b>	<b>35</b>

\* Indicates a statistically significant difference between an estimate for the East Midlands and the corresponding estimate for England at the 5% level.

The base is all private dwellings, where the unweighted base was 1,447 in the East Midlands and 16,269 in England.

Source: NatCen, on behalf of *emda*, ‘Evidence Base of the Single Regional Strategy – NatCen Contribution’, Appendix A, EHCS tables: Table E.3 and E.4, Decent Homes – HHSRS Definition.

In summary, the 2005-2006 EHCS illustrates some important messages for tackling the problem of ‘non-decent’ dwellings at a regional level. Firstly, in the East Midlands it is more likely to be an urban problem than in England overall and particularly relates to older and terraced housing stock. Dwellings in the private rented sector are also significantly more likely to be ‘non-decent’ compared to the national average. Moreover, the problem of ‘non-decent’ accommodation is more likely to affect households that are already vulnerable in the East Midlands than nationally, such as those where the reference person is unemployed, or those classed as lone-parent families.

## 2.6.2 Overcrowding and other issues of housing adequacy

The Survey of English Housing (SEH) provides important information on the adequacy of accommodation for households living in both private and public sector accommodation.<sup>31</sup>

A key output from the SEH is the proportion of households that live in accommodation that meets the 'bedroom standard' of overcrowding. This defines a dwelling as 'overcrowded' if the number of bedrooms available to the occupiers is less than that which should be allocated to them according to the 'bedroom standard' formula.<sup>32</sup>

According to the SHE 2006-2007, a lower proportion of households in the East Midlands live in dwellings that fail to meet the 'bedroom standard' of overcrowding compared to England overall, at 2% compared to 3% (a difference which NatCen report as statistically significant), and a higher proportion were found to be above the standard (79% compared to 72% nationally). Furthermore, looking at the different categories of tenure and dwelling type:

- Households in private rented accommodation were significantly more likely to be in accommodation that was above the 'Bedroom standard' in the East Midlands than in England overall, at 67% compared to 53%. This contrasts with the higher proportion of 'non-decent' homes in the private rented sector in the region; and
- Terraced houses, which were also more likely to be 'non-decent' in the East Midlands, were also less likely to be overcrowded – with 76% of terraced houses above the 'bedroom standard' in the East Midlands compared to 73% nationally.

This data suggests that overcrowding is slightly less of an issue in both the private rented sector and in the total housing stock in the East Midlands compared to the national average.<sup>33</sup>

The SEH also provides information on housing adequacy according to central heating and the presence of damp. In 2006-2007, households in the East

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<sup>31</sup> The Survey of English Housing (SEH) is a survey of households that has run annually from 1993-1994 until 2007-2008, after which it was combined with the EHCS to form the new English Housing Survey (EHS). The sample is stratified by Government Office Region and has a national sample of between 15,000 and 20,000 households each year. Unlike the EHCS, which is a dwelling based sample, the SHE is household based.

<sup>32</sup> The formula for the 'bedroom standard' as defined in the Housing Act 2004 does not count very small rooms (less than 50 ft<sup>2</sup>) nor kitchens or living rooms. The formula allocates a bedroom to two adults living as a couple or single adults over 21 years of age, but for younger people recognises that sharing may be required – although this is dependent on gender. For example, two people aged between 10 and 20 could share a bedroom without the dwelling being 'overcrowded', but only if they are of the same gender.

<sup>33</sup> NatCen, on behalf of *emda*, 'Evidence Base of the Single Regional Strategy – NatCen Contribution', Tables 2.19, 2.20, 2.25 and 2.26.

Midlands were slightly more likely to report that they had central heating in all of the rooms than the national average (at 90% compared to 89% of all households respectively), and less likely to state that they had central heating in none of the rooms (at 6% compared to 7%). However, households in the private rented sector were less likely to report central heating in all rooms in the East Midlands and more likely to report central heating in none of the rooms.<sup>34</sup>

Households in the East Midlands were also less likely to report damp due to a leaking roof, damp walls or floors, damp foundations, rotten floorboards or window frames. Regionally, 12% of households reported damp in 2006-2007, compared to 14% nationally. However, terraced houses were more likely to have damp in the East Midlands than nationally, at 19% compared to 17%, whilst flats were less likely (at 19% compared to 21%). Again, private rented stock fairs less well in the East Midlands than in England overall, with 29% of households in this sector reporting damp regionally compared to 25% nationally. However, in this case, households in the social rented sector were significantly less likely to have damp problems in the region, at 16% compared to 21%.<sup>35</sup>

Finally, the SEH reports an overall measure of households' satisfaction with their present accommodation. In 2006-2007, a slightly higher proportion of total households in the East Midlands stated that they were 'very satisfied' with their accommodation than nationally, at 63% compared to 62%. Tenants in the private and social rented sector in the region were less likely to be 'very satisfied' compared to the national average (at 42% compared to 43% for private rented tenure, and 42% compared to 46% for social rented tenure).<sup>36</sup>

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<sup>34</sup> Ibid, Tables 2.29 and 2.30.

<sup>35</sup> Ibid, Tables 2.37 and 2.38.

<sup>36</sup> Ibid, Tables 2.41 and 2.42.

### **Key Points: Condition of dwelling stock**

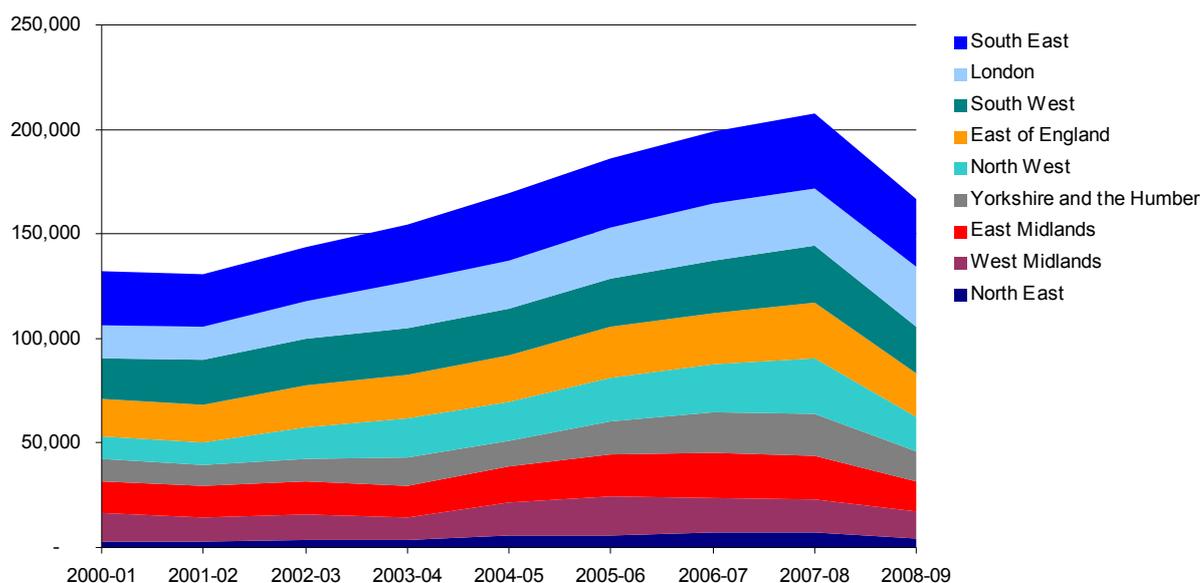
- The East Midlands has a slightly higher proportion of private households classed as living in 'non-decent' accommodation than in England overall, at 35% compared to 34%.
- A significantly higher proportion of households in private rented accommodation in the region lived in 'non-decent' accommodation, at 58% compared to 47% in England.
- Unemployed and lone parent households were also more likely to be in 'non-decent' accommodation in the East Midlands than nationally.
- Terraced, older houses and dwellings in urban areas were also more likely to be 'non-decent' in the East Midlands compared to the national average.
- However, households in the region were less likely to be overcrowded than nationally, and more likely to be in accommodation that was above the 'bedroom standard' of overcrowding.
- Households in the East Midlands were also more likely to have central heating and less likely to report damp than households in England overall.
- Moreover, households in the East Midlands were slightly more likely to report that they were 'very satisfied' with their accommodation than nationally, with the exception of tenants in the private rented sector, who were less likely to be 'very satisfied' than the national average.

## **2.7 Trends in house building**

The following section will briefly look at trends in house building and compare these to trends in projected demand described in Section 2.4.3.

Data on net additional dwellings built in each Local Authority is published annually by the Department for Communities and Local Government. This measures the absolute increase in stock (private and public tenure) between one year and the next, including other losses and gains (such as conversions and demolitions). It is collected by Local Authorities and Regional Planning Bodies to monitor progress toward RSS targets in Annual Monitoring Reports (AMRs), and allows observations to be made on the likelihood that increasing stock may meet the growing demand shown through household increases and affordability ratios.

**Chart 26: Net additional dwellings by region, 2000-2001 to 2008-2009**



Source: Communities and Local Government, 'Net additional dwellings to the stock by region', Table 118, February 2010.

Chart 26 shows net additional dwellings each year for each English region, stratified in ascending order to represent their contribution to the national total. This shows that:

- The number of net additional dwellings increased in most regions each year between 2001-2002 and 2007-2008, before falling significantly in 2008-2009 with the impact of recession on house building;
- In the East Midlands, there were 14,210 net additions in 2008-2009, down from 20,600 in 2007-2008;
- In the last three years' of data, the East Midlands' share of the national total has fallen. In 2006-2007, net additions in the East Midlands accounted for 11.1% of total additions in England. In 2008-2009, the proportion fell to 8.5%, suggesting that house building in the East Midlands has been more heavily affected by recession than elsewhere;
- Section 2.4.3 provides estimates of dwelling stock required to meet projected demographic change, if current trends in household formation, occupancy, etc. were to continue. According to the projections for the period 2006 to 2009, a total of between 25,000 and 30,000 additional dwellings per annum would be required to meet demand. Chart 26 illustrates that actual net additions fell below this level throughout the period, especially in 2008-2009, when they fell to less than half the level necessary to meet the demand associated with projected population growth;
- This suggests that, to meet projected population change as well as the latent demand built up during the period of reduced house building, net additions will have to increase significantly in the next few years.

## 2.7.1 Design and build quality of new developments in the East Midlands

As introduced in Section 2.2.1, design and build quality is an increasingly important theme in national housing policy. The Building for Life criteria has provided CABE with a framework for auditing new housing developments. In 2007, CABE published an assessment of the design quality of new housing developments built between January 2003 and August 2006. The assessment looked at approximately 33 housing developments (each comprising at least 20 units)<sup>37</sup> in each of the nine English regions. In the East Midlands, this included large developments in Worksop, Retford, Rushcliffe, Broxtowe, Nottingham, Ashfield, Newark and Northampton, along with smaller developments in Rutland and Charnwood. Overall, CABE concluded that their assessment “paints an uncompromising and unflattering picture of the quality of new housing” where, “far too much development is not up to standard... and [there is] far too little that is exemplary in design terms.”<sup>38</sup>

Unfortunately this critical assessment particularly applies to new developments in the East Midlands. Chart 27, illustrates that:

- The East Midlands has by far the highest proportion of developments rated as having ‘poor’ design quality out of the nine regions, at 55% compared to 29% nationally. This rating means that less than half of the Building for Life criteria had been met, meaning that the development cannot be categorised as a ‘good development’ as set out in PPS3. ‘Poor’ developments make up the largest share of the developments assessed by CABE in the East Midlands;
- The second largest proportion of new developments in the East Midlands were rated as ‘average’, at 42%, compared to 53% nationally (a significant majority of the national picture). Developments rated as ‘average’ would not merit a Building for Life award, and are, in CABE’s review, a “wasted opportunity to generate value and create sustainable places.” However, they would meet the requirements set out in PPS3; and
- No development schemes in the East Midlands were rated ‘good’, whilst 3% (equivalent to a single development scheme) were rated as ‘very good’, compared to 13% and 5% respectively in England overall. This is clearly a very negative picture of the design quality of new housing in the East Midlands compared to elsewhere, which will be investigated through research undertaken in 2010.<sup>39</sup>

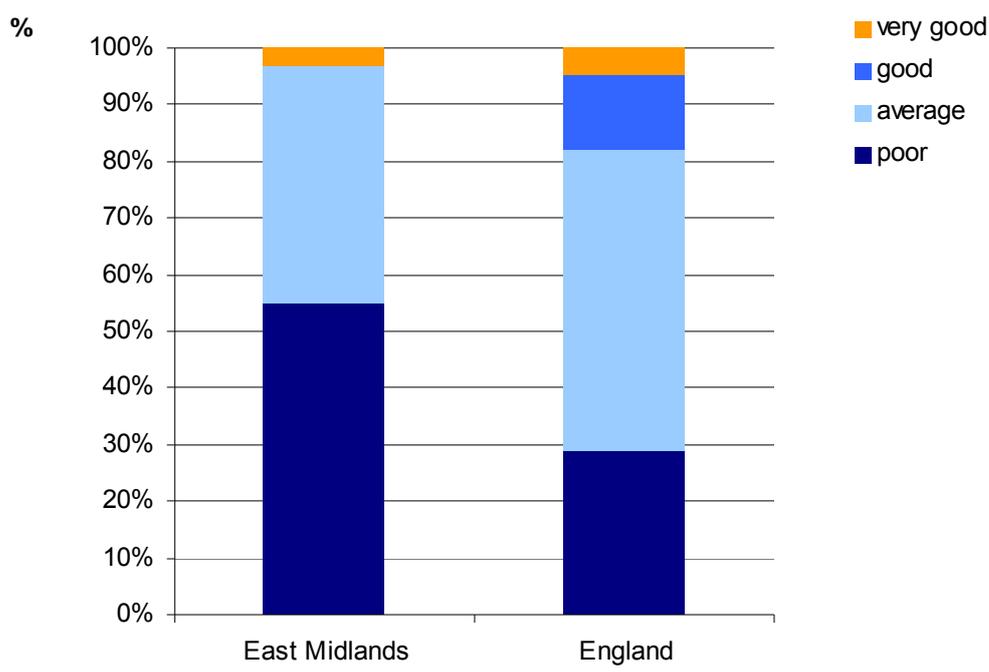
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<sup>37</sup> The schemes assessed were drawn from the output of the 10 largest developers in each region, predominantly from the mid-range in terms of price. Urban design specialists assessed the developments according to the 20 criteria set out in Building for Life.

<sup>38</sup> CABE, ‘Housing Audit: Assessing the design quality of new housing in the East Midlands, West Midlands and South West’, 2007.

<sup>39</sup> In February 2010, *emda* commissioned a research project into ‘Housing Design Quality and Sustainable Economic Development in the East Midlands’, looking at the literature on impacts of good design and outcomes such as employment, enterprise, low carbon and community cohesion, and producing case studies on more recent developments in the East Midlands. This will report in early summer 2010.

**Chart 27: CABE audit of design quality, England and the East Midlands (% of new housing developments)**



Source: CABE, 'Housing Audit: Assessing the design quality of new housing in the East Midlands, West Midlands and South West', 2007.

**Key Points: Trends in house building and design quality**

- The number of additional dwellings increased in most regions until 2008-2009, when they fell significantly as the recession impacted on house building. In the East Midlands, net additions fell more than in other regions, with the share of total net additions in England falling from 11.1% in 2006-2007 to 8.5% in 2008-2009.
- Between 2006 and 2009, net additions in the East Midlands have been significantly lower than projections of additional dwellings associated with population and household growth. In 2008-2009, the number of net additional dwellings in the East Midlands was less than half the projected demand for dwellings.
- An assessment of recent housing development schemes carried out by CABE found that the East Midlands had the largest proportion of developments assessed as having a 'poor' standard of design of all nine English regions, had no schemes assessed as 'good', and only one was assessed as 'very good'.

## 2.8 Conclusions

As in the case of population, the East Midlands is forecast to experience the fastest rate of growth in the number of households of the nine English regions, at a rate of 15.6% between 2006 and 2016 compared to 12% nationally. This is likely to result in a significant increase in the demand for housing –

especially as a larger majority of stock in the East Midlands is owner-occupied compared to the national average. Long-term trends also demonstrate that there is little relationship between the rate of increase in the number of households and economic conditions, with little evidence of an impact of previous recessions on household growth.

Household trends are instead much more closely related to demographic and social changes. Migration is an important factor in driving the increase in the number of households, but the changing balance of household composition will also become increasingly important. Linked with an ageing population in some areas, there will be an increasing number of one-person households (which will equal the number of married-couple households by 2031). This will have significant implications for the type and size of housing required in the region.

The fastest rates of growth in households are also projected to be in the south and east of the region, with the West Northamptonshire HMA projected to grow at the fastest rate, followed by the Central Lincolnshire HMA. HMAs in the north and west of the region are projected to grow least. Moreover, the more urban HMAs, such as Nottingham Core, are projected to experience relatively low rates of household growth. This projection could result in delivery challenges for the region.

Moreover, recent data suggests that, although the East Midlands is experiencing relatively rapid rates of growth in the number of households, it is currently achieving below average rates of increase in the number of new houses built each year. If these trends continue, this could exacerbate future imbalances between demand and supply, with negative impacts on affordability.

Although household trends do not appear to be affected by economic conditions, the trend in dwelling stock is much more closely related to the economy, with the recent recession causing a significant reduction in the annual increase in dwelling stock between 2007 and 2008. Over the longer term, the number of dwellings has increased more rapidly than the rate of population growth, but slower than the rate of household growth – demonstrating the impact that declining household size, and the growth of single person households, has had on increasing the demand for housing.

Looking at possible future trajectories, if past population and household trends continue, there could be an associated demand for additional dwellings that significantly exceeds the current level of annual additions to stock. The East Midlands share of the national total of new additions to dwelling stock has fallen in recent years, whilst the region has seen a significantly above average increase in households over the same period. Combined with the rapid fall in house building in 2008, this could create a level of built-up demand that may exacerbate affordability.

Housing in the East Midlands is more affordable than in some other parts of England, but affordability is a significant challenge in some parts of the region. Moreover, it is a challenge for the parts of the region that are forecast to

experience the most rapid growth in demand – principally in the south of the region. However, high house prices are not always the principal cause of poor affordability. In East Lindsey, poor affordability is due to low wages, linked to a poor supply of quality jobs. In this case, improvements in the labour market are required to address affordability pressures – illustrating the importance of addressing housing market issues through economic development as well as housing supply.

The recession has had significant impacts on house prices, although improvements in affordability have only been slight. The housing market in the East Midlands appears to have been affected more than other regions, and also appears to be recovering at a slower rate, with house prices declining more rapidly than the national average through 2008, and recovering more slowly through 2009.

Finally, although housing stock in the East Midlands is less likely to be overcrowded than elsewhere in England, and residents are more likely to be satisfied by their accommodation, achieving ‘decent’ homes remains a challenge. ‘Non-decent homes’ are a particular problem in the private rented sector in the East Midlands, in older and terraced houses (of which the region has a higher than average number), and for households already in a vulnerable situation – lone parent families and unemployed households. Therefore, improvements in the condition as well as the size of the region’s housing stock are key priorities for tackling social exclusion. Unfortunately, current evidence on the quality of new housing stock suggests that design standards are particularly poor, with a higher proportion of new developments assessed as having been poorly designed than any other region. This means that there are significant challenges for policy makers in the region to increase not only the quantity, but the quality of housing stock to provide for the needs of a changing population in a sustainable way.

## 3. Economy Chapter

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### 3.1 Introduction

This section assesses economic conditions in the East Midlands. It makes use of the Government's five drivers of productivity framework, examines the industrial structure of the region and presents an assessment of future prospects. It should be noted that, because of lags in production, some of the official data presented in this chapter does not cover the period of the recent recession. Where possible, survey and other data have been used in order to present as timely a picture of the regional economy as possible. This section highlights long-term structural issues (some of which may be exacerbated by the recession) that policy needs to address.

It should also be noted that there is a greater uncertainty than is usual around economic forecasts in the current economic conditions, at least in the short-term. Nevertheless, the long-term projection is still a useful guide to the likely trajectory of the East Midlands economy. It should be noted that these forecasts are an independent assessment of likely economic performance and do not reflect any regional policy aspirations.

Section 2 contains an assessment of current economic conditions and longer term trends in the global economy. The recent recession is likely to be the deepest since the Second World War, but is unlikely to affect some long-term trends in the global economy. In some cases it is likely that the global recession will accelerate some of these trends, for example in the emergence of China as a driver of the global economy. The analysis suggests that in this global context, UK economic performance is not the worst of the major industrialised economies. It also highlights the differential impact of the recession on the English regions and particular impacts on the East Midlands, where the construction, manufacturing and retail sectors have been particularly hard hit.

Section 3 assesses productivity in the East Midlands and demonstrates that productivity in the region remains below the UK average. Productivity is highest in the Greater South East and the East Midlands is a middle ranking region. Within the region output per head is highest in the three cities of Derby, Leicester and Nottingham, but it should be noted that commuting patterns affect this data. Data on household income suggest that the more affluent parts of the region are outside of the three cities, in South Nottinghamshire and Leicestershire and Rutland. This section also presents a measure of economic wellbeing and this suggests that the East Midlands has an above average level of economic wellbeing and that this has been growing relatively quickly during the last decade.

Section 4 analyses the individual drivers of productivity, as identified by the Government. This shows that levels of investment by UK and foreign owned companies in the region were above the UK average prior to the start of the recession. On measures of innovation activity, there is a mixed performance in the region. Expenditure on research and development and the number of cooperative arrangements on technological innovation in the region are relatively high. However, the outcome, in terms of turnover associated with new products and processes remains relatively low. Analysis of data on entrepreneurship shows that the rate of business start-up in the region is below the

average, but when a business is started it is more likely to survive. Business start-up rates tend to be higher in the south of the region. Finally the region is one of the more open regions of England, with exports accounting for a relatively high share of output. The skills driver is treated extensively in the Labour Market chapter of The East Midlands in 2010.

Section 5 analyses the industrial structure of the East Midlands. Manufacturing accounts for a relatively large share of the East Midlands economy, and the region has particular strengths in the automotive and food and drink sub-sectors. The corollary of this is that the share of service sector activity in the regional economy is relatively low.

Section 6 sets out future prospects for the East Midlands economy. In the current conditions any forecast is subject to great uncertainty, particularly in the short-term. However, they still provide a useful indication of the likely magnitude and direction of travel over the longer term. The forecasts show that over the next 10 years economic output and employment in the region are expected to grow at a similar rate to the national average.

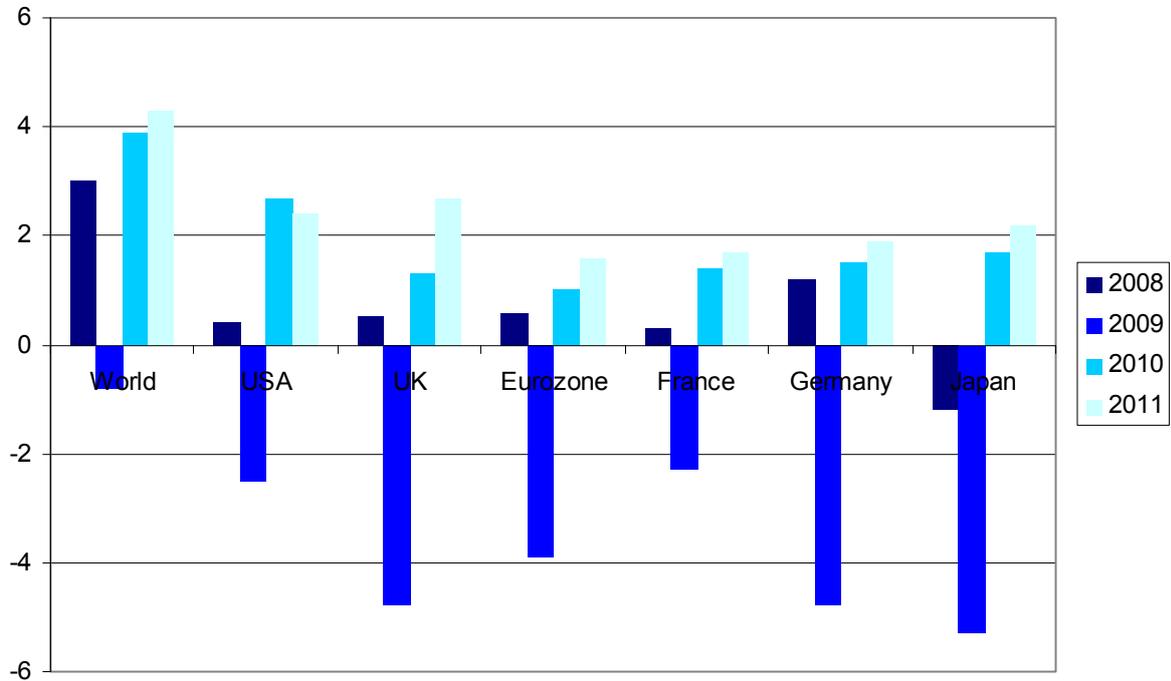
### **3.2 The global economy and the recession**

This chapter focuses on economic conditions in the East Midlands and the drivers of economic growth in the region. Lags in the publication of official data mean that most of the data presented for the region is for 2007. However, the global economy entered recession in 2008, following the contraction in activity in the money markets that began in August 2007. The East Midlands is part of this increasingly integrated global economy and this sub-section provides an overview of the state of the global economy through 2008 and expectations over the course of the next 18 months into 2011.

The recent recession has its origins in the financial markets. In August 2007, interbank lending contracted sharply as concerns arose over the state of banks' balance sheets and their exposure to so-called 'toxic assets', linked to the US property market. As the scale of these toxic assets and their impact on the banks' balance sheets was not clear at the time, banks reduced their lending to each other. While this was a rational response for any individual bank, collectively it had much wider effects as credit in the wider economy contracted. This subsequently fed through into the real economy and led to the recession that started in 2008.

In response, policymakers around the world have taken unprecedented steps to stabilise the banking system and combat the recession. For example, in the United States interest rates have been cut to almost zero. In the UK the Bank of England has cut interest rates to the lowest level since it was created (the interest rate was 0.5% in April 2010). In addition governments have taken measures to boost growth, through fiscal measures such as tax cuts and additional infrastructure spending.

**Chart 1: Economic growth 2008-2011 (%)**



Source: World Economic Outlook Update, International Monetary Fund, January 2010

Chart 1 shows how the world economy has slowed during the last two years and how the International Monetary Fund (IMF) expects the global economy to start growing this year, with further improvement forecast in 2011. The IMF estimates that the world economy contracted by -0.8% in 2009, following growth of 3.0% in 2008. The forecast is for growth in the global economy of 3.9% in 2010 and 4.3% in 2011.

Although growth in all global regions fell through 2009, the IMF estimate that the recession has been deepest in the major developed economies:

- The most significant contractions in 2009 were reported in Japan, Germany and the UK. Germany and Japan are major exporters and demand for the goods they produce (in particular cars) fell significantly in 2009. The Japanese economy is estimated to have contracted by around 5.25% in 2009, and Germany and the UK by around 4.75%;
- The IMF estimate growth to have been -3.9% in the Eurozone in 2009 forecast growth of 1.0% in 2010. Within the Eurozone expected performance varies. In contrast to Germany, the French economy contracted by -2.3% in 2009. The IMF forecast growth of 1.5% and 1.4% respectively for Germany and France in 2010;

- The IMF expect the performance of the UK to be above the average for the Eurozone, at 1.3% in 2010; and
- They also report that the recession has been less severe in the United States, where output fell by -2.5% in 2009 and is forecast to grow more rapidly than Europe, at 2.7% in 2010.

The ONS report that the UK economy emerged from recession at the end of 2009, growing by 0.4% in the final quarter. However the recovery will be slow as unemployment is expected (as at the end of previous recessions) to rise for a while as the economy grows slowly. In addition, both consumers and government have high levels of debt, so expenditure and investment will remain low. This will also contribute to a gradual recovery. The UK is not expected to approach trend rates of growth (which is around 2.5% per annum) until 2011.

Growth has fallen in the major emerging economies but not to the same extent as in Europe or North America. For example China is estimated to have grown by 8.7% in 2009 and is forecast to grow by 10% in 2010. While this is significantly lower than in previous years it still means that the Chinese economy continues to increase in size relative to the developed economies, a continuation of the trend in the last two decades. This is explored further in the following sub-section.

These developments in the global economy have had, and will continue to have, an impact on the English regions. The impacts of the recession have not been uniform across the English regions. Data from the Purchasing Managers' Index (PMI) suggests that the East of England was the first region where output began to contract and the first region to reach its low point in October 2008. This data suggest that other regions reached the low point of the cycle in the first quarter of 2009 (this is explored in more detail in subsequent sections). Since then the PMI suggests that all of the English regions were growing again at the start of 2010.

All regions have experienced higher unemployment and lower employment. Quarterly data suggests that labour market performance has deteriorated most rapidly in the West Midlands, while unemployment increases have been more modest in the East of England, East Midlands, London and the South East. The Labour Market chapter of The East Midlands in 2010 sets out in detail recent trends in employment and unemployment.

In the East Midlands business activity slowed sharply in the final quarter of 2008 and the first quarter of 2009. The recession in the region has been broad based, both spatially and by sector. Jobs have been lost and unemployment has increased in all parts of the region. However, during the second half of 2009 business sentiment began to improve, though confidence remains at relatively low levels.

A number of service sectors in the region, such as retail and hotels & restaurants, have been affected but the most significant impacts have been on production activity in the

region. In manufacturing, the automotive sector and its supply chain have been most seriously affected as the demand for new cars has fallen sharply during the past year.

Construction has been the hardest hit sector in the East Midlands, as it has in many other parts of the country. House building has fallen and funding for commercial property activity has dried up (see the Transport and Infrastructure chapter for more details). The Royal Institute of Chartered Surveyors report that demand for office, retail and industrial space fell significantly between the first quarter of 2007 and the first quarter of 2009, with industrial demand the most affected.

### 3.2.1 Long-term trends in the global economy

This section sets out the current position of the UK on key indicators of economic performance in relation to its key competitors: the USA, Japan, Germany and France, along with emerging economies such as China and India. Unlike the previous subsection the emphasis is on long-term trends, some of which the global recession is likely to accelerate.

There is substantial interest in the emerging economies of China and India, and to a lesser extent Russia and Brazil (the 'BRICs'). These emerging economies have received such interest due to their rapid growth in recent times coupled with strong projected future growth. The long-term trend is for a shift in the balance of global economic power away from the United States and Europe to the United States and Asia.

Updating their research on emerging economies, Goldman Sachs<sup>1</sup> suggest that Brazil, Russia, India and China (BRICs) all have strong economic growth potential. Of the BRICs, China is expected to be the world's largest economy (as measured by US\$ GDP), overtaking the US in 2027. China is currently the world's third largest economy having recently surpassed Germany. In terms of GDP, the UK is also projected to overtake Germany to become the largest economy in Europe by 2050. More recent research<sup>2</sup> notes that the trajectory of output growth demonstrated in the BRICs means that their "combined output reach 50% of the G7 level by 2020".

It should be noted that whilst these emerging economies are experiencing impressive levels of growth, they remain relatively under-developed compared to the G7 economies.<sup>3</sup> Only Russia is predicted to have living standards that are comparable to the United States and Europe, as measured by GDP per capita, by 2050.

Further research<sup>4</sup> has highlighted the strength of the BRICs through the recession (the previous section noted growth in China in 2009). The BRICs have demonstrated an

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<sup>1</sup> BRICs and Beyond, Goldman Sachs Global Economics Group, November 2007.

<sup>2</sup> The BRICs Nifty 50: The EM&DM winners, Goldman Sachs, November 2009.

<sup>3</sup> The G7 comprise of the United States, Japan, Germany, United Kingdom, France, Italy, Canada.

<sup>4</sup> BRICs monthly, BRICs Lead the Global Recovery, Goldman Sachs, May 2009; BRICs monthly, The BRICs as Drivers of Global Consumption, Goldman Sachs, August 2009.

ability to lead advanced economies and the rest of the emerging world in stabilising their economies.

### 3.2.2 International comparisons of productivity

Raising productivity is a key objective of policy makers in developed economies. Two key indicators are used to analyse international productivity, focusing on the UK's key competitors within the G7: the USA, Japan, France and Germany.<sup>5</sup>

GDP per worker is used as an internationally comparable measure of output. This measure takes into account the very different levels of employment between countries and is therefore a more useful indicator of productivity than other broader indicators, such as GDP per capita. Chart 2 shows that in 2008:

- GDP per worker in the UK is above that of Japan (at 92% of the UK average) but is lower than France and Germany (at 9% and 2% above the UK average respectively).
- The UK still lags when comparisons are made with the USA on GDP per worker. In 2008 GDP per worker in the USA was 33% higher than the UK.
- The G7 average on this indicator, which is 14% higher than the UK, is significantly buoyed by the performance of the USA.

The long-term trend in this indicator, not shown in the chart, is one of steady growth in the UK, and closing of the gap with France and Germany.

The second measure that allows international comparisons of productivity is GDP per hour worked. This measure takes account of the fact that, due to many social, cultural and economic factors, workers in different countries work, on average, for differing amounts of time. In the USA for instance, workers tend to work more hours per week than their European counterparts.<sup>6</sup> The data in Chart 2 shows that, on this measure, the differences between the UK and its European competitors are more marked:

- The UK still lags its major competitors and the G7 average, with the exception of Japan, Canada and Italy where productivity is 85%, 97% and 99% of the UK average respectively;
- Workers in France and Germany produce 16% and 17% more output per hour than their UK counterparts respectively; and
- On this measure the USA is the most productive nation experiencing output per hour worked 22% higher than the UK.

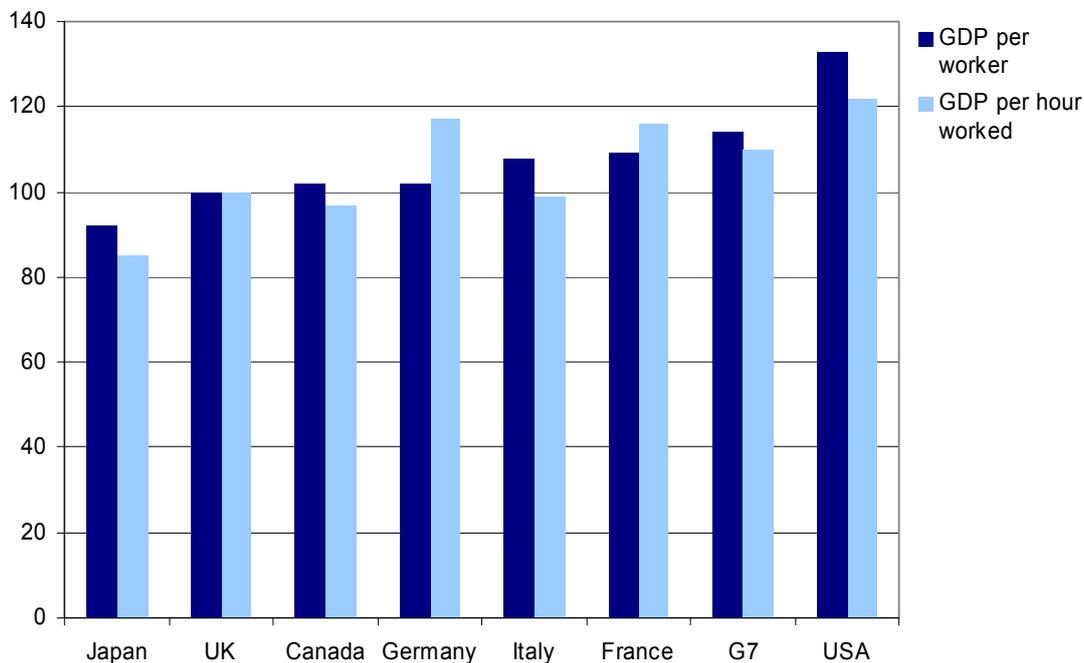
As with the other measures of productivity, the gap has closed significantly between the UK and France, Germany and the USA since the early 1990s.

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<sup>5</sup> Comparable data are not available for the BRIC countries identified above.

<sup>6</sup> OECD figures show that, in 2007, average annual hours worked in the USA were 2% higher than in the UK, 10% higher than in France and 16% higher than in Germany.

**Chart 2: International comparisons of productivity 2008, (UK=100)**



Source: International Comparisons of Productivity, Office for National Statistics, February 2010

The productivity gap can be disaggregated into physical capital intensity (average capital per hour worked), the average level of skills per worker and other factors that are not direct inputs to the production process but still affect productivity, known as Total Factor Productivity (TFP).<sup>7</sup> These three factors can be used to explain the productivity gap between the UK and its competitors.

Recent research findings<sup>8</sup> suggest that whilst the UK has made good progress in relation to France and Germany, it has failed to match the strong growth rates in labour productivity in the US. This also suggests that relative to the UK, the productivity gap with the US and France can be attributed to both higher levels of physical capital intensity and higher levels of TFP. The German lead on productivity compared to the UK can be explained almost entirely by physical capital intensity, with less of a contribution being made by higher skill levels. This analysis also provides a sectoral breakdown of

<sup>7</sup> Total Factor Productivity (or Multi Factor Productivity) is the contribution of residual factors, after capital and labour have been accounted for, to total productivity. TFP is used to capture factors such as economies of scale, the quality of labour, competition, organisation and developments in technology that are not *direct* inputs to the production process. See Productivity in the UK 7: Securing long term prosperity, HM Treasury and the Department for Business, Enterprise and Regulatory Reform, November 2007.

<sup>8</sup> Research conducted by the Department for Business, Enterprise and Regulatory Reform analysed labour productivity in the UK, US, France and Germany for aggregate market sectors between 1994-2004. Department for Business, Enterprise and Regulatory Reform Occasional Paper No. 1, 'Cross-Country Productivity Performance at Sector Level: the UK Compared with the US, France and Germany', Department for Business, Enterprise and Regulatory Reform, February 2008.

productivity. The UK performs well in terms of productivity in the sub-sectors of food manufacturing, printing and publishing, utilities, construction, transport services and business services.

A significant body of research has emerged in an attempt to explain what forms of Total Factor Productivity have been most prevalent in sustaining growth in the USA. The main findings from this research strand suggest that earlier investment and adoption of Information and Communications Technology (ICT) was the main driving force behind the observed growth. This body of research points to retail as the sector where ICT has made the greatest difference to productivity between the UK and the USA. Fernald and Ramnath (2004)<sup>9</sup> suggest that the wholesale and retail sectors accounted for around three quarters of the acceleration in productivity in the USA, benefiting from their strong use of ICT. Kitson (2005)<sup>10</sup> notes that technology using sectors are significantly larger than technology producing sectors. This suggests that early adoption and implementation of technology can have a significant impact on productivity.

Chart 2 suggests that there is a substantial cultural difference with respect to work between European countries and the USA. As a direct result of relatively high GDP per hour worked, workers in European economies are able to buy more leisure time than their American counterparts. This analysis can be used to explain the difference between GDP per worker and GDP per hour worked. It should be noted that this analysis is not the only explanation of differing work/leisure balance between countries – each is the result of different institutional, cultural, and policy choices made over a significant period of time.

### 3.2.3 Wellbeing

Whilst GDP data offers a method of comparing the output and productivity between countries, it offers few insights into what people, or society as a whole, consider as contributing to wellbeing. So, while GDP is a measure of the monetary value of output it does not allow us to draw any conclusions as to the life satisfaction of the population. For example, GDP per worker shows the US is ahead of the UK, France, Germany and Japan but this does not mean people in the US are more satisfied with life – the populations of the UK, France, Germany and Japan may choose to 'buy' more leisure time and, as a consequence, have higher life satisfaction.

There have been attempts to measure life satisfaction and wellbeing. These have taken a variety of approaches and have included both subjective and objective wellbeing measures. International comparisons of these measures need to be treated with caution due to language and cultural factors. However, within the UK an objective measure of

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<sup>9</sup> The acceleration in U.S. total factor productivity after 1995: The role of information technology, Fernald, J G and Ramnath, S, Economic Perspectives, Federal Reserve Bank of Chicago, 2004

<sup>10</sup> The American Economic Model and European Economic Policy, M Kitson, Regional Studies, Vol 36:7, October 2005

wellbeing has been developed that allows comparison between regions. This is explained further in section 5.3.5.

The term 'wellbeing' is broad in nature and has been the subject of much literature written in recent years, with the aim of defining and subsequently measuring its progress. The main theme running throughout the literature is that although the industrialised nations have experienced increases in GDP, as well as tremendous societal developments (e.g. technology, healthcare etc), people's sense of wellbeing has behaved differently. Wellbeing in the UK has remained steady, whilst the US has experienced a decline over the last quarter of a century.<sup>11</sup> Whilst this is suspected to be closely related to people's expectations, getting used to developments almost as soon as they occur, it is also closely linked to income equality.

#### **Key Points: The global economy**

- The global economy is currently showing signs of recovery following the worst recession since the Second World War. Output contracted sharply in 2009 but is predicted to experience a shallow recovery through 2010.
- GDP per worker in the UK is lower than in Germany, France and the USA.
- Average GDP per worker in the G7 is higher than the UK, but this is significantly buoyed by the performance in the USA.
- GDP per hour worked in the UK still lags its major competitors and the G7 average, with the exception of Japan, Canada and Italy.
- Research suggests that the rapid adoption of Information and Communications Technology (ICT) in the USA had a significant impact on levels of productivity growth compared to the UK and elsewhere.

### **3.3 Output and productivity in the East Midlands**

The analysis in the previous section showed disparities in the levels of output and productivity between the UK and its major industrialised competitors. Data is available that allows this analysis at regional level. The latest available data shows that significant differences exist between the regions of the UK, and are shown in Chart 3.

- In 2007, Gross Value Added (GVA)<sup>12</sup> per head in the East Midlands was 88% of the UK average.

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<sup>11</sup> Wellbeing over time in Britain and the USA: Blanchflower, D, Oswald, A, Journal of Public Economics, 2004.

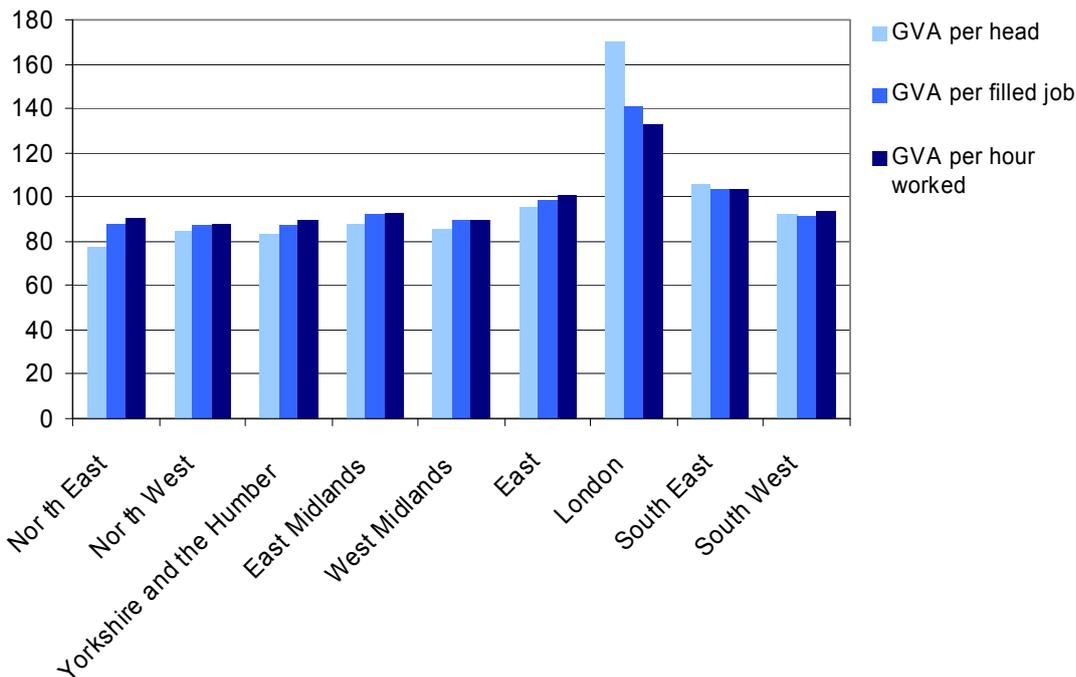
<sup>12</sup> Gross Value Added is the recognised measure of economic output used at a regional level. It is a measure of output at basic prices, whereas GDP is a measure of output at market prices. The difference between the two lies in the treatment of taxes and subsidies:  $GDP = GVA + \text{taxes} - \text{subsidies}$ . It is not possible to reliably measure taxation and subsidies at regional level which is why GVA is used. In this instance we use the workplace based GVA to give a more accurate indication of the level of output generated within the region.

- London is the leading region where GVA per head was 70.6 percentage points higher than the UK average. The lowest levels of GVA per head are to be found in the North East, where it was just 77% of the UK average.

Chart 3 also demonstrates that the data for GVA per filled job and GVA per hour worked share a number of similarities:

- The East Midlands is ranked fourth, behind London, the South East and East of England on the filled job measure;
- The region is ranked fifth out of the nine English regions, behind London, the South East, the East of England and the South West on GVA per hour worked;
- The East Midlands is below the national average on the filled job and hour worked measures, by 7.6 and 7.5 percentage points respectively; and
- On both measures only London and the South East are above the national average, whilst the East of England is above the national average, by 0.7 percentage points, on the GVA per hour worked measure.

**Chart 3: Regional comparisons of output and productivity 2008 (UK=100)**



Source: Regional Productivity, Office for National Statistics, February 2010

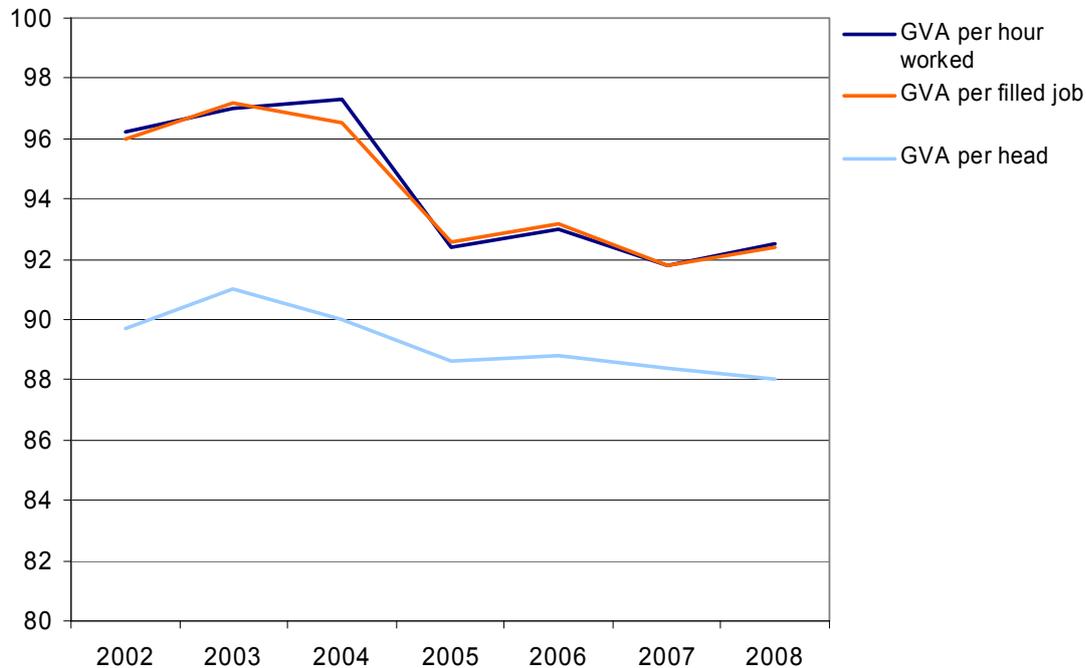
Chart 4 shows how the East Midlands has performed relative to the national average for each of the three measures between 2002 and 2008.

- GVA per head in the region has fallen marginally from 89.7% of the UK average in 2002 to 88.0% in 2008, a fall of 1.7 percentage points. Since 2005 the level has remained relatively stable, fluctuating between 88.0% and 88.8%. The fall in GVA

per head can be explained, in part, by the level and type of population growth. The population of the East Midlands has increased at an above average rate, but the region has experienced particularly strong growth in the population over retirement age, increasing the dependency ratio and reducing GVA per head. Population growth is examined in more detail in the Demography chapter.

- GVA per filled job and GVA per hour worked follow broadly the same trend over the period from 2002 to 2008. Starting from a level of around 96% of the UK average in 2002, GVA per filled job and GVA per hour worked rose to about 97% in 2003 and 2004, and then both measures declined to their current levels of around 92.5% of the UK average by 2008.<sup>13</sup>

**Chart 4: Change in output and productivity in the East Midlands, 2002-2008 (UK=100)**



Source: Regional Productivity, Office for National Statistics, February 2010

### 3.3.1 Regional Short-Term Indicators

Following the onset of the economic downturn, towards the end of 2007, an increased requirement for more timely regional statistics was highlighted to monitor the state of the economy at a regional level. The Regional Short-Term Indicators Pilot project was developed by the Office for National Statistics with assistance from the Regional

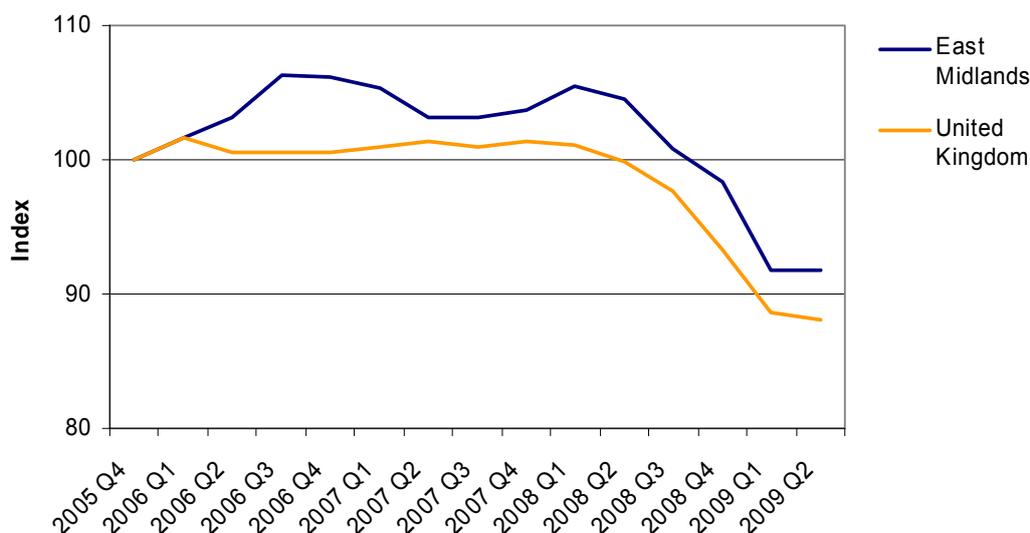
<sup>13</sup> ONS have investigated the fall in GVA per filled job and GVA per hour worked between 2004 and 2005 in the East Midlands. It has been suggested that a number of contributing factors including real change, methodological issues and statistical variation are responsible for this anomaly.

Development Agency network to fulfil this requirement. The output of the project has been the publication of a series of regional output indexes providing quarterly data from 2005 quarter four for the production, construction and market services sectors.

Analysis of these indicators provides a clearer picture of the direction of growth in these sectors and a number of their sub-sectors. Caution should, however, be used in analysis of the exact magnitude of growth as they are experimental data and have not been published as National Statistics.

Chart 5 shows that the production sector has been significantly affected due to the economic downturn and onset of the recession. The sector experienced a degree of stability between 2005 quarter four and 2008 quarter one where the East Midlands consistently tracked growth above that of the UK. Following the onset of the economic downturn the production sector experienced a significant decline in output, falling well below levels experienced since 2005 quarter four. The sub-sector of manufacturing experienced one of the steepest declines in output over the same period, with the East Midlands being affected to a greater extent than the UK as a whole.

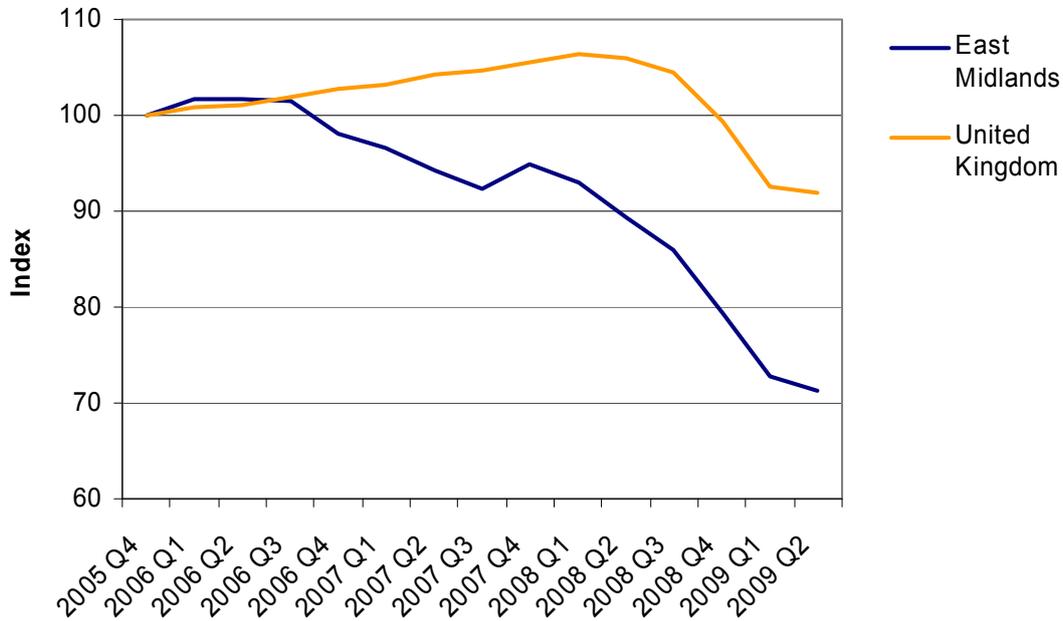
**Chart 5: Index of production, 2005 quarter four – 2009 quarter two, (2005 quarter four = 100)**



Source: Regional Short-Term Indicators Pilot, Office for National Statistics, January 2010.

The construction sector has experienced a downward trend in output in the East Midlands since 2006 quarter three, contrary to the slight growth experienced nationally. However, the economic downturn had a significant and negative impact on businesses confidence and ability to invest which in turn reduced output in the construction sector in both the East Midlands and UK. Chart 6 shows that the negative effects were considerably more pronounced in the East Midlands than in the UK. The data also suggests that construction output in the region began to fall from 2007 quarter four, almost two quarters before a discernable impact was experienced in the UK as a whole.

**Chart 6: Index of construction, 2005 quarter four – 2009 quarter two, (2005 quarter four = 100)**



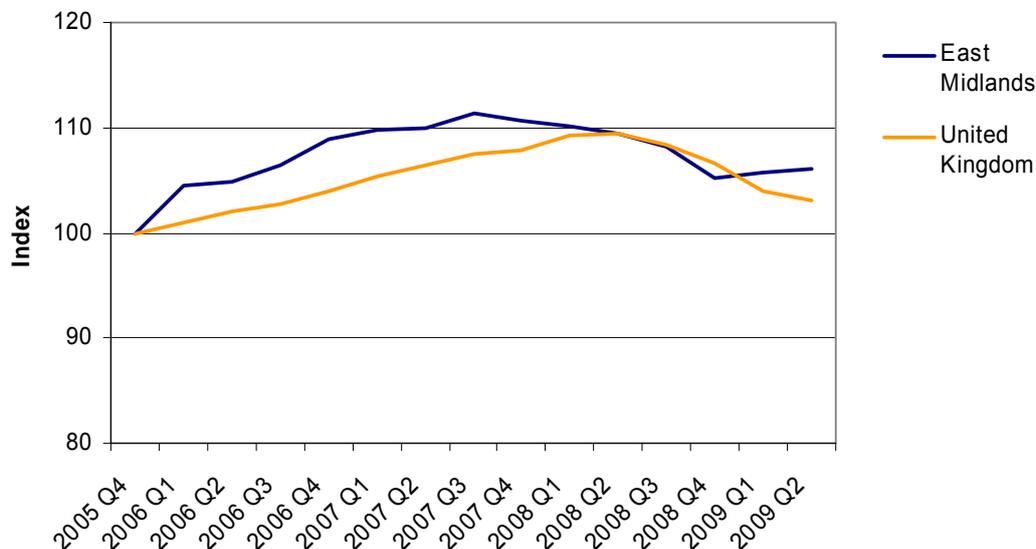
Source: Regional Short-Term Indicators Pilot, Office for National Statistics, January 2010.

In contrast to the sectors of production and construction, market services has performed relatively well during the recession. Between 2005 quarter four and 2008 quarter two, the sector experienced significant growth. Between 2008 quarter two and 2008 quarter four the sector experienced a fall in output. However, levels remained above those of 2005 quarter four.

In 2008 quarter four, output from the market services sector in the East Midlands stabilised and experienced a slight increase in growth to 2009 quarter two. Over the same period output in the UK as a whole continued to fall.

Within this sector the sub-sector of hotels & restaurants experienced the greatest fall in output, whilst business services demonstrated a higher level of resistance to the recession than most other sub-sectors.

**Chart 7: Index of market services, 2005 quarter four – 2009 quarter two, (2005 quarter four = 100)**



Source: Regional Short-Term Indicators Pilot, Office for National Statistics, January 2010.

### 3.3.2 Sub-regional performance

Data on sub-regional performance is more limited. GVA per head by NUTS3<sup>14</sup> area is available for 2007 (the latest available) and is displayed in Chart 8. As this is a workplace based measure, at this level of sub-regional geography commuting patterns skew the data. This leads to an overstatement of GVA per head in areas that encompass larger proportions of workplaces relative to resident population e.g. the three cities of Nottingham, Derby and Leicester. Keeping this in mind, the data provides a useful indication of differing levels of economic activity and performance in the region. Chart 8 shows the sub-regional disparities that exist in the East Midlands:

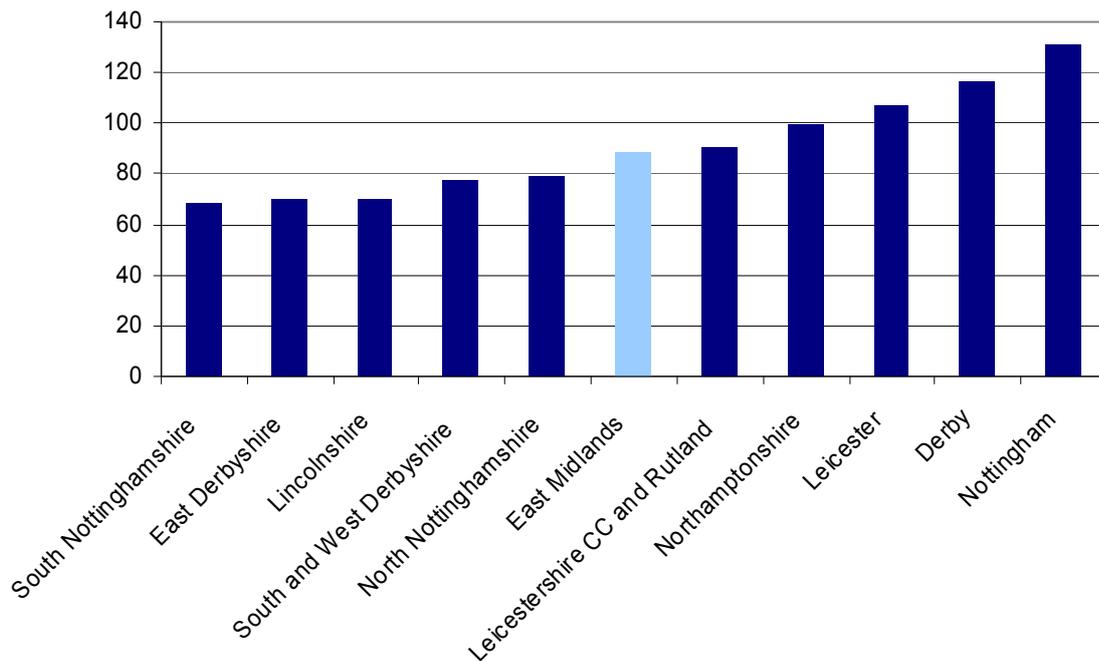
- GVA per head is highest in Nottingham City and Derby, where the levels are 31% and 16% above the UK average respectively;
- GVA per head is also above the UK average in Leicester City (by 7%), whilst Northamptonshire has GVA per head equal to the UK average;
- GVA per head is above the East Midlands average (88% of UK average) in these four areas and Leicestershire and Rutland;
- South Nottinghamshire, East Derbyshire and Lincolnshire have the lowest levels of GVA per head within the region, at just 67%, 70% and 70% of the UK average

<sup>14</sup> Nomenclature of Units for Territorial Statistics (NUTS) areas were created by Eurostat as a hierarchical classification of spatial units used for statistical production across the European Union. NUTS3 regions are Counties, Unitary Authorities or groups of Local Authority districts.

respectively. It should be noted that these areas, more than most, experience a high level of out commuting, skewing the data; and

- GVA per head is also below both the UK and East Midlands averages in South and West Derbyshire (77%) and North Nottinghamshire (79%).

**Chart 8: Index of GVA per head by NUTS3 region in the East Midlands, 2007, (UK=100)**



Source: Regional Productivity, Office for National Statistics, February 2010

Between 1997 and 2007 there has been a reduction in the gap between the best and worst performing sub-regions in the East Midlands from 79 percentage points to 62 percentage points. This has been brought about through a reduction in GVA per head in Nottingham from 145% of the UK average to 131% and an increase in South Nottinghamshire from 66% to 69% over this period. Commuting patterns are likely to be responsible in part for this change along with the changes to the labour market and demography in these areas. More information on this can be found in the Demography chapter.

Derby has experienced the greatest fluctuation on this measure increasing from 104% of the UK average in 1997 to 125% in 2001, before falling back to 116% in 2007.

Derby, East Derbyshire, South Nottinghamshire and Northamptonshire have all experienced growth relative to the UK average in this time period, whilst South and West Derbyshire, Nottingham, North Nottinghamshire, Leicester and Leicestershire, Lincolnshire and Rutland have all fallen.

### 3.3.3 EU regional performance

It is important that the region remains competitive within a European context, increasing the attractiveness of the region to investment from overseas. Strong international business links promote growth and stability making the region more resilient to domestic shocks in the economy.

One measure used to compare productivity between EU regions is Gross Domestic Product (GDP) using an artificial currency known as Purchasing Power Standards (PPS)<sup>15</sup> and is based on Purchasing Power Parities (PPP).<sup>16</sup> Data is limited at regional level and is not provided for all European regions but offers an insight into the relative productivity of many regions. Chart 9 shows the five regions with the highest output per head and the five regions with the lowest output per head in Europe, as well as the East Midlands.

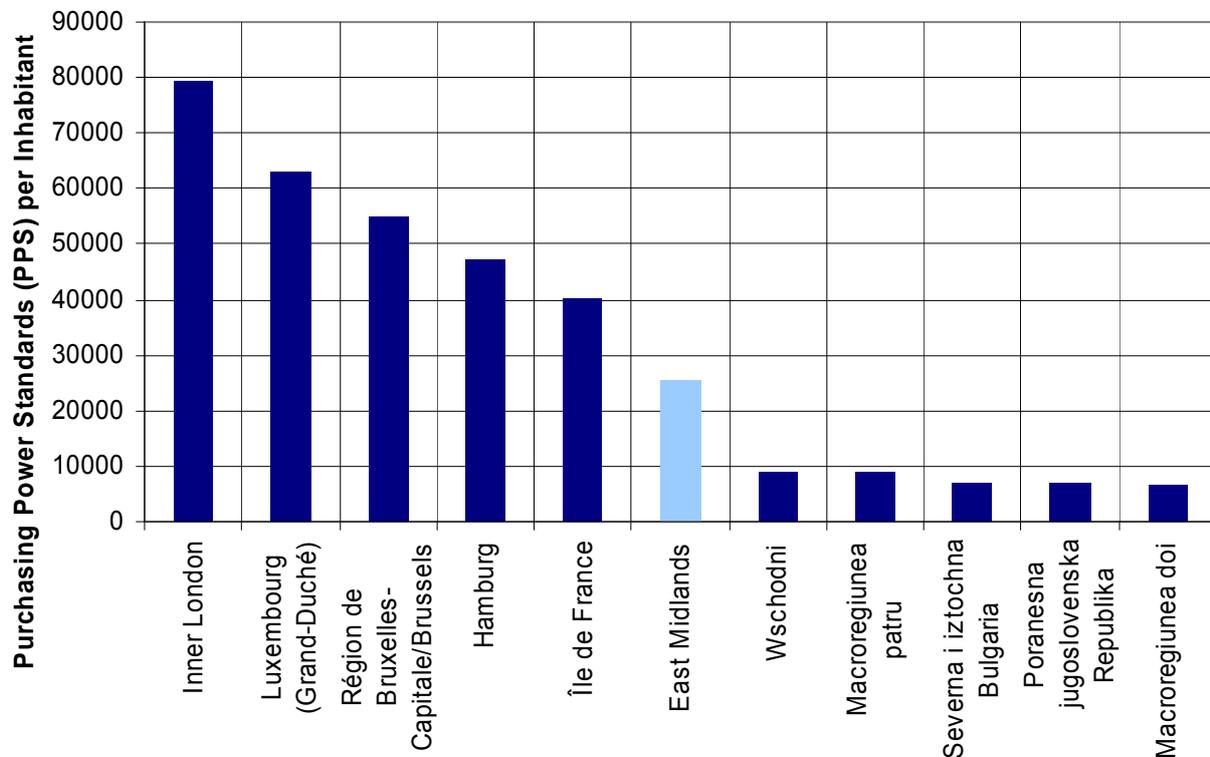
- In 2006, output per head in the East Midlands was 25,300pps. This is around a third of that in Inner London (the leading region in the EU with output of 79,400pps) but over four times greater than the Romanian region of Macroregiunea doi (the poorest region in the EU with output per head of just 6,600pps). The East Midlands is also ranked above the average for the EU27, which is 23,600pps.
- The top performing regions all tend to be based around large, prosperous cities. This highlights the importance of cities to the prosperity of regions throughout Europe. In contrast, the lagging regions tend to be from those of recent entrants to the EU such as Poland, Romania and the Baltic States.
- There are 13 regions comparable to the East Midlands (i.e. those within +/- 5% of East Midlands output per head, as measured by PPS). These include Norra Sverige in Sweden, Südosterreich in Austria, Oost-Nederland in Holland, Centre-Est in France, Közép-Magyarország in Hungary and the West Midlands, North West and South West in the UK.

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<sup>15</sup> “The PPS (Purchasing Power Standard) is an artificial currency that takes into account differences in national price levels. This unit allows meaningful volume comparisons of economic indicators between countries. Aggregates expressed in PPS are derived by dividing aggregates in current prices and national currency by the respective Purchasing Power Parity (PPP)” Eurostat News Release, 12<sup>th</sup> February 2008.

<sup>16</sup> Purchasing Power Parities (PPP) are the rates of currency conversion (much like an exchange rate) that are used to remove the differences in price levels between countries.

**Chart 9: Leading and lagging NUTS1 regions in the EU, 2006 (latest available) – in relation to the East Midlands (Purchasing Power Standards (PPS) per Inhabitant)**



Source: Eurostat Data Tables, Accessed February 2010.

### 3.3.4 Gross Disposable Household Income in the East Midlands

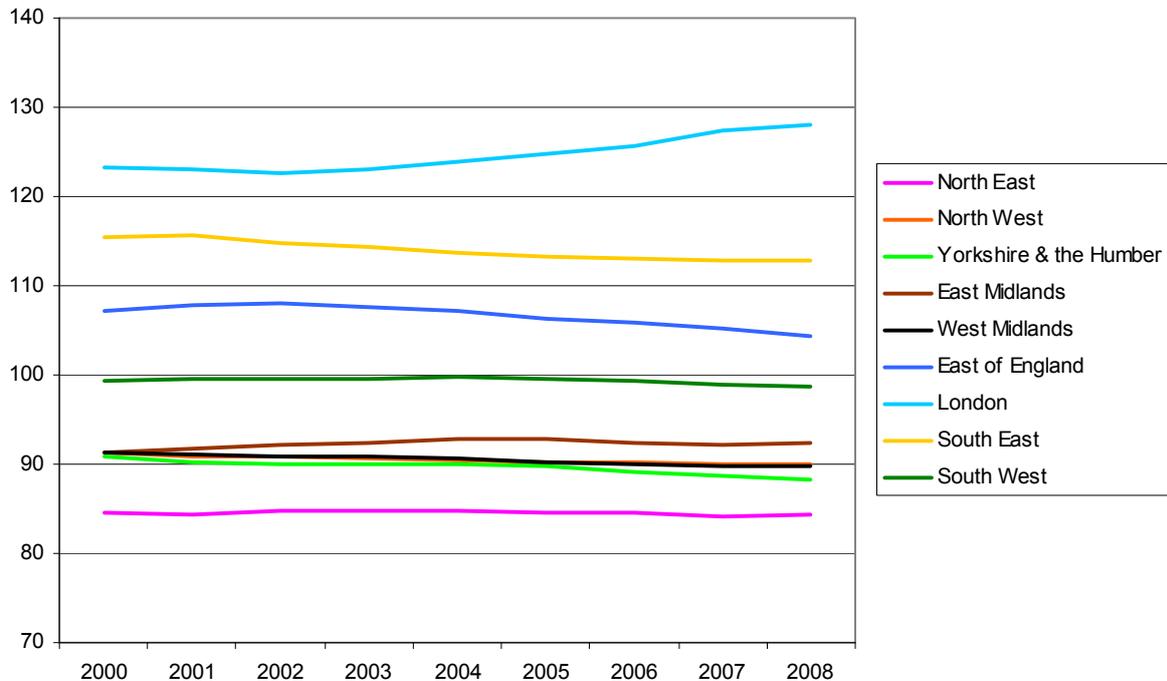
An alternative measure of economic performance is Gross Disposable Household Income (GDHI). This is the total household income less income and property taxes and National Insurance and social contributions. This provides a picture of how much money the household sector actually has at their disposal to spend or save.

This section uses the latest data provided by the Office for National Statistics. Between 2007 and 2008, GDHI per head in the UK increased by 3.9% from £14,300 to £14,900. Over the same period the East Midlands experienced an increase of 3.3% from £13,200 to £13,600.

Using indexed GDHI per head it is possible to show how the nine Government Office regions have performed relative to the UK (UK=100). Chart 10 shows that London has been the top performing region on this measure whilst the North East has performed relatively badly. In 2008, GDHI in London was 28% above the UK average whilst it was just 84% of the UK average in the North East.

GDHI in the East Midlands has remained relatively stable, fluctuating between 91% and 93% of the UK average between 2000 and 2008.

**Chart 10: Indexed GDHI per head (UK=100), 2000 – 2008(p)**



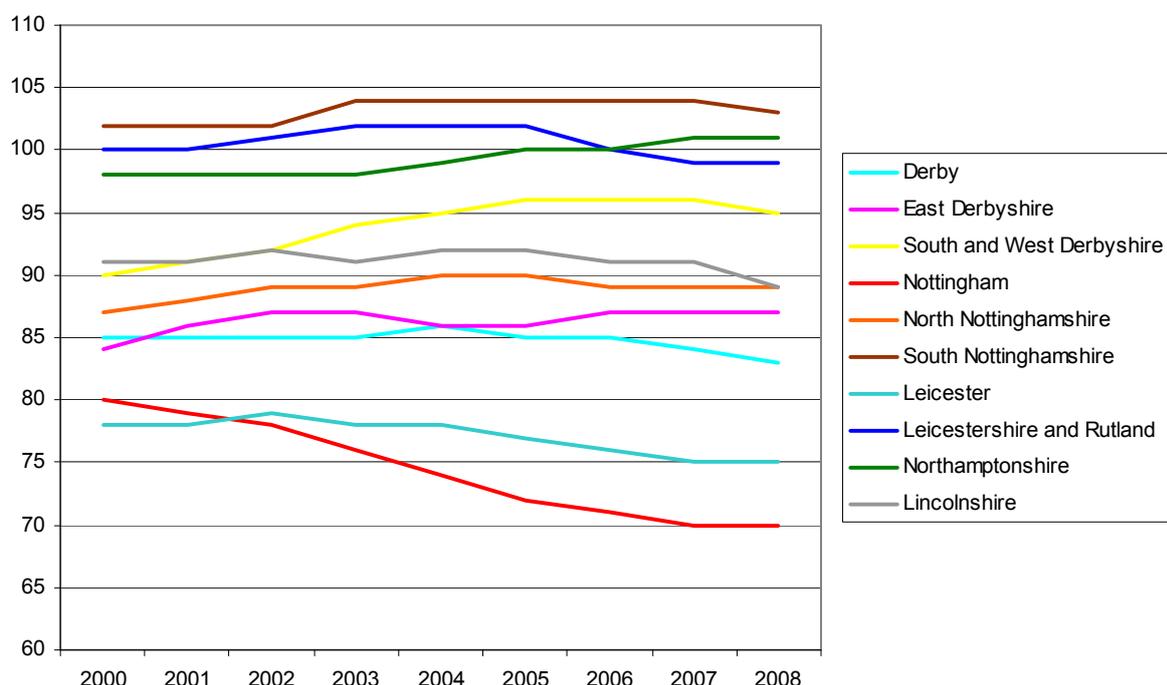
Source: Regional Accounts, Office for National Statistics, 2010.

The data for NUTS3 areas shows that there are large sub-regional disparities in this measure. There is currently a gap of 33 percentage points separating the NUTS3 regions in the East Midlands. There is a sharp contrast to the GVA data as the commuting effects are absent from the data. This clearly shows that the most affluent areas of the region are to the south and tend to be more rural areas.

Of the NUTS3 areas, only South Nottinghamshire and Northamptonshire were above the UK average in 2008. Derby, East Derbyshire, Nottingham, North Nottinghamshire, Leicester and Lincolnshire all have GDHI per head of less than 90% of the UK average.

Since 1997 GDHI in the NUTS3 areas has remained relatively stable with the exception of South and West Derbyshire and Nottingham. GDHI per head in South and West Derbyshire increased from 90% of the UK average in 2000 to 95% in 2008. In contrast, in Nottingham there has been a decline, falling from 80% of the UK average in 2000 to 70% in 2008.

**Chart 11: Indexed GDHI per head (UK=100), 1997 – 2008 (p), by NUTS3 areas**



Source: Regional Accounts, Office for National Statistics, 2010.

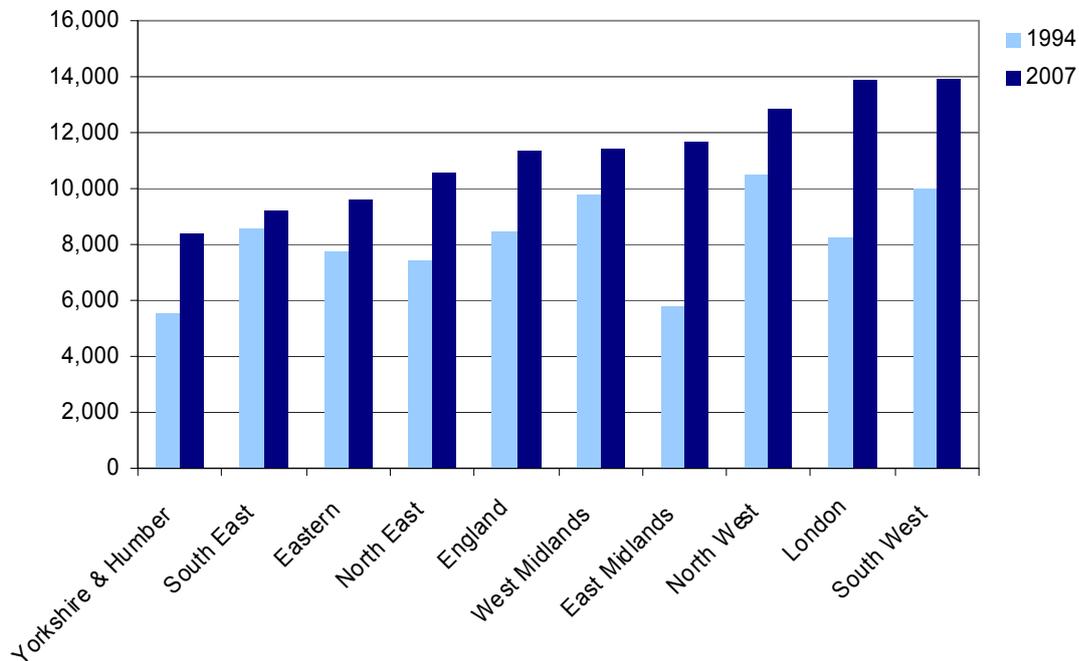
More information on earnings, a key component of GDHI, in the East Midlands can be found in the Labour Market chapter of *The East Midlands in 2010*.

### 3.3.5 Economic wellbeing in the East Midlands

The previous section highlighted differences in productivity and hours worked between countries. It suggested that a range of factors contributed to the individual decisions that led to those macroeconomic outcomes and their associated consequences for quality of life and economic wellbeing. In recent years there has been significant interest in measuring wellbeing and this sub-section presents a short analysis of the Regional Index of Sustainable Economic Wellbeing (RISEW).

The RISEW is a composite indicator that seeks to measure the different factors that contribute to economic wellbeing in monetary terms. It starts with consumer expenditure, and a series of adjustments are made to account for economic, social and environmental factors. The most recent data shows that in 2007, RISEW per person in the East Midlands was £11,689, representing a significant increase on the levels experienced in 1994.

**Chart 12: Regional Index of Sustainable Economic Wellbeing per capita 1994-2007 (£)**



Source: RISEW, nef, autumn 2009.

Chart 12 shows the RISEW for the English regions. It is immediately apparent that this is quite different to the data on gross value added presented in Figure 5.3. The highest level of RISEW per capita in 2007 was £13,946 in the South West. London, which has the highest level of GVA per capita, has RISEW per capita of £13,818. RISEW per capita was lowest in Yorkshire and the Humber, at £8,357 followed by the South East, at £9,214. Again, this contrasts with GVA per capita which is lowest in the North East.

Chart 12 also shows how RISEW per capita has changed over time. Between 1994 and 2007 RISEW per capita has increased by 102.5% in the East Midlands, significantly more than the average of 35.0% for England and the fastest of all the English regions. Among the nine English regions the East Midlands has risen from eighth in 1994 to fourth in 2007. Much of the change in the region has been driven by a reduction in environmental costs as a result of improvements in the costs of resource depletion and air pollution. There has also been significant growth in RISEW per capita in Yorkshire and the Humber (51.0%) and London (68.2%). The slowest growth in RISEW per capita has been in the South East (8.0%) and the West Midlands (16.5%).

### **Key Points: Output and productivity in the East Midlands**

- In 2007, Gross Value Added (GVA) per head in the East Midlands was 88% of the UK average.
- The East Midlands is currently ranked fourth and fifth respectively of all the English regions on GVA per filled job and GVA per hour worked measures of productivity.
- GVA per head is highest in Nottingham City and Derby, where the levels are 31% and 16% above the UK average respectively.
- South Nottinghamshire, East Derbyshire and Lincolnshire have the lowest levels of GVA per head within the region, at just 67%, 70% and 70% of the UK average respectively.
- Gross Disposable Household Income in the East Midlands has remained relatively stable compared to the UK level, fluctuating between 91% and 93% of the UK average between 2000 and 2008.
- Looking at international comparisons of output, the East Midlands experiences output per head at around a third of that seen in Inner London (the leading region in the EU) but over four times greater than the Romanian region of Macroregiunea doi (the poorest region in the EU). The East Midlands is also ranked above the average for the EU27.
- Economic wellbeing, as measured by the RISEW, experienced rapid growth between 1994 and 2007 in the East Midlands and is currently above the UK average.
- The recession has had a significantly larger negative impact on the sectors of construction and manufacturing in the East Midlands than nationally. Market services has held up reasonably well.

## **3.4 Drivers of productivity in the East Midlands**

It has been established that regional productivity is of prime importance to the growth and stability of the UK economy. Whilst improvements in productivity are generated from producers, they have direct impacts on consumers in the form of lower prices, higher quality and more innovative goods and services.<sup>17</sup> Productivity growth, therefore, has the potential to benefit both producer and consumer welfare alike.

There has been a substantial body of literature written on the subject of regional productivity and competitiveness. Whilst this literature offers no consensus as to the extent to which regions compete, it does identify a number of factors which affect regional economic performance. These include: productive capital (the region's economic and business structure), human capital (labour force skills and qualifications), creative capital (knowledge, innovation and entrepreneurship), infrastructure, socio-institutional capital

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<sup>17</sup> Productivity and Competition: An OFT perspective on the productivity debate. Office of Fair Trading, January 2007.

(business networks and associations, workplace traditions, public organisations etc.) and cultural capital (range and quality of cultural assets and facilities).<sup>18</sup>

The Government has produced an economic performance framework with two main long-term objectives. The first objective is to maintain macroeconomic stability allowing individuals and businesses to have the certainty they need to make long-term investment decisions. The second objective is to introduce microeconomic reforms to tackle market failures associated with the drivers of productivity.

The five key drivers of regional productivity that underlie long-term economic performance work in synergy and should therefore be developed together. The five drivers are:

- Investment;
- Innovation;
- Skills;
- Enterprise; and
- Competitiveness.

This section will use the five drivers to analyse the position of the UK relative to its key competitors, and the East Midlands relative to other English regions. This section will examine four of these drivers in detail – skills will be covered in depth in the Labour Market chapter of The East Midlands in 2010.

### 3.4.1 Investment

Investment in the UK had increased prior to the recession, due to a prolonged period of economic stability and stable interest rates. In this section the term ‘investment’ is used to describe all business investment by UK and foreign owned companies. The current recession will have an impact on investment, through tighter credit conditions that will not be captured by the data for two to three years.

Investment is a key driver of productivity as increasing the quality and use of capital allows a greater level of output to be produced from the same level of inputs e.g. investment in training for a single worker increases the capital that the worker can utilise, enabling them to produce a higher level of output. Studies have shown that capital per worker in the UK is significantly lower than its major competitors of the USA, France and Germany. Investment in physical capital would go some way to closing the gap.<sup>19</sup> It is estimated that every 1 percentage point increase in total investment leads, in the long-term, to a 0.05 percentage point increase in the growth rate of labour productivity.

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<sup>18</sup> Thinking About Regional Competitiveness: Critical Issues, Martin, R, University of Cambridge, *emda* RES evidence commission, August 2005.

<sup>19</sup> Cross-country productivity performance at sector level: the UK compared with the US, France and Germany. BERR Occasional paper No 1, February 2008.

Foreign Direct Investment (FDI) is one method through which the UK can directly benefit from investment by foreign firms. Firms may look at many parts of a country's economy (fiscal system, labour market, geography etc.) before making an investment decision. The more prosperous and stable an economy, the more open and attractive it will be to FDI. Stable and attractive conditions in the UK have led to high levels of FDI compared to the UK's major competitors. The key benefits from FDI include:

- Utilisation of innovative practices and technology that were developed abroad in domestic production;
- Increased domestic competition stimulating production and the diffusion of innovative processes; and
- Spillovers increasing the productivity of domestic firms.<sup>20</sup>

A body of literature exists that gives weight to the argument that foreign owned firms are generally more productive than incumbent firms, in some cases by up to 25%.<sup>21</sup> A study looking into FDI in the UK concluded that foreign firms, in particular US owned multinationals, which operate in the UK, are more productive than their UK owned counterparts.<sup>22</sup> This suggests that there may be a higher return to foreign investment, making it an attractive proposition for governments to pursue.

Chart 13 shows investment by UK and foreign owned companies in the East Midlands as a proportion of regional GVA. It can be seen from the chart that, in 2006, the level of investment by UK owned firms appeared to have been in decline whilst investment from foreign owned firms appeared to be rising.

The global nature of the economic downturn has affected the ability and desire for firms to invest in the UK, either from domestic firms or foreign firms in the form of FDI. The magnitude of the decline in investment will become clearer as published statistics begin to pick up the effects of the economic downturn, in the next two to three years.

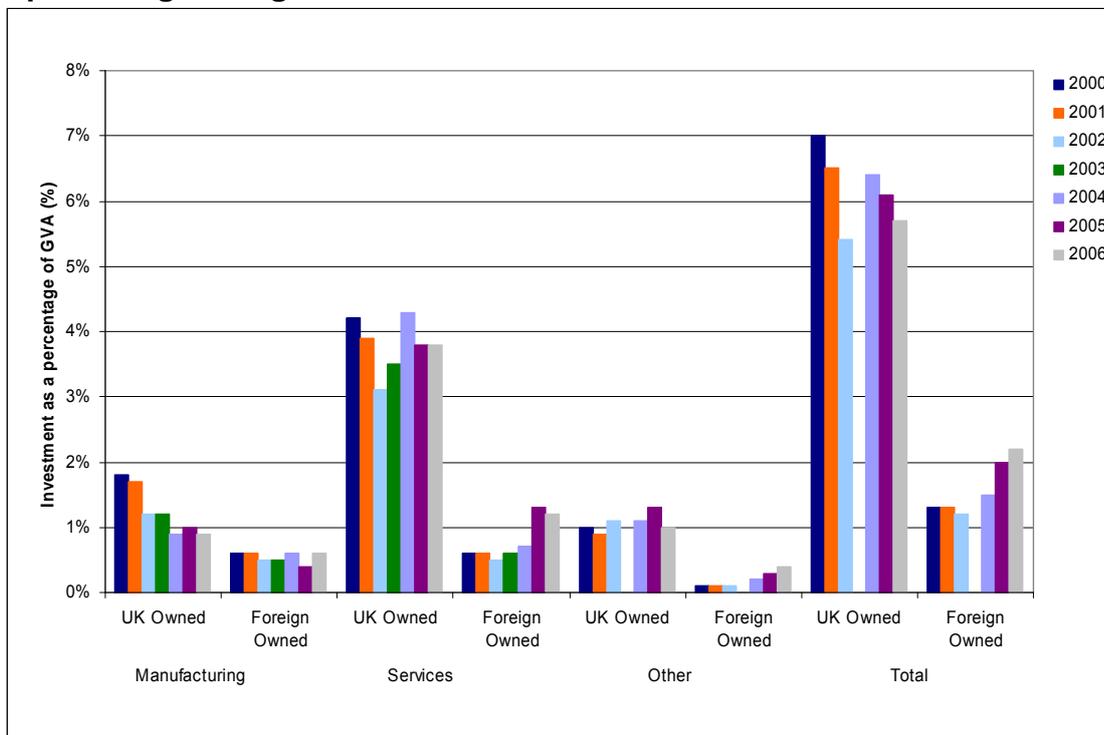
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<sup>20</sup> Productivity in the UK 6: Progress and New Evidence, HM Treasury and the Department of Trade & Industry, March 2006.

<sup>21</sup> Foreign Ownership and Productivity: New Evidence from the Service Sector and the R&D Lab, Griffith, R, Redding, S,J, Simpson, H, October 2004.

<sup>22</sup> Multinationals and US Productivity Leadership: Evidence from Great Britain, Criscuolo, C, Martin, R.,OECD, April 2004.

**Chart 13: Investment by UK and foreign owned companies in the East Midlands as a percentage of regional GVA**



Source: Annual Business Inquiry and Regional Accounts, Office for National Statistics, 2009, available from 'Regional Economic Performance Indicators', BIS, May 2009, 2009.

Note: Data for 2003 'other' and 'total' is missing due to disclosure controls.

- In 2006 the level of investment by UK owned companies was equivalent to 5.7% of GVA in the East Midlands. This is 0.3 percentage points higher than in 2002 (5.4%) but remains considerably lower than the peak of 7% in 2000. Investment by UK owned companies in the East Midlands is currently 0.3 percentage points below the UK average but above the levels experienced in the South West (4.9%), East of England (5.1%), London (5.2%) and the North East (5.4%)
- There has been less volatility in the level of investment by foreign owned companies than by UK owned companies. In 2006 the level of investment by foreign owned companies was 2.2% of GVA, which is the highest level of investment recorded. The East Midlands is currently ranked second on this measure behind the North East (2.5%) and is 0.4 percentage points above the UK average.

A breakdown of the data by broad sector is also available and is also shown in Chart 13. This shows that:

- Investment by UK owned manufacturing companies in the East Midlands declined from 1.8% of GVA in 2000 to 0.9% in 2006. This level of decline in investment mirrors national trends. The UK average has declined from 1.3% in 2000 to 0.6%

in 2006. Investment by UK owned manufacturing companies is highest in the North West, at 1.0% of GVA, and lowest in London, at 0.1%;

- The level of investment by foreign owned manufacturing companies has remained relatively stable, fluctuating between 0.4% and 0.6% of GVA from 2000 to 2006. Investment is currently 0.2 percentage points above the UK average and compares favourably with other regions. Only foreign owned manufacturing companies in the North East invested relatively more;
- Investment by UK owned service companies has remained consistently greater than among manufacturing companies between 2000 and 2006. The level of investment by UK owned service companies has fallen from 4.2% of GVA in 2000 to 3.8% in 2006. This has brought the East Midlands in line with other regions of the UK, and is currently 0.6 percentage points below the UK average; and
- There has been an increase in the level of investment by foreign owned service companies in the region from 0.6% of GVA in 2000 to 1.2% in 2006. This is against a relatively stagnant national trend.

### 3.4.2 Innovation

This sub-section seeks to outline the links between innovation, growth and productivity. The area of innovation has received significant attention over the last few years. The Office for National Statistics defines innovation activity in the following way:

“We define innovation activity here as where enterprises were engaged in any of the following:

- Introduction of new or significantly improved products (goods or services) or processes;
- Engagement in innovation projects not yet complete or abandoned; and
- Expenditure in areas such as internal research and development, training, acquisition of external knowledge or machinery and equipment linked to innovation activities” (ONS, Economic Trends, 2006 page 59).

Without innovative activity an economy would be limited in its capacity to grow.

HM Treasury states that one key area of innovation policy is the strengthening of links between universities and business. Between 2000-2001 and 2005-2006, universities experienced an increase in their income generated by business of more than 100% and growth in income from licensing arrangements of more than 200%.<sup>23</sup> Despite having a strong academic base, the UK still lags behind its major competitors in terms of the levels of research and development and patent applications.

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<sup>23</sup> Productivity in the UK 7, securing long-term prosperity, HMT, 2007.

The East Midlands Universities Association (EMUA) includes 10 East Midlands Universities<sup>24</sup>, which are major regional employers and they contribute significantly to the regional economy. Universities in the East Midlands employ over 25,000 staff directly and contribute to the employment of an additional 30,000 people in the region.<sup>25</sup> The network of universities in the East Midlands provides not only a significant contribution to the regions labour market, but also the regions economy and capacity for innovation. According to EMUA the Higher Education sector generates around £3.3bn of GVA and an annual income of £13.8bn whilst undertaking around £260m of research.

East Midlands universities have a tradition of scientific excellence and research breakthroughs, including the development of magnetic resonance imaging (MRI) at The University of Nottingham and genetic fingerprinting at Leicester. Research strengths in the region include biological sciences at Leicester, the built environment at Loughborough and engineering disciplines at Nottingham, Leicester and Loughborough. The 2008 Research Assessment Exercise (RAE) highlighted the quality of research being conducted by higher education institutions in the UK. The report judged 17% of research conducted in UK HEIs to be world-leading and 37% as internationally excellent, towards which HEIs in the East Midlands contribute significantly.

The Higher Education (HE) sector is a key player in innovation and knowledge exchange. The HE sector has been proactive in employer engagement for learning and teaching and responding to the needs of businesses and individuals during the recession.<sup>26</sup>

There is a significant body of literature addressing the subject of innovation. Schumpeterian growth theory<sup>27</sup> suggests that innovative activity is sparked in firms when there is a perceived threat from foreign firms. This is backed up by Aghion et al (2007 pg23):<sup>28</sup>

“Threat of technologically advanced entry encourages incumbent innovation and productivity growth in sectors that are initially close to the technological frontier, whereas it may discourage incumbents in sectors further behind the frontier.”

This statement suggests that firms that are close to the technology frontier in a strong market position will seek to maintain their advantage through innovation. Firms that are already further behind the frontier may not experience an economic benefit to such innovation due to the lower expected returns from innovating.

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<sup>24</sup> Bishop Grosseteste University College Lincoln, University of Derby, De Monfort University Leicester, University of Leicester, University of Lincoln, Loughborough University, the University of Northampton, The University of Nottingham, Nottingham Trent University, The Open University.

<sup>25</sup> East Midlands Universities Association (EMUA) <http://www.emua.ac.uk/he/economic.html>

<sup>26</sup> East Midlands Universities Association (EMUA) <http://www.emua.ac.uk/he/business.html>

<sup>27</sup> Schumpeter, J. (1942), Capitalism, Socialism and Democracy. Harper and Row.

<sup>28</sup> The Effects of Entry on Incumbent Innovation and Productivity, Aghion ,P , et al, 2007

Innovation is heavily dependent on the available skills of the workforce. A recent report<sup>29</sup> summarises the direct and indirect linkages between skills, innovation and enterprise with productivity and regional performance. Each of the drivers, skills, enterprise and innovation, have direct and indirect implications for regional (and firm) productivity. Innovation is significantly influenced by skills: academic skills, research skills and creativity are examples of skills that enhance innovation activity and knowledge creation. However, management and entrepreneurial skills are also crucial to turn innovative ideas into economically valuable business opportunities.

Innovative activity is subject to a high level of competition increasing the need to protect innovative products or processes. Patents exist to protect the inventor from competitors emulating their inventions and benefiting from them. In reality patents are so specific that opportunities to engineer or “innovate around” the patented product exist, as noted by the then DTI (2005).<sup>30</sup> As noted by Striukova (2007),<sup>31</sup> Mansfield et al (1981)<sup>32</sup> in their influential paper suggest that around 60% of patents are imitated within four years of the patent being issued. This has been widely quoted in subsequent work, see Grandstand (2004).<sup>33</sup> When a firm decides to invest in innovation, a key decision they must make is whether they will be able to gain a suitable level of return for the effort they put in. To increase the size of the return and the time period it can be extracted over, firms utilise a range of tools to protect themselves.

Research and development (R&D) is conducted to enhance the position of a firm in a market. Research has suggested that the social return to private investment far outweighs the private return. Griliches et al (2000)<sup>34</sup> found excess return to firms is around 10% whilst the social return is 25% (these figures are only relevant for privately financed research). Although many studies miss important elements of R&D expenditure or spillovers e.g. the international affects of R&D it can still be said that R&D produces social benefits that outweigh the private return. The fact that spillovers occur and firms are not able to enjoy the full benefit of an investment in innovative activities is an example of market failure and provides a justification for public policy to address the imbalance.

#### 3.4.2.1 Business enterprise research and development (BERD)

Business enterprise research and development (BERD) measured as a percentage of GVA gives an indication of the level of innovation activity that is generated from within firms operating in the UK. BERD has been consistently higher in the East Midlands than the UK average between 1997 and 2007. Placing this data alongside more anecdotal

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<sup>29</sup> Source: Gambin Lynn et al., Warwick Institute for Employment Research, University of Warwick, commissioned on behalf of *emda*, ‘Exploring the links between skills and Productivity’, 2009.

<sup>30</sup> Creativity, Design and Business Performance, DTI Economics Paper, DTI, November 2005.

<sup>31</sup> Striukova, L. (2007), Patents and corporate value creation: theoretical approach, *Journal of Intellectual Capital*.

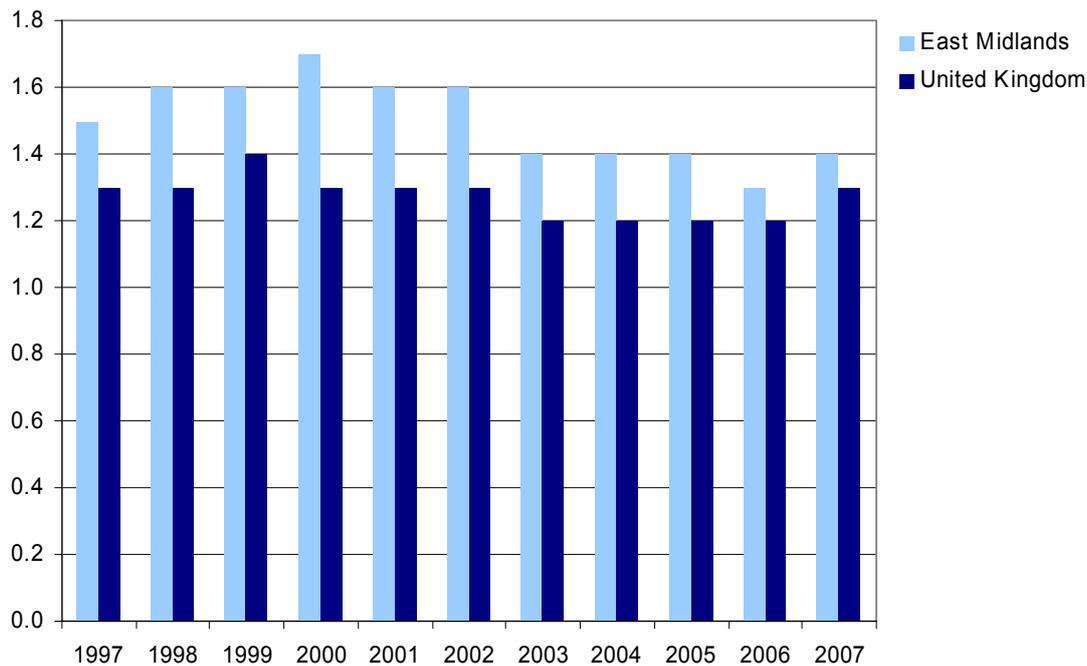
<sup>32</sup> Imitation Costs and Patents: An Empirical Study, Mansfield, E, Schwartz, M, and Wagner, S, *The Economic Journal*, Vol. 91, No. 364, 1981.

<sup>33</sup> Grandstand, O. (2004), *Economics, Law and Intellectual Property*, Boston.

<sup>34</sup> Do subsidies to commercial R&D reduce market failures? Microeconomic evaluation studies, Department of Economics, University of Oslo, Griliches et al, 2000.

evidence suggests that, whilst the East Midlands has a higher than average level of BERD, this is concentrated in a relatively few large multinational firms with many smaller firms in the region spending very little on R&D. It is unclear how the recession will impact on R&D expenditure. For some businesses it will be viewed as an item of expenditure that can be cut back, while for others it will be viewed as an essential means of competing in their market.

**Chart 14: Business enterprise research and development as percentage of GVA, 1997-2007**



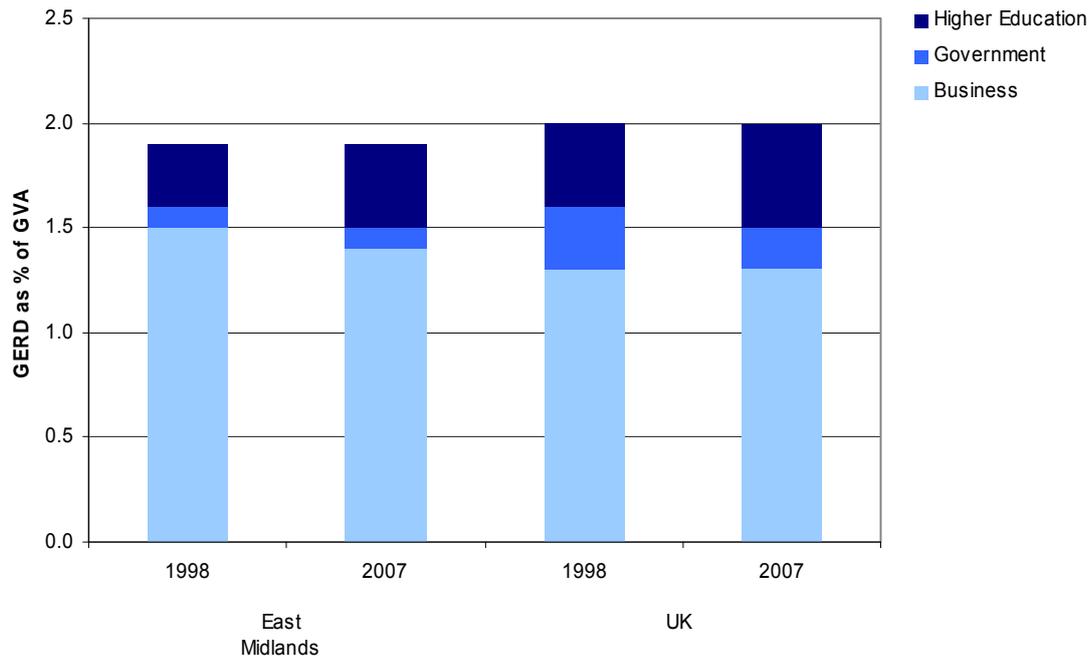
Source: Business Enterprise R&D Survey and Regional Accounts, Office for National Statistics. Available from 'Regional Economic Performance Indicators', BIS, May 2009.

- As Chart 14 shows, in 2007 BERD in the East Midlands was equal to 1.4% of GVA and has remained at roughly this level since 2003. It is currently 0.1 percentage points greater than the national average.
- The East Midlands has experienced a decline in the level of BERD between 2000 and 2007 falling from 1.7% of GVA to 1.4%. In contrast BERD in the UK has remained relatively stable over this period, fluctuating between 1.3% and 1.2% between 2000 and 2007.
- Regions with the highest level of BERD in 2005 were the East of England and the South East, at 4.1% and 2.0% of GVA respectively.

### 3.4.2.2 Gross domestic expenditure on research and development

As well as BERD, spending in the public sector via Government and Higher Education both contribute to the total level of spend on R&D. Due to the structural nature of these two additional contributions to BERD they are substantially less variable over time.

**Chart 15: Gross domestic expenditure on research and development as % of GVA, 1998 and 2007**



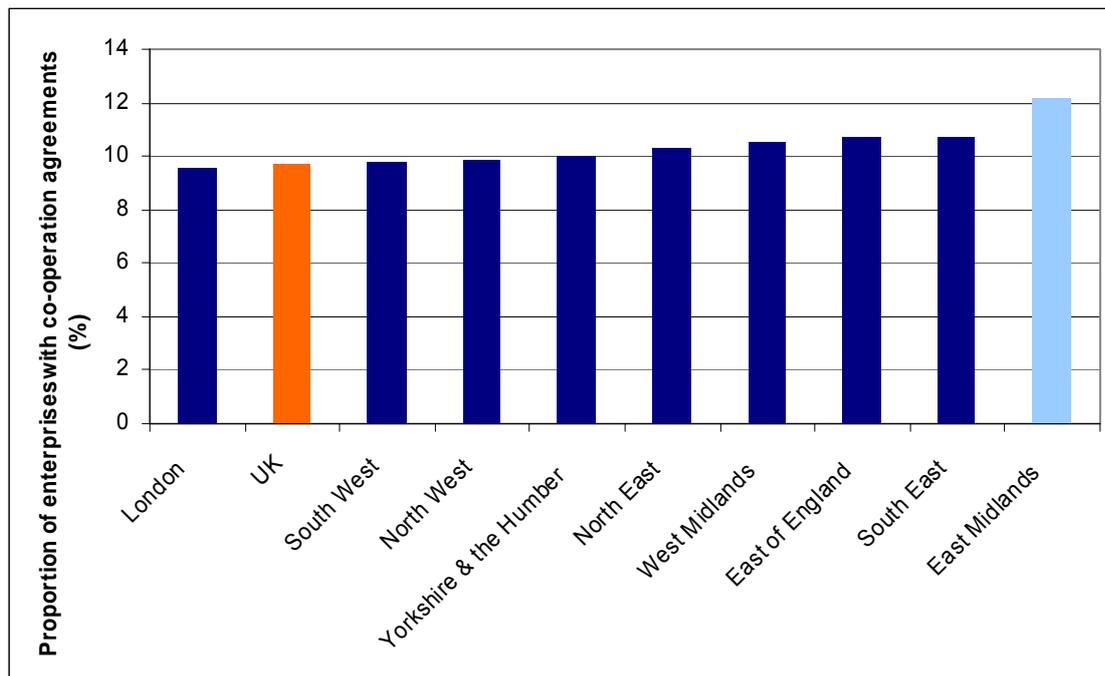
Source: Government R&D Survey and Regional Accounts, Office for National Statistics. Available from 'Regional Economic Performance Indicators', BIS, May 2009.

- It can be seen from Chart 15 that Higher Education is the next largest contributor to expenditure on R&D after business. Levels of spending on R&D from Higher Education in the East Midlands, at 0.4% of GVA, are currently below the national average of 0.5%. In 2007, only the West Midlands and the South West had lower expenditure on R&D from Higher Education than the East Midlands.
- Levels of Government R&D remain low in the East Midlands, currently equivalent to just 0.1% of GVA, half the national average of 0.2%. Government expenditure on R&D remains concentrated in the East of England, the South East and the South West.
- Gross domestic expenditure on R&D has decreased by 0.1 percentage points in the East Midlands between 1998 and 2007. This is in contrast to the increase experienced nationally, of 0.1 percentage points.

### 3.4.2.3 Proportion of enterprises with co-operation agreements on technological innovation

Co-operation agreements are a key part of the innovation process allowing information on innovative activities to be shared, developed and used by a wider audience. Co-operation agreements allow partners to share cost, risk and knowledge leading to substantial economic benefits.

**Chart 16: Proportion of enterprises with co-operation agreements by region, 2004-2006**



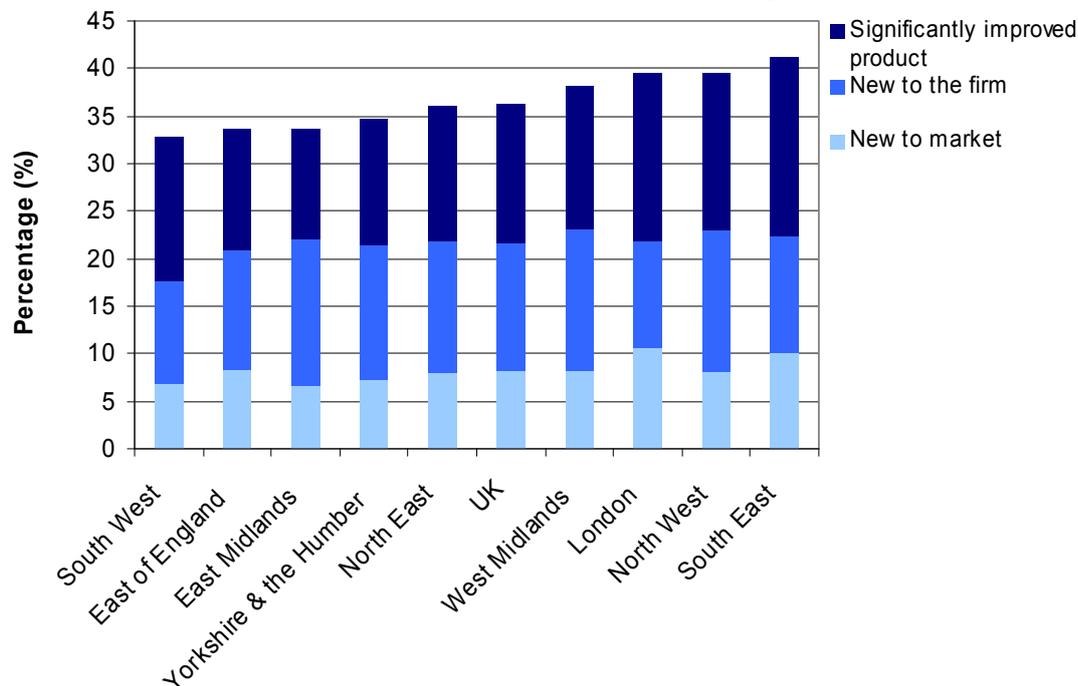
Source: Community Innovation Survey 5, Department for Trade and Industry, 2007.

Chart 16 shows that the East Midlands, at 12.2%, has the highest level of co-operation agreements of any region, placing the East Midlands above other regions such as the South East and East of England where R&D expenditure is concentrated. The UK average is relatively low (9.7%) due to the low levels of co-operation agreements in Wales (8.2%), Scotland (8.4%) and Northern Ireland (6.5%). This strength provides a solid foundation for benefitting from innovative activity in the East Midlands.

### 3.4.2.4 Proportion of turnover accounted for by new or improved products

The final output of the innovation process is a new or improved product or process. It is this stage of the process that creates the benefits both within the firm and the region as a whole, and enables the process of innovation to be sustained in the long-term. Data is available that shows the proportion of a businesses turnover that is attributable to new or improved products.

**Chart 17: Average distribution of total turnover accounted for by product and novel innovation which is new to market, new to firm or significantly improved, 2004-2006**



Source: Community Innovation Survey 5, Department for Trade and Industry, 2007.

Analysis of this data shows that the East Midlands has relatively low turnover generated from new or improved products despite the high levels of innovation activity. Chart 17 shows:

- In the East Midlands, 34% of turnover generated in firms who responded as being product or process innovators was from products or processes that were either new to market, new to the firm or significantly improved. This is 7 percentage points below the leading region of the South East;
- Of the turnover generated by product or novel innovation in the East Midlands, the highest proportion comes from innovation which is new to the firm; and
- It should be noted that although the East Midlands has one of the lowest average distributions of total turnover generated by innovation which is new to market (7%) there is very little regional variation, with most regions experiencing between 7% and 9% and London, the leading region, experiencing 11%.

The level of turnover generated by novel products or processes varies by sector. The Primary and Knowledge intensive sectors experience the highest level of turnover generated from innovative activities. Sectors such as construction and engineering-based manufacturing that are relatively more significant in the East Midlands than nationally tend to experience lower levels of turnover from innovative products or

processes. This could go some way to explaining why the region appears to lag the UK average on this indicator.

The ability to turn the research and innovative activities generated within universities into commercial success is key to fully exploiting the potential of their work. EMUA note the findings of the Higher Education-Business and Community Interaction Survey 2007-2008 which state that 610 companies are currently active, through graduate and staff start ups. Turning research excellence into commercial success will continue to be promoted through mechanisms such as the Lachesis Fund<sup>35</sup> and incubation units.

### 3.4.3 Enterprise

Enterprise enhances the business stock and increases competition. It creates an environment which stimulates creative destruction<sup>36</sup> leading to what is sometimes termed 'churn'. Churn is the process by which new entrants into the market force out those incumbent firms who are not able to compete. This process of creative destruction and subsequent churn allocates resources out of older/less efficient industries and into new/more efficient industries and is thus a key feature of high levels of economic performance.

Entrepreneurial activity not only describes the creation of new businesses, it can also include actions of individuals within businesses. This demonstrates that entrepreneurial activity can be affected as much by the culture within a country as by the prevailing economic conditions. Increased entrepreneurial activity can result in higher employment growth rates and the reduction of unemployment rates.<sup>37</sup>

The UK has performed well when looking at factors affecting the level of entrepreneurial activity. In 2008, the UK was ranked second amongst its European competitors and third globally on the measure relating to ease of doing business.<sup>38</sup> This report looked at the financial infrastructure and access to capital to support entrepreneurial activity of 122 countries. Although the UK has seen a slight drop from first place overall this has been due to improvements in the stability of its competitors and does not indicate a deterioration in UK performance overall.

Whilst the UK has made significant progress in recent years and is ahead of many European competitors, there is still a large entrepreneurial gap between the UK and the US. The US has higher levels of enterprises per head and a faster rate of small business growth. Embedded in the US is an enterprise culture, in which the fear of failure is not seen as a significant barrier to entry. Fear of failure comes high on the list of concerns of

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<sup>35</sup> <http://www.lboro.ac.uk/business/luel/Lachesis/pages/index.html>

<sup>36</sup> 'Creative destruction' is a term used to describe the change in a market where a new technological development or process has been introduced creating a more efficient industry. This introduction 'shakes up' the market and forces incumbent firms to increase efficiency to survive.

<sup>37</sup> Linking Entrepreneurship to Growth, David B Audretsch and Roy Thurik, OECD, 2001.

<sup>38</sup> Milken Institute, Capital Access Index (CAI), 2008.

people in the UK when looking to start or grow a new business. In 2008, 38.9% of the adult population of the UK cited fear of failure as a reason not to start a new business, whilst the East Midlands has the lowest fear of failure rate of any English region, at 34.9%.<sup>39</sup>

A number of factors have been identified which characterise an entrepreneurial region:<sup>40</sup>

- Entrepreneurial regions have a culture that recognises, encourages and supports entrepreneurs and entrepreneurial ways of working;
- Entrepreneurial regions have a dynamic business population that is based on a healthy start-up rate, improving levels of firm survival, a large and rising proportion of growing entrepreneurial firms and agglomeration effects that speed up regional growth through clustering and the geographical concentration of businesses; and
- The institutions and infrastructure of a region support and enable entrepreneurial activity.

Complementing this regional research, the HM Treasury Enterprise Strategy<sup>41</sup> has identified what they have termed 'enterprise enablers'. These enablers are the underlying factors which, in their absence, have the potential to limit the level and quality of enterprise. These include:

- Cul ture;
- Knowledge and skills;
- Access to finance;
- Business innovation; and
- Regul atory framework.

These enablers have been drawn from the extensive literature on entrepreneurship that apply specifically to national development. They do however, cover many of the factors outlined in regional research on economic performance.

#### 3.4.3.1 Total entrepreneurial activity

Total entrepreneurial activity (TEA) is measured by the Global Entrepreneurship Monitor (GEM), a survey of entrepreneurial activity among the adult population. TEA is calculated

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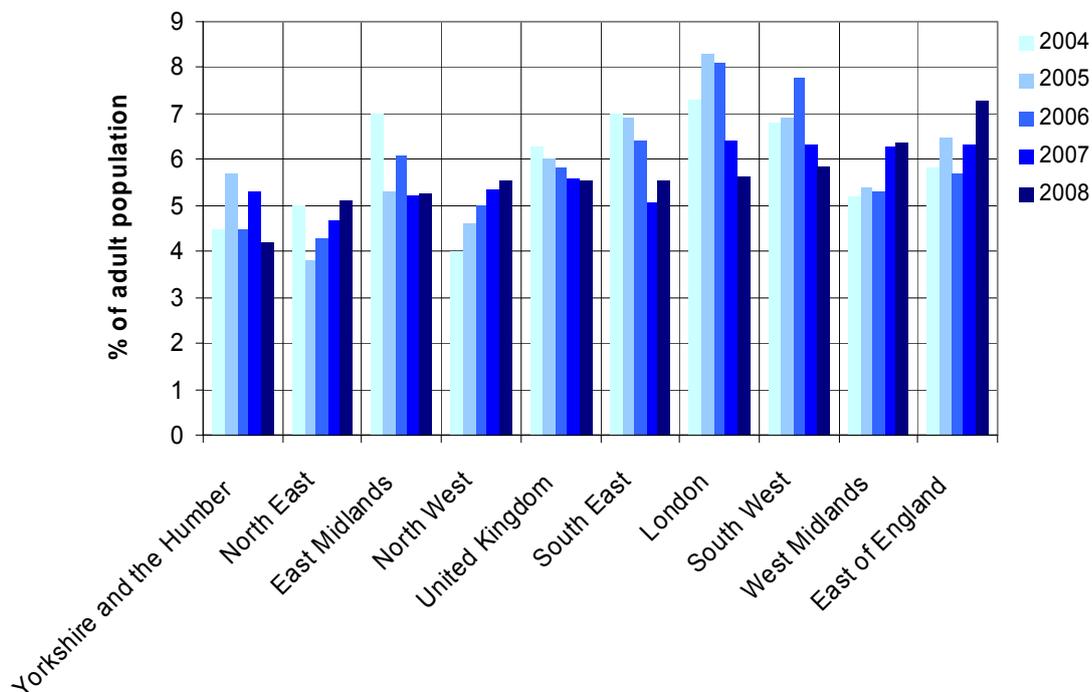
<sup>39</sup> Global Entrepreneurship Monitor: United Kingdom 2008, Aston Business School.

<sup>40</sup> Entrepreneurial Regions, Exploring the Entrepreneurial Capacity of the East Midlands, Atherton, A, Frith, K, University of Lincoln, *emda* RES evidence commission, August 2005.

<sup>41</sup> Enterprise: Unlocking the UK's Talent, HMT, March 2008.

as the sum of nascent entrepreneurs (those who said that they were actively involved in creating a new business that they would own all or part of and have not paid any wages or salaries to anyone for more than three months) and baby businesses (more established owner-manager businesses that have been running for between four and 42 months). TEA is an important indicator of the relative strength and adaptive capacity<sup>42</sup> of an economy. Data from the Global GEM survey 2008 indicates that the UK, with a TEA of 5.5% is more entrepreneurial than Germany (3.8%), Italy (4.6%) and Japan (5.4%). Levels of TEA have, however, been increasing in many countries leading to the UK slipping down the rankings. The UK still trails the USA (10.8%) and has now fallen behind France (5.6%) and the G7 average (6.0%).<sup>43</sup> The remainder of this sub-section will focus on TEA at regional level.

**Chart 18: Total entrepreneurial activity in the UK, 2004 to 2008  
(% of adult population)**



Source: Global Entrepreneurship Monitor UK, Aston Business School, 2008

- TEA in the East Midlands was 5.3% in 2008, 0.2 percentage points below the UK average, and 0.1 percentage points higher than in 2007. These differences are not statistically significant.
- The highest levels of TEA are to be found in the East of England (7.3%), the West Midlands (6.4%) and the South West (5.9%).

<sup>42</sup> The term 'adaptive capacity' describes a regions ability to respond to economic shocks. Levels of Education and TEA both enhance a regions capacity to respond to changing economic opportunities.

<sup>43</sup> Global Entrepreneurship Monitor: United Kingdom 2008, Aston Business School.

- The lowest levels of TEA are to be found in Yorkshire and the Humber and the North East, where 4.2% and 5.1% of the adult population were involved in entrepreneurial activity respectively.
- Levels of TEA in UK regions have changed markedly in recent years. Areas which have experienced a decline include London, the South East, the South West and the East Midlands whilst areas which have experienced growth include the North East, North West and West Midlands.

There remains a substantial gap between the levels of entrepreneurial activity of males and females. In 2008, 3.7% of females were classed as entrepreneurially active compared to 6.8% of males. Whilst this gap is significant it follows the national trend in entrepreneurial activity.

Data for 2008 does not suggest any decrease in the level of entrepreneurial activity due to the recession in either the East Midlands or the UK as a whole. This may be a product of entrepreneurs who were committed to their activity before the downturn took hold. It is likely that the level of entrepreneurial activity will be affected both positively and negatively by the current downturn. People may look to entrepreneurship as a source of income as conditions in the labour market deteriorate, but tight credit conditions may prevent much of this activity from occurring. The effects of the downturn will, therefore, be captured in future data releases.

#### 3.4.3.2 Business births

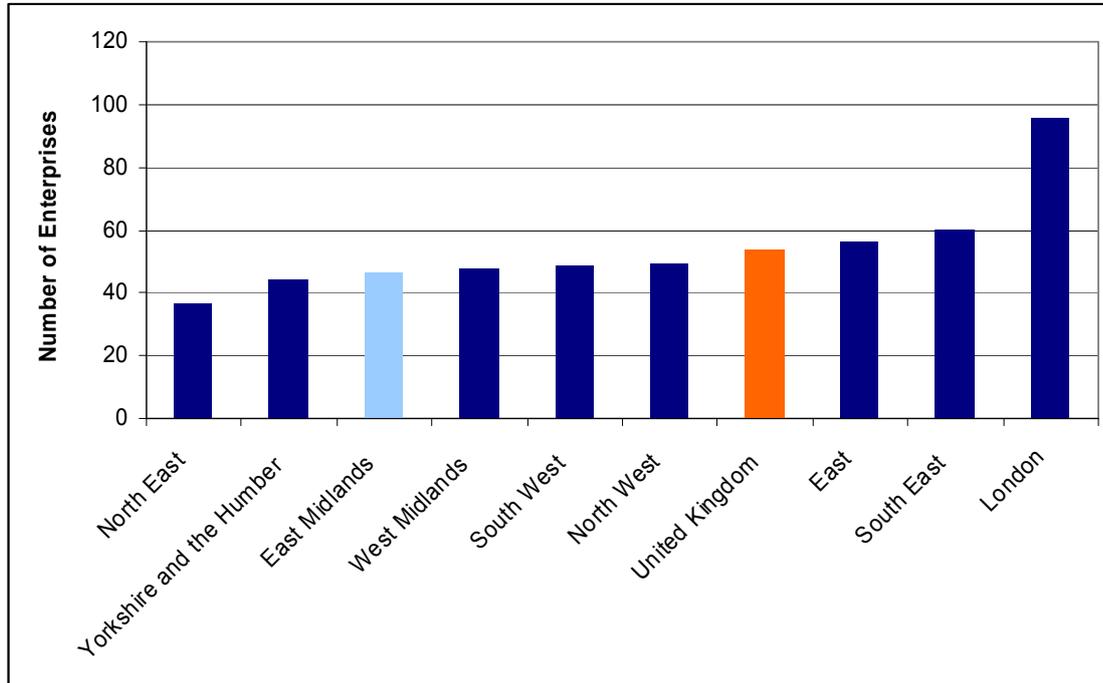
Chart 19 shows business births<sup>44</sup> as measured the Office for National Statistics<sup>45</sup> per 10,000 resident adults in the UK in 2008. Business births are a proxy for the level of entrepreneurial activity in the region, with the difference between births and deaths giving an indication of the strength of entrepreneurial activity in the region.

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<sup>44</sup> A birth is identified as a business that was present in year t, but did not exist in year t-1 or t-2. Births are identified by making comparison of annual active population files and identifying those present in the latest file, but not the two previous ones.

<sup>45</sup> The starting point for demography is the concept of a population of active businesses in a reference year (t). These are defined as businesses that had either turnover or employment at any time during the reference period.

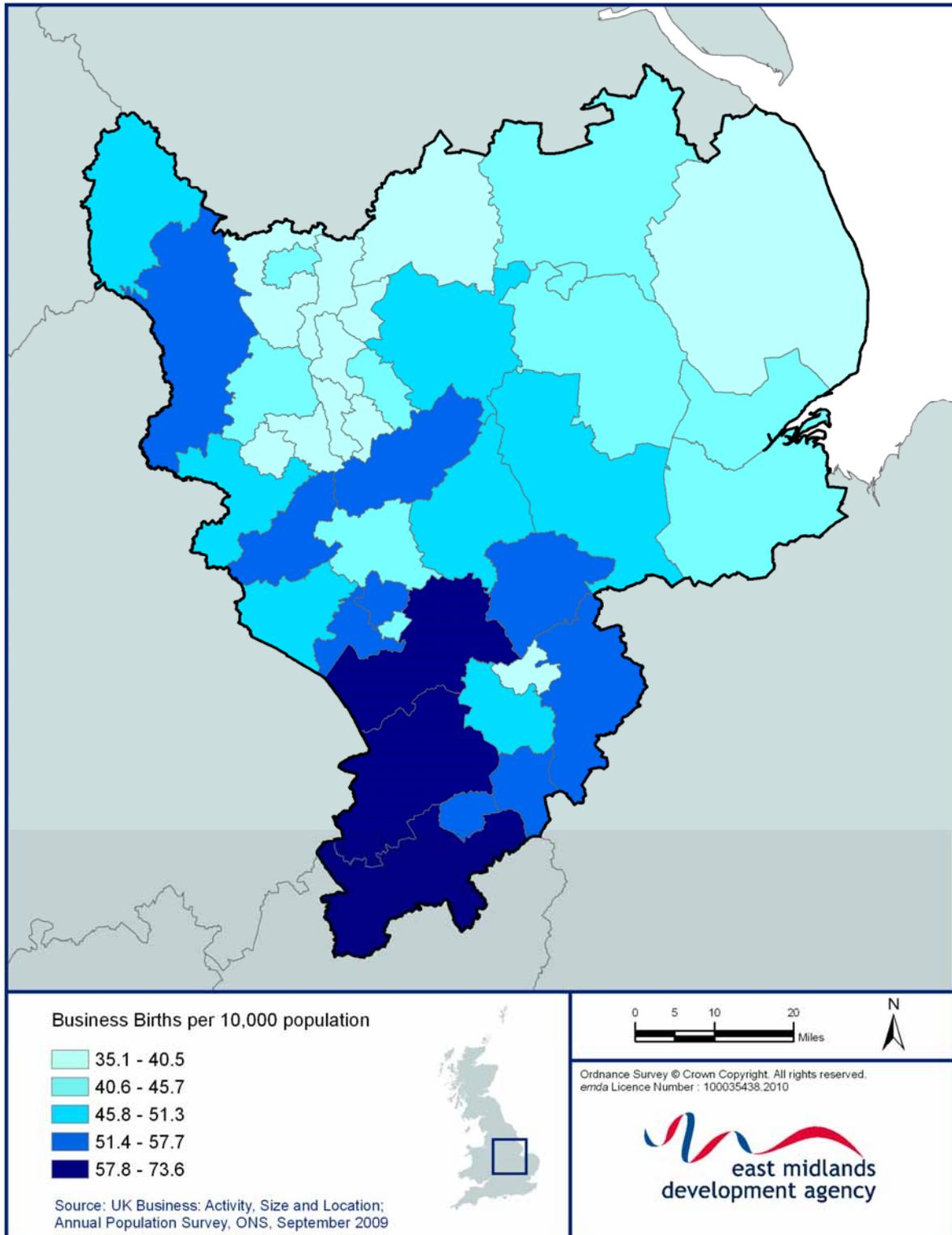
**Chart 19: Businesses births per 10,000 resident adults by region, 2008**



Source: ONS, Business Demography 2008, accessed January 2010 and ONS, Mid Year Population Estimates, broad age bands, numbers, August 09, accessed January 2010.

- In the East Midlands there were 47 business births per 10,000 resident adults in 2008, below the UK average, of 54.
- Business births are significantly lower in the East Midlands than in the leading region in the country, London, where there were 96 births per 10,000 resident adults in 2008.
- In the North East there were 37 births per 10,000 resident adults in 2008, 68% of the UK average.
- In the East Midlands there were 41 business deaths per 10,000 resident adults over the same period, below the UK average, of 44. This data indicates a below average level of churn in the East Midlands.

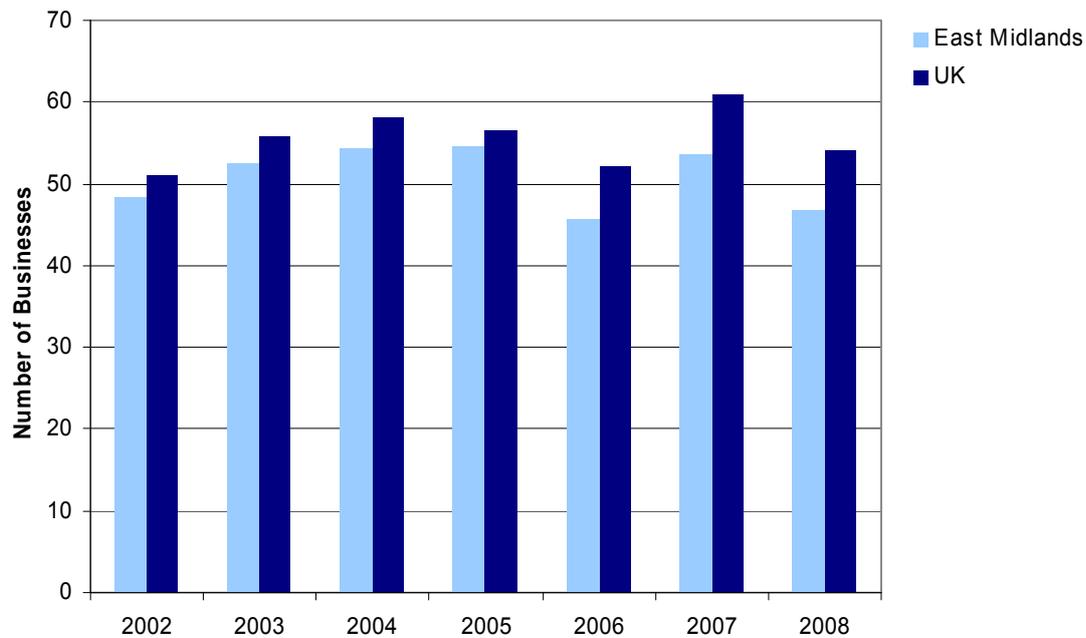
**Map 1: Business births per 10,000 resident adults by district, 2008**



Map 1 shows that there are significant differences in the business start-up rate per 10,000 resident adults between districts of the East Midlands:

- The highest start-up rates are to be found towards the south of the region where Harborough and South Northamptonshire experience start-up rates of 73 and 71 businesses per 10,000 residents adults respectively;
- Districts to the north of the region such as Bolsover, Bassetlaw, Ashfield, Broxtowe, Chesterfield and Mansfield and east of the region, such as East Lindsey experience lower business start-up rates; and
- This analysis suggests there are relatively low business start-up rates in the regions urban centres e.g. Nottingham and Derby. This is a product of the high resident population in these districts rather than a lack of opportunities, or the overall number of start-up rates.

**Chart 20: Change in business births per 10,000 resident adults 2002-2008**



Source: Business Demography: Enterprise Births, Deaths and Survival, Office for National Statistics, 2009 and ONS, Mid Year Population Estimates, broad age bands, numbers, August 09, accessed January 2010.

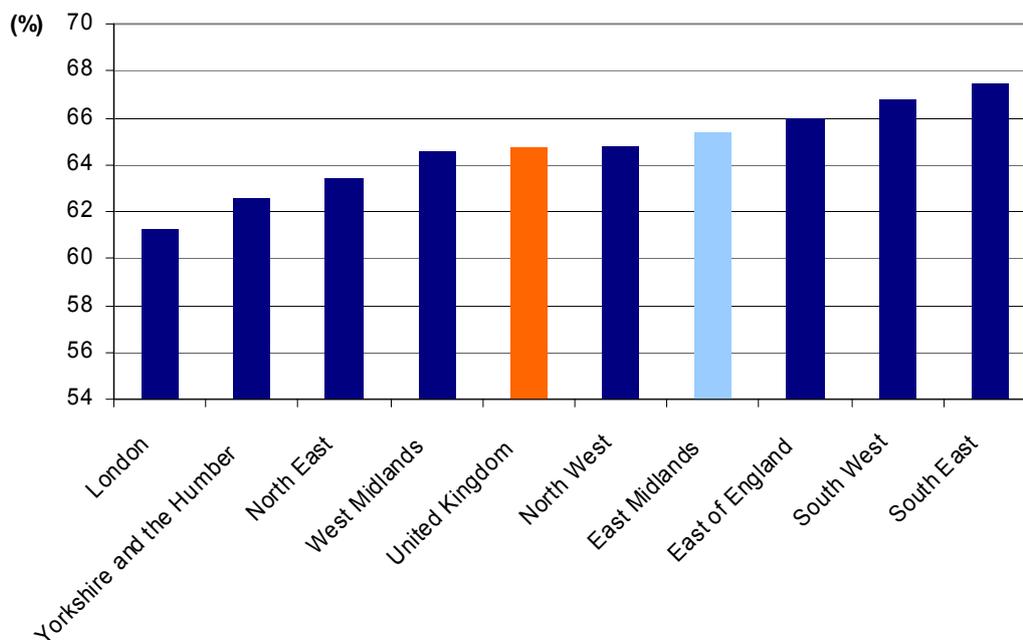
- The number of business births in the East Midlands has fluctuated over time but has displayed no clear trend, as illustrated by Chart 20.
- The number of business births per 10,000 resident adults has fluctuated between a low of 46 in 2006 and a high of 54 in 2005.
- The same broad trend has occurred nationally where business start-ups have fluctuated between a low of 51 in 2002 and a high of 61 in 2007.

- No one region has experienced significant improvements in the number of business start-ups relative to the UK average.
- The Chart shows that business births fell in both the East Midlands and United Kingdom between 2007 and 2008. This may have been brought about by a worsening of economic conditions as the economy entered recession.

### 3.4.3.3 Business survival in the East Midlands

It is important that the economy of the East Midlands is not only able to cultivate new businesses but is also able to ensure that they survive, providing long-term benefits for the region. The first three years in the life cycle of a business are considered to hold the most risk, with the likelihood of continued survival increasing with time. Chart 21 shows that the East Midlands performs relatively well on this measure.

**Chart 21: Three year survival rate for business first becoming active<sup>46</sup> in 2005 (%)**



Source: Business Demography: Enterprise Births, Deaths and Survival, Office for National Statistics, 2009

- In the East Midlands 65.4% of businesses becoming active in 2005 were still active three years later, which is 0.7 percentage points above the UK average of 64.7%.
- As shown in Chart 21, among the English regions the business survival rate is highest in the South East, at 67.4%, and lowest in London at 61.2%.

<sup>46</sup> These are defined as businesses that had either turnover or employment at any time during the reference period.

- The three year business survival rates have decreased in all English regions between businesses born in 2003 and businesses born in 2005, with the exception of London and the South East which experienced growth of 2.1 percentage points and 0.8 percentage points respectively. Yorkshire and the Humber experienced the largest fall of any English region, at -3.7%, over the same time period.

#### 3.4.3.4 Access to finance

Access to finance has been highlighted by HM Treasury as an enabler of enterprise. The availability and ease of obtaining finance can be crucial in the creation, survival and growth of a business.<sup>47</sup> Access to finance affects small businesses to a greater extent than larger businesses as they generally have less equity and capital, and are assessed as a higher risk to lenders. This both limits the finance available and increases the cost of finance for smaller firms. Key sources of finance (as well as expertise) include venture capital and business angels,<sup>48</sup> as well as banks. Survey evidence suggests that the current recession has had a large and negative impact on the ability of firms and individuals in the UK to access finance. Banks ability and willingness to lend has been significantly reduced and the cost of many types of new finance has increased.<sup>49</sup> It should, however, be noted that access to finance remains a far larger concern to businesses than the cost. This lack of confidence has, in turn, impacted on firms' investment and growth decisions. Much of this impact will not be captured by official statistics for another one to two years.

Recent reports<sup>50</sup> have highlighted a number of issues faced by small and medium enterprises (SMEs) in the UK with regards to their ability to access finance:

- In 2004, the proportion of SMEs using external finance was 81%. By 2007 this had fallen to 61%;
- The most common forms of external finance are credit cards and overdraft facilities. The size and number of these facilities has not changed markedly between 2004 and 2007;
- The proportion of businesses using any form of external finance rises with firm size. This is a reflection of the relative risks involved with lending to smaller firms;
- The manufacturing sector has experienced an increase in the percentage of firms seeking new finance in the years leading up to the recession, which is significantly greater than other sectors; and

<sup>47</sup> Growing pains: What is holding SMEs back, British Chamber of Commerce, March 2008.

<sup>48</sup> 'Business angels' are usually wealthy individuals looking for a medium to long-term investment in start-up or developing firms and are not necessarily put off by the high risk nature of the investment. They often have a history of success in industry and look to use this knowledge to develop the business into a successful enterprise.

<sup>49</sup> FSB National Snapshot Poll on Small Business Credit and Cash Flow: East Midlands comparison to UK average, Federation of Small Businesses, February 2009.

<sup>50</sup> Financing UK Small and Medium-sized Enterprises, The 2007 Survey, A Report from the Centre for Business Research, University of Cambridge, August 2008.

- Of all firms seeking new finance in the reference period, over two thirds (71%) were successful. The reverse is that 15% of SMEs did not receive any of the finance they required.

It should be noted that this report was completed in autumn 2007 and will not have picked up any of the effects associated with a tightening of credit conditions brought about by dramatic changes in the UK economy and banks' lending practices.

Whilst the UK has one of the strongest private equity markets in Europe, there has been a fall in the level of investment in early stage firms in recent years.<sup>51</sup> The recent trend towards business angel investment in larger, more established firms has exacerbated early stage firms' access to finance and increased their reliance on friends and family. The current economic climate has put further pressure on early stage firms' ability to access finance.

### 3.4.4 Competition

Competition, or more importantly, fair competition is the cornerstone of any successful economy. It is through fair competition that consumers are able to buy the goods and services they demand, and it is competition that provides incentives for firms to innovate (exploit new ideas and gain a competitive advantage) and become more efficient. For this reason governments worldwide develop policy and legislation to protect and enforce fair market competition. There is a substantial body of evidence that suggests market reform and regulatory policy have a significant impact on promoting multi-factor productivity.<sup>52</sup> Studies also show that aggregate productivity of an industry is significantly affected by dynamic competition within it, reallocating resources from less efficient firms and processes into more efficient ones.<sup>53</sup> Research suggests that more than half of productivity growth in the UK is related to competition and that low barriers to entry (freedom of entry and exit in markets) is a key factor driving this. It should be noted that whilst policy to reduce barriers to entry in markets and speed up reallocation through competition can benefit regional productivity, it also has a temporary destabilising effect<sup>54</sup> as markets respond to the competitive forces.

The Competition Act 1998 and subsequent Enterprise Act 2002 have both contributed to the strengthening of competition policy and the power of regulators to act. The combined enforcement power of the competition authorities is estimated to have saved UK consumers at least £870 million between 2000-2001 and 2006-2007.<sup>55</sup> The Office of Fair

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<sup>51</sup> 'Shifting sands – The changing nature of the early stage venture capital market in the UK', NESTA, 2008, referenced in, 'Stimulating venture capital', NESTA, 2008.

<sup>52</sup> Product market competition and economic performance in Canada, OECD Economics department working paper No.421, 2005.

<sup>53</sup> Competition, Innovation and Productivity Growth, OECD working paper, Ahn, S, 2002.

<sup>54</sup> Productivity, Competition and Downsizing, Barnes, M, Haskel, J, Queen Mary, University of London, 2007.

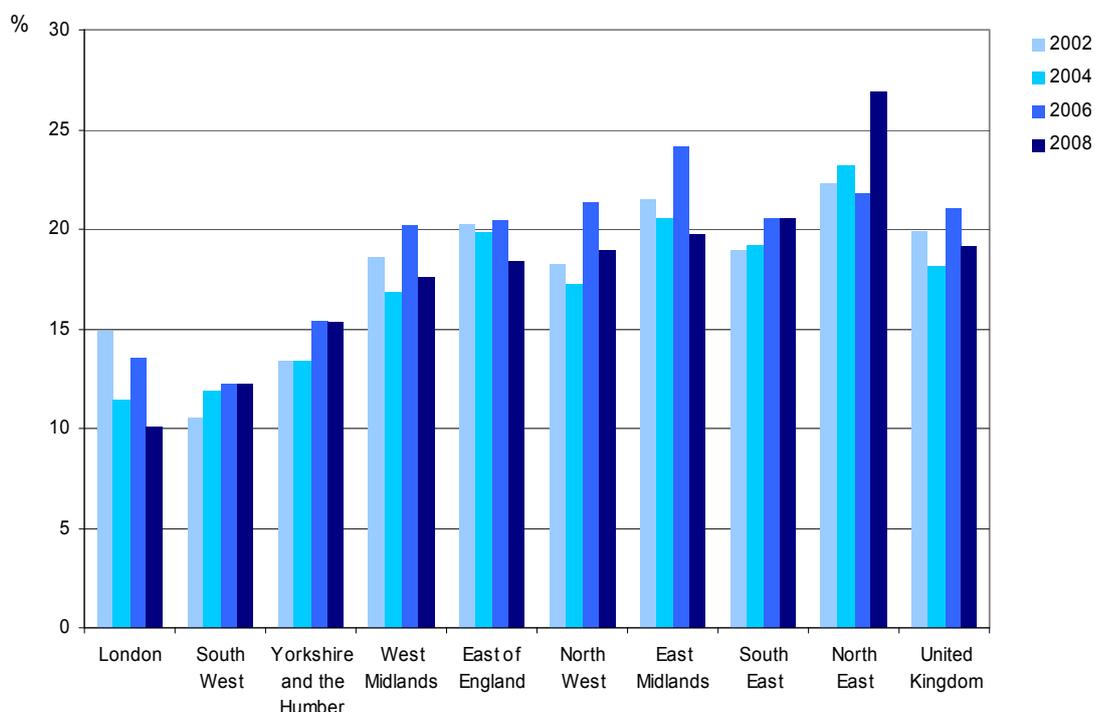
<sup>55</sup> Productivity in the UK 7, securing long-term prosperity, HMT, 2007.

Trading (OFT) and independent regulators are estimated to have provided further savings of at least £600 million per year through the deterrent effects of enforcement.<sup>56</sup>

It is difficult to accurately measure the level of competition in any given national economy. It can, however, be said that more efficient regulatory systems are indicative of efficient and competitive economies, such as the economic environment seen in both the US and UK. As the competition systems and policy apply equally to all regions within an economy, analysing them at a regional level would not provide an insightful picture of competition and its impacts on productivity at a regional level.

A measure of competition used at regional level in the UK is exports. Businesses that export are likely to be more efficient than those that do not. Chart 22 shows that on this measure the East Midlands has one of the most open economies of any region in the country with a high level of exports.

**Chart 22: Exports of goods as % of GVA, 2002-2008**



Source: Government BERR analysis of information provided by the Statistics and Analysis of Trade Unit, HM Revenue and Customs and Short Term Employment Survey, ONS. Available from 'Regional Economic Performance Indicators', BIS, May 2009.

Figures for 2008 show that exports in the East Midlands were equivalent to 19.7% of GVA, 0.6 percentage points above the national average. On this measure the levels of exports as a percentage of GVA are higher only in the South East (20.5%) and the North East (26.9%).

<sup>56</sup> The deterrent effects of competition enforcement, OFT discussion paper, 2007.

- Since 2002 the trends in the level of exports as a proportion of GVA have been very different in each English region. The North East has experienced a marked increase in the level of exports from 22.3% of GVA in 2002 to 26.9% in 2008. In contrast, exports in London have fallen over the same period, from 14.9% to 10.1%.
- Although the East Midlands experienced a spike in exports in 2006 (increasing to 24.2% of GVA) similar to other Northern and Midlands regions, the longer term trend is that of a moderate decline from 21.5% in 2002 to 19.7% in 2008.
- London is now the least open region where exports account for 10.1% of GVA. It should, however, be noted that this data only includes the exports of goods and not services.

The current recession has had a mixed impact on exporters in the UK. The UK has experienced a fall in the value of the exchange rate, which usually boosts exports as UK products become cheaper to purchase from abroad. However, it also increases the cost of imported raw materials and this has offset some of the benefits from this fall. Between 2008 and 2009 the level of trade in goods fell significantly. The value of exports from the UK fell by 9.8% (by 8.0% from the East Midlands), while the value of imports into the UK fell by 10.5% (and by 8.9% into the East Midlands).<sup>57</sup>

### 3.4.5 Public expenditure in the East Midlands

The Public Expenditure Statistics Analyses, published by HM Treasury, gives data on Government expenditure within the English Regions. In 2007-2008<sup>58</sup> total identifiable expenditure<sup>59</sup> in the East Midlands was £30bn (6.4% of the UK total). Total identifiable expenditure in the East Midlands consisted of £21.4bn from central government departments and £8.6bn through local government allocations. The proportion of total identifiable expenditure in the East Midlands has remained largely unchanged since 1999-2000. As expenditure in the UK is largely broken down by population those regions with the largest populations currently receive the largest amount of expenditure (London, the South East and the North West).

A more objective measure of expenditure, taking population into account, is that of total identifiable expenditure per head. In 2007-2008 spending per head was £6,827, which was 88.9% of the UK average. Regions with the highest level of expenditure per head included London (117%), the North East (106%) and the North West (106%).

<sup>57</sup> UK Regional Trade in Goods Statistics Q4 2009, HM Revenue and Customs, March 2010.

<sup>58</sup> Public Expenditure Services Analysis (PESA), HM Treasury, July 2009.

<sup>59</sup> Expenditure is split into two categories for this analysis based on a 'who benefits' basis. Identifiable expenditure is the part of government expenditure which directly benefits individuals, businesses or communities within particular regions. Non-identifiable expenditure is that which does not benefit one country or region within the UK more than others i.e. the impact is seen at a national level such as defence or overseas services.

To complement this analysis, data is also available offering a breakdown of expenditure by function e.g. health. In 2007-2008 expenditure on Health and Social Protection (e.g. welfare benefits) remained at just over two thirds of total regional expenditure. As this expenditure is allocated via central Government this is not an area of expenditure which *emda* and its partners can influence. *emda* and its regional partners can influence, to varying degrees, spend on education & training, agriculture, fisheries & forestry, transport, environmental protection, enterprise & economic development, employment policies, housing & community amenities and science & technology. In 2007-2008 these functions had identifiable expenditure amounting to £8.5bn in the region.

### **Key Points: Drivers of productivity in the East Midlands**

- Investment in the UK increased in the years leading up to the recession due to a prolonged period of economic stability and stable interest rates, but the current recession will have an impact on investment that will not be captured by the data for two to three years.
- Business Enterprise Research and Development (BERD) has been consistently higher in the East Midlands than the UK average between 1997 and 2007. In 2007 levels of BERD in the East Midlands were equal to 1.4% of GVA, compared to 1.3% for the UK.
- At 12.2%, the East Midlands has the highest level of co-operation agreements of any region placing the East Midlands above other regions such as the South East and East of England, where R&D expenditure is concentrated.
- The East Midlands continues to lag the national average on the levels of turnover generated from new and improved products or processes.
- Total Entrepreneurial Activity in the East Midlands was 5.3% in 2008, 0.2 percentage points below the UK average. The difference is not statistically significant.
- In the East Midlands there were 47 business births per 10,000 resident adults in 2008, below the UK average, of 54. Business start-ups are highest towards the south of the region in districts such as South Northamptonshire and Harborough.
- Business survival rates are relatively high in the East Midlands. In the East Midlands 65.4% of businesses becoming active in 2005 were still active three years later, which is 0.7 percentage points above the UK average of 64.7%.
- The East Midlands continues to experience relatively high levels of exports as a percentage of GVA. However, with the exception of the North East, the level of exports fell in all English regions in 2008 due to the recession.

## **3.5 Industrial structure of the East Midlands economy**

The five drivers of productivity developed by Government provide the basis for a general discussion of economic performance. They are, however, generic by nature and fail to provide a full picture of performance within regional economies. Looking at the industrial structure of the East Midlands and making comparisons with data for the UK provides additional insights that complement the analysis of the five drivers of productivity in the region.

The industrial structure of a region has a direct impact on its ability to respond in an efficient and productive manner to economic shocks. This responsiveness has been termed 'adaptive capability' and is the capacity of the regional economy to 'respond to exogenous forces on the one hand, and on the other, to create new paths of economic development from within'. Adaptive capability provides a way for a region to avoid getting 'locked in' to a path of long term economic decline.<sup>60</sup> Economic shocks can occur in any industry and can originate in regional, national or global economies. For this reason it is preferable that an economy should demonstrate resilience and the ability to recover quickly from any kind of shock.

This section will build a picture of the industrial structure of the East Midlands through an analysis of business demography. It examines the level of output and employment in industries in the region to determine relative importance. Throughout the analysis UK comparisons are used to highlight regional strengths and weaknesses.

### **3.5.1 Business demography**

This sub-section will analyse the size and structure of businesses in the East Midlands region. Business births and survival rates have been assessed previously in this chapter in the section dealing with enterprise. The focus here is on the business stock by location and industry and change over time.

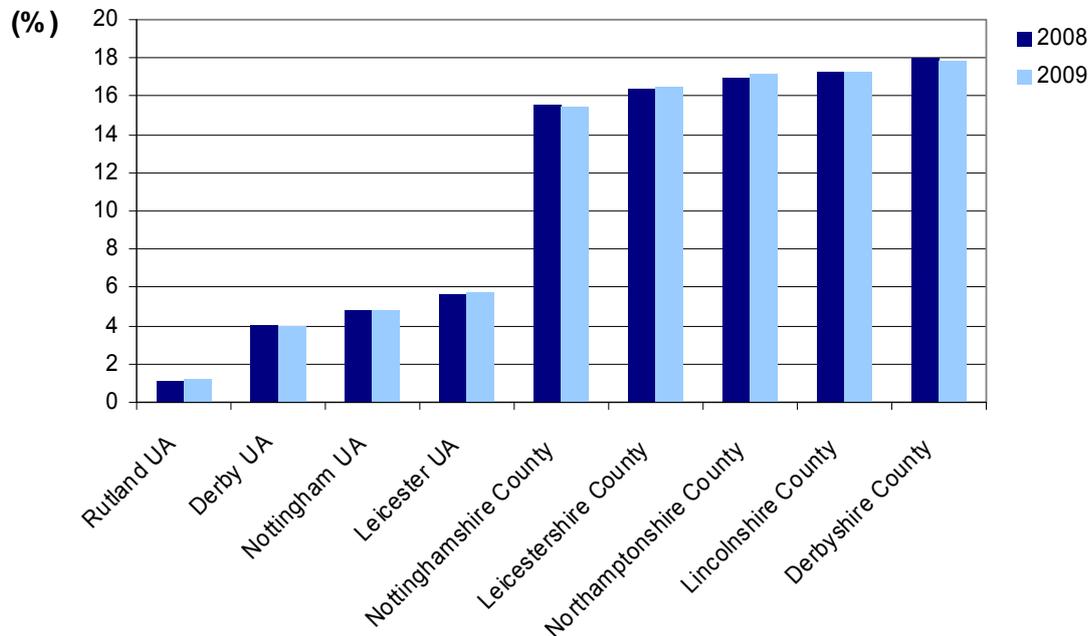
#### **3.1.1.1 Business numbers**

In 2009 there were 147,980 VAT and/or PAYE businesses in the East Midlands region, accounting for 6.9% of all businesses in the UK. The inclusion of PAYE registered businesses is a new addition to the data provided by the Office for National Statistics restricting comparability to the last two years.

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<sup>60</sup> For further discussion see Thinking About Regional Competitiveness: Critical Issues, R Martin, University of Cambridge, RES Evidence Commission, August 2005.

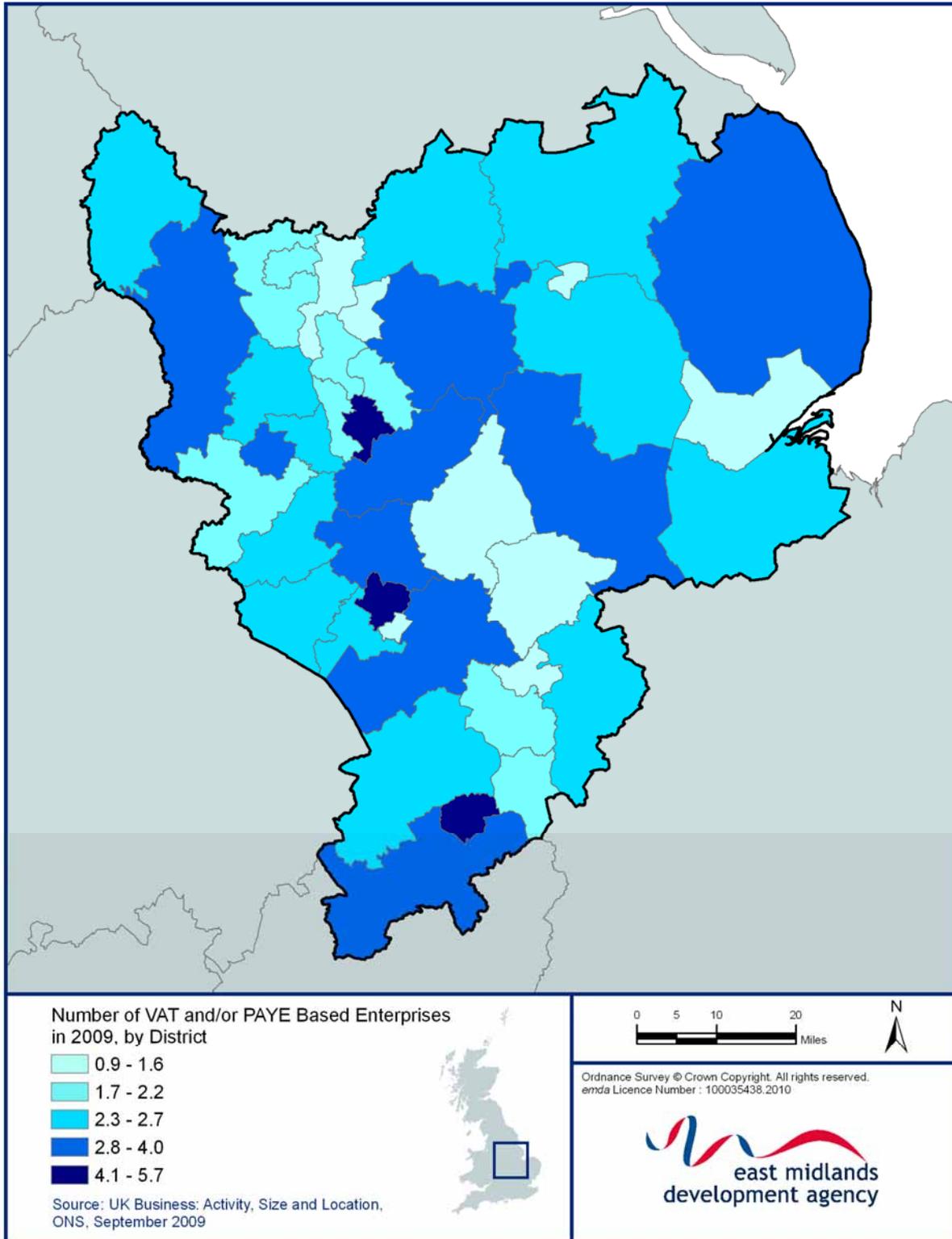
**Chart 23: Stock of VAT and/or PAYE registered businesses in the East Midlands, 2008-2009 (%)**



Source: UK Business Activity, Size, and Location, Office for National Statistics, September 2008 and 2009.

- The share of businesses in the three cities of Derby, Leicester and Nottingham has remained stable between 2008 and 2009 with the marginal fall in Derby being offset by an equivalent increase in Leicester. The three cities accounted for 14.5% (21,505) of businesses in the region in 2009.
- Leicester has 8,500 registered businesses (5.7% of the total), Nottingham has 7,100 (4.8% of the total), whilst Derby has 5,900 (4.0% of the total).
- Rutland accounts for the smallest proportion of VAT registered businesses of any sub-region of the East Midlands. There are currently 1,750 businesses in Rutland, which is 1.2% of the East Midlands total reflecting the size and relative rurality of the Unitary Authority.
- Each of the five counties has between 23,000 and 26,400 businesses or 15.5%-17.8% of the total. Nottinghamshire has the lowest number of businesses at 23,000 (15.5% of the total) whilst Derbyshire has the highest number, with 26,400 (17.8% of the total).

**Map 2: VAT and PAYE registered business stock in the East Midlands by district, percentage of total stock, 2009**

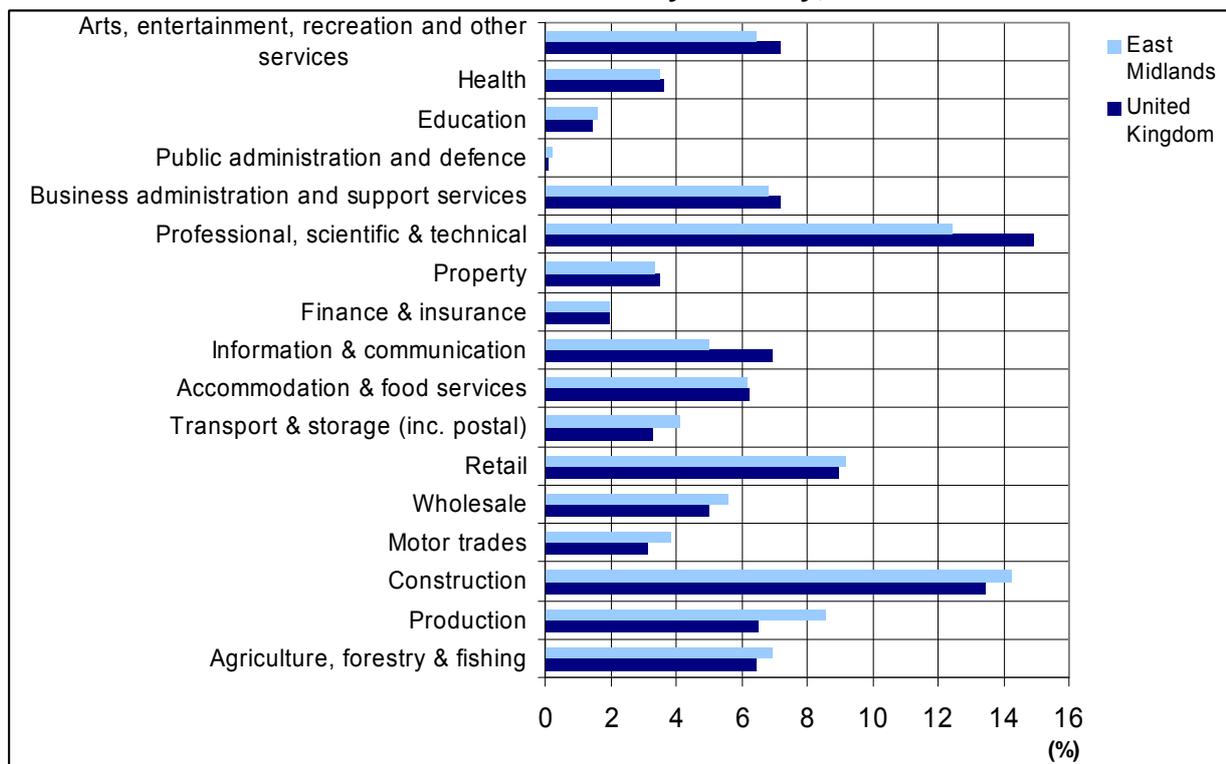


It is important to view these figures with the regional geography and infrastructure in mind. It is not only the number of businesses but also the type of businesses that determines the strength, resilience and output of the regional economy. There is a substantial body of research indicating that a high density of firms in similar industries can create many benefits, known as agglomeration economies. Agglomeration economies can give rise to larger and deeper markets for inputs (such as labour and intermediate goods) for the goods and services produced as well as positive spill-over effects from the close proximity of firms and labour. For more information on this please see the Spatial Economy chapter of The East Midlands in 2010.

### 3.5.1.2 Businesses by sector

This section analyses the industrial structure of the VAT and/or PAYE registered business stock in the East Midlands. Over the last two decades there has been a shift away from production activities towards the service sector both regionally and nationally. Despite this movement, the service sector has remained smaller in the East Midlands, accounting for 66% of all businesses, than nationally (74%). There are other significant differences between the economy of the UK and East Midlands, reflecting the region's relative strengths. Chart 24 shows the composition of businesses by industry in the East Midlands and nationally.

**Chart 24: VAT and/or PAYE business stock by industry, 2009**



Source: UK Business Activity, Size, and Location, Office for National Statistics, September 2009

Chart 24 shows that, in terms of business stock:

- Construction is the largest sector in the East Midlands, accounting for around 14.2% of all businesses in the region, slightly higher than the national average, of 13.4%;
- The professional, scientific and technical sector is the largest single sector in the UK, accounting for around 15% of business stock but is the second largest in the East Midlands, accounting for 12.5%. This sector groups activities that “require a high degree of training and make specialised knowledge and skills available to users”<sup>61</sup>;
- The retail and wholesale sectors also account for a relatively larger proportion of East Midlands businesses than nationally, at 5.6% and 9.2% compared with 5.0% and 8.9% respectively; and
- The East Midlands also has relatively more businesses in the sectors of production, agriculture, forestry & fishing, education and motor trades.

The distribution of businesses by sector is not uniform across the region, with some areas demonstrating concentrations of businesses in certain sectors. These concentrations can be driven by a number of factors including the geography, available infrastructure and labour market as well as historical trends.

- Over 36% of the businesses in agriculture, forestry & fishing are located in Lincolnshire, reflecting the regions strength in the industry.
- Derbyshire has around one fifth of all production sector businesses in the East Midlands, and experiences a relative specialism in motor trades and transport & storage. These sectors are significant to the region and include large multinational businesses such as Toyota, Rolls-Royce and Bombardier.
- The construction sector experiences a relatively uniform distribution of businesses throughout the region. Each county has between 17% and 18% of all construction related businesses in the region.
- Leicestershire experiences the largest concentration of finance and insurance businesses in the region, at 22%.
- Northamptonshire has the largest number of business services and professional, scientific & technical businesses of any East Midlands county.

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<sup>61</sup> UK Standard Industrial Classification of Economic Activities 2007 (SIC 2007), Structure and Explanatory Notes, Office for National Statistics, 2009.

- Northamptonshire also has the largest number of arts, entertainment, recreation and other services businesses at 19%, closely followed by the remaining counties who experience between 16% and 17% of the business stock.

### 3.5.2 Industrial structure

The industrial structure of a region has a direct impact on its economic competitiveness. The current industrial structure of the East Midlands, and indeed the UK, is a product of its economic history and is in a state of constant adjustment. This section of the chapter uses an econometric model of the East Midlands, the Scenario Impact Model (SIM)<sup>62</sup>, to analyse key indicators (Output and Full Time Equivalent Employment (FTE)<sup>63</sup>) by industry and to determine the relative importance of each industry using location quotient analysis.<sup>64</sup>

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<sup>62</sup> *emda/Experian Scenario Impact Model (SIM)*, January 2010.

<sup>63</sup> Full Time Equivalent (FTE) employment is the sum of full-time employment, self-employment and 0.4\* part-time employment.

<sup>64</sup> A location quotient is a measure of relative concentration and is calculated as: the proportion of a sector in the regional economy/the proportion of a sector in the national economy.

**Table 2: Industrial structure of the East Midlands, 2008**

Industrial structure of East Midlands	Output (%)		FTE employment (%)		East Midlands (EM) location quotients	
	EM UK		EM UK		Output	Employment
Agriculture, forestry & fishing	1.3	0.9	2.2	1.8	1.4	1.3
Oil & gas extraction	0.0	1.3	0.0	0.1	0.0	0.0
Other mining	0.4	0.2	0.3	0.1	2.1	2.0
<b>Primary and extraction industries Total</b>	<b>1.6</b>	<b>2.4</b>	<b>2.5</b>	<b>2.0</b>	<b>0.7</b>	<b>1.2</b>
<b>Gas, electricity &amp; water</b>	<b>2.2</b>	<b>1.6</b>	<b>0.7</b>	<b>0.5</b>	<b>1.4</b>	<b>1.5</b>
Fuel refining	0.00	0.2	0.0	0.1	0.0	0.0
Chemicals 1.5		1.6	0.9	0.7	0.9	1.2
Minerals 1.4		0.5	0.8	0.4	2.6	1.9
Metals 2.1		1.4	2.0	1.6	1.5	1.3
Machinery & equipment	1.6	1.3	1.5	1.1	1.2	1.3
Electrical & optical equipment	1.3	1.5	1.1	1.2	0.9	0.9
Transport equipment	3.7	1.6	1.9	1.3	2.4	1.5
Food, drink & tobacco	4.0	1.9	2.7	1.6	2.1	1.7
Textiles & clothing	0.9	0.4	1.0	0.4	2.1	2.3
Wood & wood products	0.3	0.2	0.4	0.3	1.2	1.2
Paper, printing & publishing	1.8	1.8	1.7	1.5	1.0	1.2
Rubber & plastics	1.2	0.7	1.2	0.7	1.7	1.7
Other manufacturing NEC	0.8	0.6	0.9	0.7	1.4	1.3
<b>Manufacturing Total</b>	<b>20.5</b>	<b>13.7</b>	<b>16.1</b>	<b>11.6</b>	<b>1.5</b>	<b>1.4</b>
<b>Construction</b>	<b>6.0</b>	<b>6.0</b>	<b>9.3</b>	<b>8.6</b>	<b>1.0</b>	<b>1.1</b>
Retailing	6.9	6.2	8.2	8.5	1.1	1.0
Wholesaling	8.4	6.4	7.6	6.7	1.3	1.1
Hotels & catering	2.4	3.2	4.4	5.3	0.7	0.8
Transport	5.7	5.1	5.1	4.9	1.1	1.0
Communications	2.8	3.3	1.5	1.8	0.8	0.8
Banking & insurance	4.8	9.0	2.1	3.9	0.5	0.5
Business services	12.8	15.1	13.7	15.9	0.8	0.9
Other financial & business services	4.0	5.1	2.4	2.9	0.8	0.8
Public admin & defence	5.0	4.9	4.7	5.1	1.0	0.9
Education 5.5		5.6	6.8	7.4	1.0	0.9
Health 7.0		7.3	9.7	11.0	1.0	0.9
Other services	4.4	5.1	5.3	4.0	0.9	1.3
<b>Services Total</b>	<b>69.6</b>	<b>76.3</b>	<b>71.4</b>	<b>77.2</b>	<b>0.9</b>	<b>0.9</b>
<b>Industry Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.0</b>	<b>1.0</b>

Source: *emda/Experian Scenario Impact Model*, autumn 2009.

Table 2 highlights a number of important characteristics of the East Midlands economy including the relative significance of manufacturing:

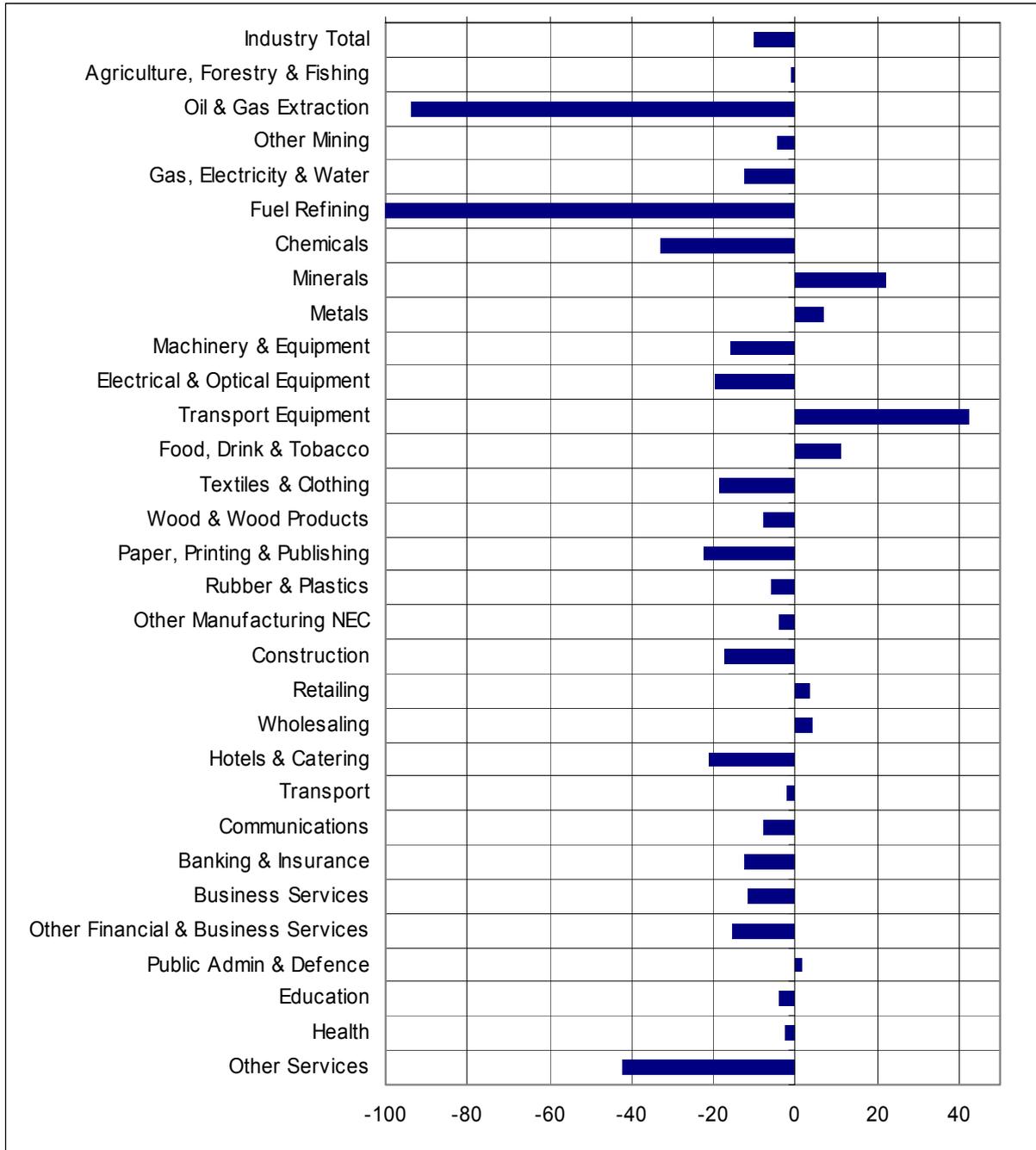
- The manufacturing sector accounts for 20.5% of output and 16.1% of employment. With an output location quotient of 1.5 and an employment location quotient of 1.4, this sector is significantly more important to the East Midlands economy than the

UK as a whole. The size and relative importance of manufacturing to the region is of particular note in the recession as manufacturing and construction were severely affected by the fall in activity in 2009;

- Looking in more detail at the manufacturing sub-sectors reveals that the majority are larger in the East Midlands than in the UK in both output and employment terms. In terms of output, only fuel refining, chemicals and electrical and optical equipment are smaller in the East Midlands. Only fuel refining is smaller in terms of employment in the East Midlands than in the UK;
- The largest manufacturing sub-sectors in the East Midlands are food & drink, transport equipment, metals, and paper, printing & publishing. Together, these sectors account for a total of 11.7% of output and 8.3% of employment in the region;
- With output location quotients greater than 2, the manufacturing sub-sectors of minerals, transport equipment, food & drink and textiles & clothing are twice as large in the East Midlands than the UK. These sectors also have location quotients greater than 1.5 in terms of employment;
- The construction sector accounts for a larger proportion of the East Midlands employment than in the UK with a location quotient of 1.1 but the same proportion of output. This sector accounts for 6.0% of output and 9.3% of employment in the region;
- In contrast to the manufacturing sector, the service sector is relatively smaller in the East Midlands than it is nationally. The service sector accounts for 69.6% of output and 71.4% of employment in the region, compared to 76.3% of output and 77.2% of employment nationally;
- The business services sector is the largest services sub-sector, accounting for 12.8% of output and 13.7% of employment in the region. The sub-sector has experienced significant growth in recent years, although it remains relatively smaller in the East Midlands than nationally; and
- Other significant services sub-sectors include retailing, wholesaling, transport services, education and health. It should however be noted that many of these sectors remain relatively less important to the East Midlands than they are nationally with location quotients less than 1.

Significant differences between output and employment location quotients suggest that there are differences in out per FTE employee between sub-sectors in the East Midlands and the UK. A further analysis of productivity by sub-sector provides a better understanding of the region's relative strengths and weaknesses. The SIM model has been used to provide estimates of productivity by sub-sector in the East Midlands and UK. The productivity differences are shown in Chart 25.

**Chart 25: Productivity differences between the East Midlands and the UK (%) 2008**



Source: *emda/Experian Scenario Impact Model, Autumn 2009.*

The most productive sub-sector in the East Midlands is that of transport equipment. Output per FTE worker in this sector is over 40% higher in the region than in the UK. This sector includes a number of the region's major companies such as Rolls-Royce, Toyota and Bombardier.

As well as transport equipment (42%) there are a further six sub-sectors in which the East Midlands is more productive than the UK. These are: minerals (22%), food & drink (11%), metals (7%), wholesaling (4%), retailing (3%) and public admin & defence (2%).

This analysis again highlights the East Midlands specialism in production activities, as the top four most productive sub-sectors are all in the production sector. Whilst this shows the region has a degree of comparative advantage in some production sub-sectors, it should be noted that productivity is below average in 23 sub-sectors of the East Midlands economy.

The top seven most productive sub-sectors account for around one quarter of regional employment and one fifth of regional output, greater than the UK average. Conversely, around three quarters of employment and four fifths of output are in sectors which are less productive in the East Midlands than in the UK. It should, however, be noted that this analysis is quite high level and whilst a sector may be less productive in the East Midlands than in the UK there will be both relatively high and low performing firms within each sector.

### **3.5.3 Key sectors in the East Midlands economy**

In the creation of the last Regional Economic Strategy, 'A Flourishing Region', in 2006, a detailed analysis of key sectors in the East Midlands economy was conducted. This analysis took account of a wide range of indicators including output, employment and the number of large employers, as well as a range of forecast data to determine the four most economically significant sectors in the region. The analysis highlighted the four sectors of transport equipment, food & drink, construction and healthcare & bioscience. These sectors were collectively termed 'priority sectors'.

It should be noted that the recession is having a differential impact across these sectors. Construction and transport equipment have been particularly hard hit. Construction activity has been affected by falling confidence in the commercial property market and difficulties in the housing market as prices have dropped. Transport equipment has been hit by a fall in the demand for new cars although this has been ameliorated, in part, by the Government's used car scrappage scheme.<sup>65</sup> Unlike these two sectors, food & drink and healthcare & bioscience are less dependent upon discretionary consumer expenditure and, therefore, less sensitive to the economic cycle.

#### **3.5.3.1 Transport equipment**

The transport equipment sector comprises of the manufacture of transport equipment and motor vehicles, trailers & semi-trailers sub-sectors. This sector has a long and productive history in the East Midlands. This sector is supported by a number of large multinational

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<sup>65</sup> More information is available at <http://www.direct.gov.uk>

companies which have a presence in the region including Toyota, Rolls-Royce and Bombardier, which in turn support a network of smaller companies supplying parts and labour to the industry creating internationally recognised clusters.

**Scale:** The transport equipment sector accounts for 3.8% of regional output and 1.9% of regional employment making it one of the largest manufacturing sub-sectors in the East Midlands. With an output location quotient of 2.4 and an employment location quotient of 1.5, this sub-sector is significantly more important in the East Midlands than nationally.

**Productivity:** Levels of productivity are estimated to be around 42% higher in the East Midlands than nationally. It is estimated that productivity in the manufacture of transport equipment is higher than in any other sub-sector of the East Midlands.

**Growth prospects:** Output and employment in this sector is expected to decrease slightly in the East Midlands between 2008 and 2018, in line with the national trend.

**Employment quality:** Average weekly pay<sup>66</sup> in this sector is 13% higher than the UK average. This sector also has weekly pay almost two thirds higher than the East Midlands economy wide average. This data indicates that this is a high value added sector requiring a highly skilled labour force.

**Strategic significance:** To measure the significance of a sub-sector we look at the number of large employers (+200 employees) in that sector in the region. There are around 30 large employers in this sector in the East Midlands indicating that the sector is strategically significant to the region.

### 3.5.3.2 Food & drink

The food & drink sector comprises of the manufacture of food and beverages, and is a sector which depends on the region's agricultural producers.

**Scale:** The sector accounts for 4.0% of output in the East Midlands and 2.7% of employment, significantly greater than the UK averages of 1.9% and 1.6% respectively. An output location quotient of 2.1 and an employment location quotient of 1.7 indicate that this sector is around twice as important in the East Midlands economy as it is nationally.

**Productivity:** Productivity estimates indicate that this sector is around 11% more productive in the East Midlands than it is nationally.

**Growth prospects:** Forecasts suggest that the food & drink sector will experience growth in output and employment between 2008 and 2018, in contrast to a modest decline forecast nationally.

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<sup>66</sup> Office for National Statistics, 'The Annual Survey of Hours and Earnings (ASHE) 2008', from Table 5\_1a, <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=15187>

**Employment quality:** Average weekly pay in the food & drink sector in the East Midlands is around 3% higher than in the UK, and 15% higher than the average weekly pay in the East Midlands for all sectors.

**Strategic significance:** There are over 70 large employers in this sector indicating that it has a high degree of strategic significance.

### 3.5.3.3 Construction

The construction sector has historically played a significant role in the regional economy. This sector is highly cyclical and it is often amongst the first to be negatively affected by any economic downturn. The latest economic downturn has put pressure on the construction sector, with the majority of new work now being generated from public infrastructure projects. Despite this, the sector still has an important role to play and will support regional and national economic growth in the future.

**Scale:** The construction sector accounts for 6.0% of output and 9.3% of employment in the East Midlands region, similar to the levels experienced in the UK, of 6.0% and 8.6% respectively. The sector is slightly more important in the East Midlands than nationally, with an employment location quotient of 1.1.

**Productivity:** Although the construction sector is more significant in the East Midlands than in the UK there is a small productivity gap. Levels of productivity in the East Midlands are around 92% of the UK level.

**Growth prospects:** Future growth prospects in this sector have been made more difficult to construct due to the prevailing economic conditions. Based on latest available data, this sector is expected to experience a fall in employment in line with the UK average. The sector is, however, expected to experience an increase in output between 2008 and 2018. Infrastructure projects, such as the 2012 Olympics in London and road infrastructure projects (including the widening of the A46 and improvements to the M1 between junctions 21-25 and 28-30) in the East Midlands are helping to sustain the sector in the region.

**Employment quality:** The construction sector in the East Midlands has average weekly pay around 90% of the UK level. Despite this weekly pay in the sector remains 19% higher than the overall East Midlands average.

**Strategic significance:** There are over 30 large companies in the construction sector in the East Midlands indicating that it is strategically significant to the region. The region's businesses will continue to benefit from opportunities arising from the Milton Keynes South Midlands (MKSM)<sup>67</sup> development as well as the aforementioned infrastructure projects.

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<sup>67</sup> Further details can be found at <http://www.mksm.org.uk/index.php>

### 3.5.3.4 Health & bioscience

The health sector has been defined as comprising both the provision of healthcare services and the manufacture of medical instruments and equipment and pharmaceuticals.<sup>68</sup>

**Scale:** In 2007, the health sector accounted for 7.0% of output and 9.7% of the total employment in the East Midlands. Location quotients of 1.0 and 0.9 for output and FTE employment indicate that the sector is broadly in line with the UK level.

**Productivity:** Levels of productivity in the health sector of the East Midlands are around 96% of the UK level. Although productivity remains lower in the East Midlands than in the UK, there has been an improvement of 4 percentage points in the region since 2004, meaning that the gap has closed.

**Growth prospects:** The health sector is expected to be amongst the fastest growing sectors in both the East Midlands and nationally. In the East Midlands output and employment in the sector are expected to grow significantly faster than nationally.

**Employment quality:** Average weekly earnings are around 90% of the UK average in this sector and are also around 10% lower than the overall average in the East Midlands, indicating that this is a relatively low employment quality sector. There are, however, some sub-sectors of health e.g. the manufacture of chemicals, which require highly skilled labour.

**Strategic significance:** There are over 70 large employers in the health sector in the East Midlands. The demographic changes taking place in the region (as well as nationally) e.g. the increases in the population of pensionable age, are increasing the demand for products and services from the Health sector.

### 3.5.4 Creative industries and tourism

The East Midlands is home to a significant and growing 'cultural infrastructure'<sup>69</sup> contributing to regional output and employment. However, there has been much debate around which sub-sectors specifically should be classed under the umbrella of creative industries.

Some analysis of the creative industries has been undertaken by the Regional Statisticians in the East Midlands. This analysis is based on the following definition of the

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<sup>68</sup> This definition includes a degree of overlap with other sectors but offers the best estimate of the overall size of the sector and its components.

<sup>69</sup> Key cultural infrastructure includes the Broadway Media Centre in Nottingham, Phoenix Square in Leicester and QUAD in Derby.

creative industries, developed by Frontier Economics for the Department for Culture, Media and Sport. This definition includes the following SIC codes:

<b>SIC code</b>	<b>Description</b>
36509	Manufacture of other games and toys not elsewhere classified
7221	Publishing of software
7222	Other software consultancy and supply
74201	Architectural activities
74202	Urban planning and landscape architectural activities
74205	Engineering design activities for industrial process and production
74402	Planning creation and promotion of design activities
74813	Other specialist photography
74819	Other photographic activities not elsewhere classified
74872	Specialty design activities
9240	News agency activities
92111	Motion picture production on film or video tape
92119	Other motion picture production and video production activities
92201	Radio activities
92202	Television activities
92331	Live theatrical presentations
92319	Other artistic and literary creation and interpretation

Analysis of data from the Inter-departmental Business Register shows that in 2007:

- There were about 6,000 local units<sup>70</sup> designated as creative industries – about 3.4% of all local units in the region;
- Of these approximately 62% were in urban areas, a slightly lower percentage than the average for all businesses (63%). The creative industries form 3.3% of local units in urban areas, but 3.5% in rural areas;
- The total number of employees in the local units designated as creative industries was around 33,500, 1.8% of all employment in local units in the region; and
- Local units designated as creative industries are smaller than the average business with employment of 5.6 per local unit compared to 10.7 per local unit for businesses as a whole. This difference is larger in urban areas, 6.8 compared to 12.9.

In the East Midlands between 2005 and 2007 there was an increase of 10.4% in local units designated as creative industries, above the average of just under 8% for England.

As part of developing their understanding of creative industries the Department for Culture, Media and Sport are developing a framework that will allow for a consistent approach to defining and measuring creative Industries.

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<sup>70</sup> The IDBR has two levels of data: enterprises and local units. Enterprises are the head offices and local units are branches of the same enterprise. For small businesses, the enterprise and local unit are the same.

Tourism shares many links with the creative industries in terms of the industries it encompasses. For this reason it is often difficult to separate the contribution made to the region from the two broad sectors. However, a recent report<sup>71</sup> has demonstrated that tourism plays a significant part in the regions economy:

- In 2008, overnight visitors spent £2.4 billion in the East Midlands with day visitors spending a further £3.6 billion;
- Approximately 77,000 full time equivalent jobs were supported by direct tourist expenditure in the East Midlands and a further 20,000 jobs were supported by indirect revenue from tourism; and
- Tourism is markedly affected by seasonality. In 2008, January experienced the lowest number of tourist days, at around 570,000, whilst August experienced the highest number of tourist days, at 1.1m.

#### **Key Points: Industrial structure of the East Midlands economy**

- In 2009 there were 147,980 VAT and/or PAYE businesses in the East Midlands region, accounting for 6.9% of all businesses in the UK.
- The three cities of Nottingham, Leicester and Derby accounted for 14.5% (21,505) of businesses in the region in 2009.
- Over the last two decades there has been a shift away from production activities towards the service sector both regionally and nationally. The service sector has remained smaller in the East Midlands, accounting for 66% of all businesses, than the level experienced nationally, of 74%.
- In terms of business stock, construction is the largest sector in the East Midlands, accounting for around 14.2% of all businesses in the region, slightly higher than the national average, of 13.4%.
- The manufacturing sector accounts for 21% of output and 16% of employment in the East Midlands (larger than the UK), whilst the service sector accounts for 70% of output and 71% of employment (smaller than the UK).
- The sectors of transport equipment, minerals, food & drink, metals, wholesaling, retailing, and public admin & defence are all more productive in the East Midlands than nationally.
- The creative industries contribute in a significant way to the East Midlands economy. The sector has around 6,000 local units and employs around 33,500 people.
- In 2008, overnight visitors spent £2.4 billion in the East Midlands with day visitors spending a further £3.6 billion.

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<sup>71</sup> Global Tourism Solutions, STEAM (Scarborough Tourism Economic Activity Monitor) model, 2008 and East Midlands Region: Volume and Value of Tourism 2008, East Midlands Tourism, October 2009.

## **3.6 Future prospects for the East Midlands economy**

The current recession, the early stages of which occurred towards the end of 2007 and accelerated through 2008, has had a sharp impact on the UK economy, and the East Midlands has not escaped unscathed.

The pace of change reported in many of the indicators used to construct economic forecasts means that there is currently even greater uncertainty around them than usual. This section focuses on the recent economic performance of the region and attempts to gauge the direction and general magnitude of the long term prospects for the East Midlands economy beyond the immediate business cycle.

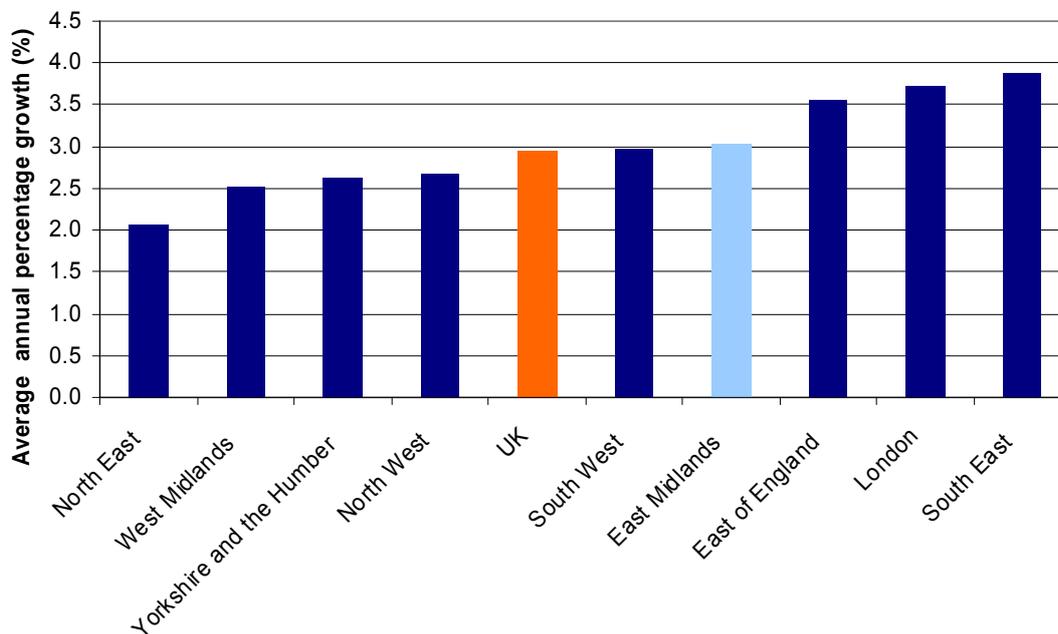
### **3.6.1 East Midlands economic performance**

#### **3.6.1.1 Recent economic performance 1997-2007**

The decade prior to 2008 has provided a mixed picture in terms of global economic growth. Global economic growth has generally performed strongly in this period despite significant shocks, including the 'dot com' bubble and the economic impact of the 9/11 terrorist attacks in the United States. Whilst these shocks caused short term difficulties in the global economy they have done little to affect the long run growth trends, with countries such as Brazil, Russia, India and China (BRICs) in particular experiencing strong growth. UK growth has remained strong throughout this period, with growth consistently higher than in the Eurozone and Japan.

Chart 26 shows that the East Midlands economy has experienced relatively strong growth compared with other English regions, in particular other northern and midlands regions. Something of a north/south divide in economic growth has persisted between 1997 and 2007 with regions in the south of the country experiencing greater growth in output than regions in the north.

**Chart 26: Average growth in output (per annum, %), 1997-2007**



Source: Regional Planning Service, Experian, November 2009.

- The East Midlands experienced economic growth of 3.0% per annum between 1997 and 2007, 0.1 percentage points above the UK average.
- The East Midlands had the largest average annual growth rate of any northern or midlands region in the last decade, 0.3 percentage points greater than the next best performing region (North West) and 0.9 percentage points greater than the worst performing region (North East).
- The highest growth per annum has been experienced by the South East (3.9%) and London (3.7%).

These annualised figures hide some significant year-on-year changes:

- Between 2001 and 2002, London experienced negative growth brought on, in part, by the 9/11 terrorist attacks in the United States affecting the business & financial services and tourism industries. Apart from a slight contraction in the North East in 1997, this was the only period of negative growth in any of the English regions in the last decade; and
- The East Midlands growth rate has performed strongly since 2001 reaching a peak of 5.6% in 2003 before falling back to around 3% between 2004 and 2007. Prior to 2001 the region struggled to reach a growth rate of 2% per annum.

### 3.6.1.2 Forecast for the next decade

Detailed forecasts for the next decade have become increasingly difficult to create due to the current turbulent nature of economic conditions. Expectations about the future of output in the UK and East Midlands are largely based on the sentiment of businesses and measured by periodic sample surveys<sup>72</sup>. These surveys suggest that businesses are beginning to feel more confident, with many believing that the UK economy has stabilised and will experience modest growth through 2010. We can, however, make more general forecasts, indicating the direction and potential magnitude of change using average annual growth rates over the next decade.

**Table 3: Average annual growth rate in output, 2007-2017**

Gross Value Added (GVA)	Average annual growth rate (%)
East Midlands	1.2
UK 1.	3

Source: Regional Planning Service, Experian, November 2009.

Table 3 shows that GVA in the East Midlands is expected to grow at 1.2% per annum between 2007 and 2017. There is no significant difference between the forecast average annual growth rate in the East Midlands and the UK average. There is expected to be a slow economic recovery during 2010 following negative growth in 2009. The growth rate is expected to accelerate between 2010 and 2017. These low average figures reflect the depth of the recession in 2009.

### 3.6.2 East Midlands employment forecast

The economic downturn has also had a large and negative effect on employment in the UK and the East Midlands. Unemployment in the UK rose to almost 2.5 million in November 2009- January 2010. This section focuses on full-time equivalent employment (FTE) demonstrating the growth that has taken place in the English regions over the past decade. For more information on employment in the East Midlands see the Labour Market chapter of The East Midlands in 2010.

#### 3.6.2.1 Recent employment performance 1997-2007

Although there has been a rise in unemployment in the 18 months, the decade prior to 2008 experienced positive growth in FTE employment in all English regions. That being said, there has been significant variations in FTE employment growth between regions:

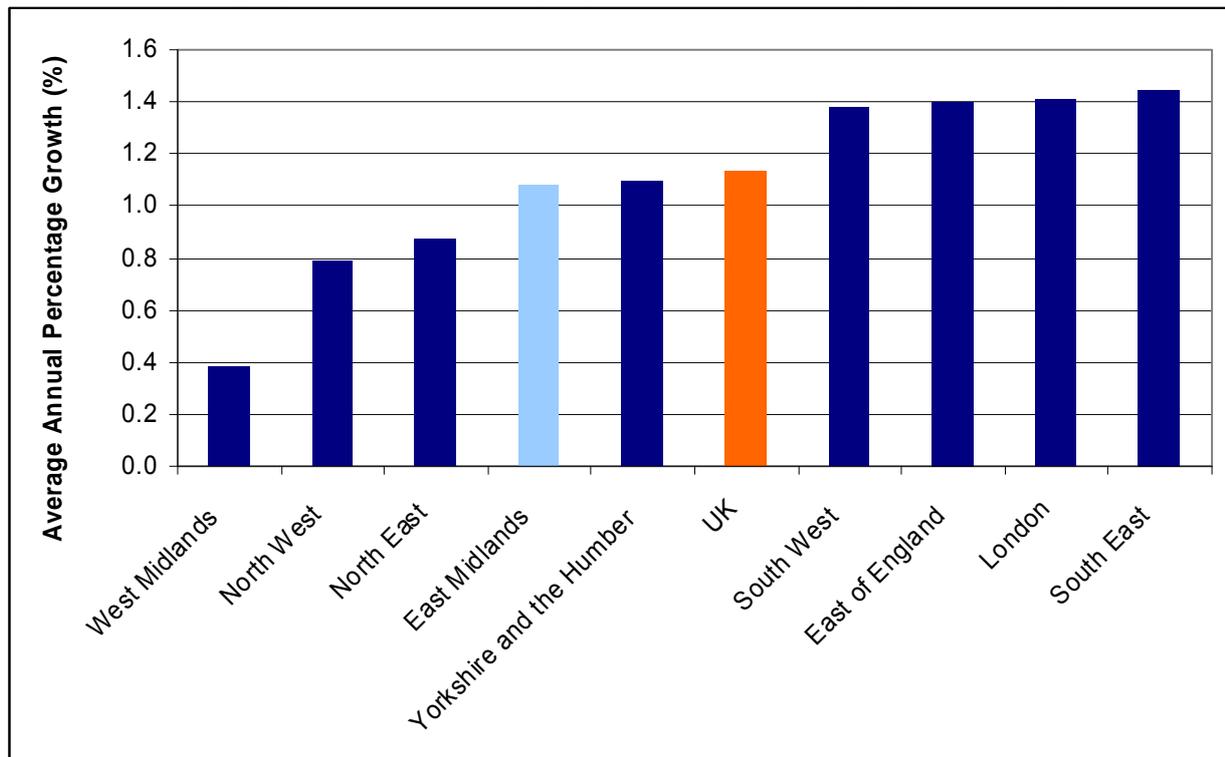
- Regions in the south and east of the UK have experienced average growth in FTE employment significantly greater than midlands or northern regions between 1997 and 2007;

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<sup>72</sup> Surveys include: Quarterly Economic Survey, British Chambers of Commerce.

- Regions in the south including the South East, London, East of England and the South West all experienced average annual growth rates in FTE employment of around 1.4%;
- Average growth in FTE employment was 1.1% per annum in the East Midlands in this period, comparable to the UK level; and
- The lowest growth in this period was in the West Midlands where FTE employment grew at 0.4% per annum.

**Chart 27: Average growth in FTE employment, 1997-2007 (% per annum)**



Source: Regional Planning Service, Experian, November 2009.

### 3.6.2.2 Employment forecast for the next decade

Similar to output forecasts, there is a great deal of uncertainty around employment forecasts over the next decade. Table 4 shows the broad forecasts that are currently possible to make. It shows that there is expected to be no growth in the level of FTE employment between 2007 and 2017. This reflects the minimal forecast growth in the UK as a whole, of 0.1%, in the same period. There is an expectation that employment will take a number of years to return to its pre-recession level, a pattern familiar in the aftermath of previous recessions. The East Midlands and UK are expected to experience a period of contraction in FTE employment in the early part of the decade, before a modest recovery between 2013 and 2016.

**Table 4: Average annual growth rate in FTE employment, 2007-2017**

FTE employment	Average annual growth rate (%)
East Midlands	0.0
UK	0.1

Source: Regional Planning Service, Experian, November 2009.

**Key Points: Future prospects for the East Midlands economy**

- The East Midlands economy has experienced relatively strong growth compared with other English regions, in particular other northern and midlands regions between 1997 and 2007.
- The East Midlands economy is expected to grow at 1.2% per annum between 2007 and 2017.
- Average growth in FTE employment was 1.1% per annum in the East Midlands between 1997 and 2007, comparable to the UK level.
- Forecasts suggest there will be zero growth in FTE employment between 2007 and 2017, as the economy recovers to pre-recession levels of employment. This is in line with the UK average.

### 3.7 Conclusion

The economic downturn that began in the USA, causing a collapse in business confidence worldwide, is continuing to put pressure on the UK and its regions. The UK is slowly recovering from the worst recession for more than 30 years. Many economic commentators suggest that the economy is stabilising and expect a shallow recovery through 2010, though there is a great deal of uncertainty over prospects for the next six months or so. Many of the published statistics are only just beginning to pick up the effects of the recent recession.

Productivity in the UK has improved in the years leading up to the recession and the gap closed on key competitors. Productivity in the UK is greater than in Japan but remains behind the USA, France and Germany.

Productivity in the East Midlands is below the UK average. Whether measured by output per filled job or output per hour worked, productivity in the region is around seven and a half percentage points below the UK average and has fluctuated around this level between 2005 and 2008.

The economic performance in the East Midlands, as measured by Purchasing Power Standards (an artificial currency allowing for international comparison at a regional level) has remained relatively stable in recent years. The East Midlands currently experiences output per head around a third of that in Inner London (the leading region in the EU) but over four times greater than the Romanian region of Macroregiunea doi (the poorest region in the EU). In EU terms, the East Midlands has an average level of productivity.

As well as comparisons of output, attempts have been made to quantify regional wellbeing. It has been noted that whilst most developed nations have experienced increases in GDP there has been little discernable increase in the overall reported levels of wellbeing. This can be partly attributed to the role of expectations, whereby if people expect a certain level of growth then they are only able to maintain their level of wellbeing if the pace of growth is maintained. The Regional Index of Sustainable Economic Wellbeing (RISEW) is a tool developed to measure economic wellbeing in the UK. The most recent data shows that in 2007 RISEW per capita in the East Midlands was £11,700. This is above the average of £11,300 for England.

Levels of investment remain relatively high in the East Midlands. In 2006, the level of investment by UK owned companies was 0.3 percentage points higher than in 2002 but 0.3 percentage points below the UK average. There has been less volatility in the level of investment by foreign owned companies than by UK owned companies. In 2006, the level of investment by foreign owned companies was 2.2% of GVA, which is the highest level of investment recorded. The East Midlands is currently ranked second on this demonstrating that the region is able to offer a favourable business environment. In line with national trends the region has experienced an increase in investment in the service sector and a fall in investment in the manufacturing sector. As a result of the recession it might be expected that levels of investment will fall further.

In terms of innovation, the East Midlands performs relatively well. The region has high levels of innovative activity and co-operation agreements between economic agents but still struggles to turn this activity into commercial gain as measured by turnover. The East Midlands has a number of leading university research departments.

Innovation and enterprise are both facilitated by entrepreneurs who are able to create new products and processes, helping drive economic growth. Entrepreneurship, as measured by total entrepreneurial activity (TEA) in the East Midlands is approximately equal to the UK average. However, the East Midlands experiences a business start-up rate per 10,000 resident adults lower than the national average. Of the businesses that are created in the region over 65% survive for at least three years, higher than the UK average.

The East Midlands is home to around 147,980 VAT and/or PAYE registered businesses, 6.9% of all businesses in the UK. The East Midlands has a larger proportion of businesses in the production sector than the national average. The construction and manufacturing sectors account for a relatively large proportion of the East Midlands economy, with sub-sectors such as transport equipment and food & drink significantly more productive in the region than nationally. This regional specialism in production activities has been in decline over the past two decades and the service sector has generally grown more quickly. This is in line with national trends.

Whilst the East Midlands has experienced relatively strong economic growth in the decade prior to 2008, the recession has had a large negative effect on many industries that are more significant to the East Midlands economy than nationally e.g. construction and manufacturing. It is likely that when the economic recovery occurs the economic landscape will have changed markedly. The economic restructuring and diversification that has occurred in the East Midlands in recent decades has made the region more resilient. Whilst some commentators<sup>73</sup> believe that the manufacturing, in particular high tech manufacturing (in which the East Midlands performs well) will experience a relatively strong recovery, this is yet to materialise. The economic landscape will become clearer as published statistics begin to capture the effects of the recession.

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<sup>73</sup> Deloitte, Economic Review – Leader or Laggard? First Quarter 2010.

## 4. Labour Market

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## 4.1 Introduction

In standard economic theory, output is determined by the amount and quality of capital and labour that is available. When the supply of labour expands, output can increase without causing strong inflationary pressure. This was the experience of the UK in the decade until recession in 2008. Increased employment in the UK was driven by increased labour demand – a derived demand – and increased labour supply, partly a result of international migration but also of welfare to work policies.

This chapter of The East Midlands in 2010 highlights a range of labour market phenomena related to labour supply and demand, skills supply and demand and the quality of labour. In addition, it discusses earnings of workers and residents in the region and the issue of the low skills low pay equilibrium in the East Midlands.

Section 2 contains a comparison of the performance of the UK labour market with European and international competitors, looking in particular at employment and unemployment trends. In 2008 the employment rate in the UK was substantially higher than the OECD average. However, as a result of the recession the unemployment rate is increasing in the UK but remains below that of the UK's key competitors. This section also assesses the workforce skills levels highlighting that the UK's skills base has deficiencies, despite pockets of excellence.

Section 3 analyses labour supply and demand in the East Midlands. Economic activity and employment in the East Midlands has historically been higher than the UK average. However, there are areas of high unemployment in the region's larger cities, around the former coalfields area and on the Lincolnshire coast.

Section 4 assesses the skills profile of the regional workforce and investigates East Midlands employers' view of skills shortages and training activities. The analysis highlights that, despite the significant improvements in the qualifications of the workforce, the demand for these higher level skills appears to be lagging behind this increasing supply.

Section 5 analyses the demand for skills by the knowledge intensity of employment and the skills gaps among current staff. The section shows that in the East Midlands, just as in the UK as a whole, there has been a reduction in the proportion of the workforce employed in the least knowledge intensive sectors. Skills gaps in the region have been reduced significantly from 2003, while there has been a strong growth in the proportion of establishments providing training in the region.

Section 6 analyses the region's occupational structure and projections for the next decade. The current occupational structure exhibits a greater proportion of regional employment in 'lower tier' occupations than in the UK. At the same time the proportion of 'upper tier' occupations account for a lower share of the regional workforce compared to the national average. Future projections suggest a "hollowing out of the middle" effect as an expansion of 'upper tier' occupations accompanies a decline of 'lower tier' and particularly skilled trades and administrative and secretarial occupations, both in the UK and in the East Midlands.

Section 7 assesses the earnings of workers and residents of the region. Earnings in the East Midlands are below the UK average and the gender pay gap in the region is greater than in the UK. In those areas where residence-based earnings were higher than workplace based earnings, this tends to be because individuals in higher paid jobs commute to work elsewhere.

## 4.2 International context

The UK entered recession in the second quarter of 2008 and labour market conditions began to deteriorate in the following quarter. The UK labour market faces this challenge from a relatively advantageous position compared to other international competitors. This section provides a short assessment of how the UK compares to its major competitors.

### 4.2.1 International comparisons of employment, unemployment and economic inactivity

In spite of the recession, the UK managed to maintain its historically strong employment rate in 2008<sup>1</sup>. The employment rate was 72.7% in the UK, substantially higher than the OECD<sup>2</sup> average of 66.5%. The UK has consistently recorded higher rates of employment than France (64.6%) and Germany (70.2%). The UK employment rate exceeded that of the United States of America in 2002 and has remained higher since then. However, it is worth noting that the employment rates of Scandinavian countries are even higher than in the UK, at 78.4% in Denmark, 78.1% in Norway and 75.7% in Sweden<sup>3</sup>.

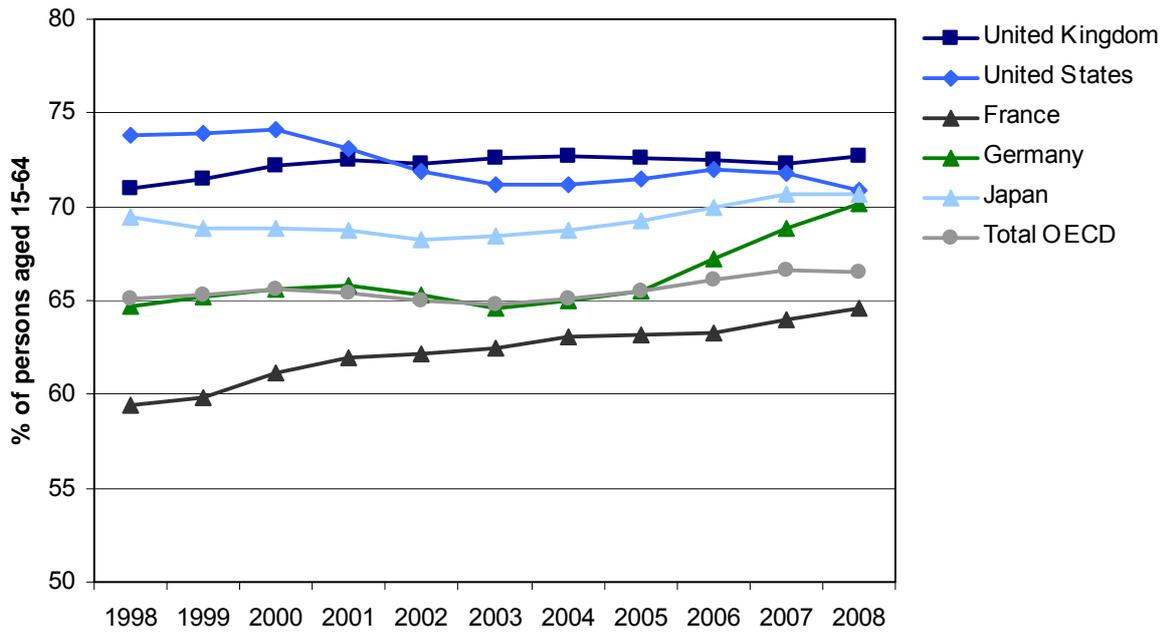
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<sup>1</sup> Employment rate is generally defined as persons aged 15-64 years who are in employment divided by the working age population. However, in case of the US and UK along with some other countries, the observed population refers to persons aged 16 to 64 (Organisation for Economic Co-Operation and Development, 'Employment Outlook 2009', 2009, Statistical Annex).

<sup>2</sup> Organisation for Economic Co-Operation and Development (OECD) countries work together to address the economic, social and environmental challenges of globalisation. The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

<sup>3</sup> Organisation for Economic Co-Operation and Development, 'Employment Outlook 2009', 2009, Statistical Annex Table B.

**Chart 1: Employment rates in selected OECD countries, 1998-2008 (%)**



Source: Data between 1997 and 2006 are from Organisation for Economic Co-Operation and Development (OECD) Factbook 2008: Economic, Environmental and Social Statistics, Annual Labour Force Statistics, downloaded from OECD. StatExtracts (11 April 2008). Data from 2004 are from OECD, 'Employment Outlook 2009', 2009.

Due to the recession unemployment rates had increased in much of the OECD countries. Between 2007 and 2008, OECD unemployment rate increased from 5.7% to 6.0%. The unemployment rate in the UK has increased from 5.3% to 5.6% by 2008. However, the unemployment rate in the UK still remains below the OECD average of 6.0%. The UK has consistently recorded lower unemployment rates than Germany and France. In 2008 the unemployment rate in Germany was 7.3% and in France 7.8%. From 2005 the UK unemployment rate exceeded that of the United States of America and Japan. In 2008 the unemployment rate in the United States of America was 5.8% and just 4.0% in Japan.

Latest OECD statistics<sup>4</sup> show that the unemployment rate for the OECD area was 8.8% in December 2009. This is 1.8 percentage points higher than a year earlier. In the Euro area<sup>5</sup>, the unemployment rate was 10.0% in December 2009. This is 1.8 percentage points higher than in December 2008. For the United States, the unemployment rate for December 2009 was also 10.0%. This is 2.8 percentage points higher than a year

<sup>4</sup> Organisation for Economic Co-Operation and Development (OECD), Harmonised Unemployment Rates, News Release, for Nov 2009.

<http://www.oecd.org/dataoecd/17/54/44563975.pdf>

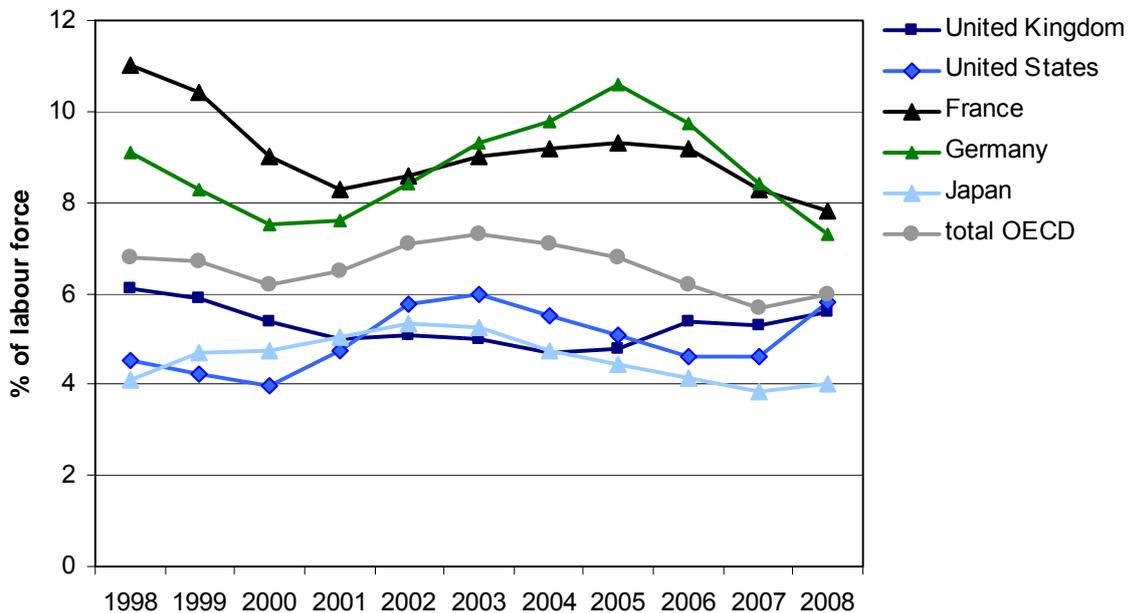
Note: For methodological reasons, harmonised unemployment rates may differ from those published by national statistical institutes. All rates quoted are seasonally adjusted.

Next release: Monday, 8 March 2010.

<sup>5</sup> The Euro area (EA16) consists of Belgium, Germany, Ireland, Greece, Spain, France, Italy, Cyprus, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland.

earlier. In December 2009<sup>6</sup>, the rate in the United Kingdom was 8.1%. This is 1.3 percentage points higher than in December 2008.

**Chart 2: Unemployment rates in selected OECD countries, 1998-2008 (%)**



Source: Organisation for Economic Co-Operation and Development, 'Employment Outlook 2009', Statistical Annex Table A.

Forward-looking indicators suggest the recovery will be gradual in coming years. Latest forecasts published by the OECD<sup>7</sup> suggests that unemployment rates will increase in most OECD countries in 2010 but some signs of easing will emerge in 2011.

#### 4.2.2 International comparison of workforce qualifications

Some of the benefits of education include increased productivity and higher individual wages as skilled workers are better able to identify market opportunities, drive innovation by adapting new technologies, facilitate investment and improve leadership and management. Skills are one of the five drivers of productivity<sup>8</sup> identified by the UK Government. In recognition of the importance of skills, the Government commissioned the Leitch<sup>9</sup> review to develop policies which aim to close the skills gaps between the UK and other major European competitors.

<sup>6</sup> UK unemployment rate refers to the period November-January 2010, three months rolling average published on a monthly basis by the Office for National Statistics, Labour Market Statistics, Statistical Bulletin, March 2010.

<sup>7</sup> Organisation for Economic Co-Operation and Development, 'Economic Outlook Volume 2009 Issue 2' Annex Table 13.

<sup>8</sup> The other four drivers are discussed in the economy chapter: innovation, enterprise, competition, investment.

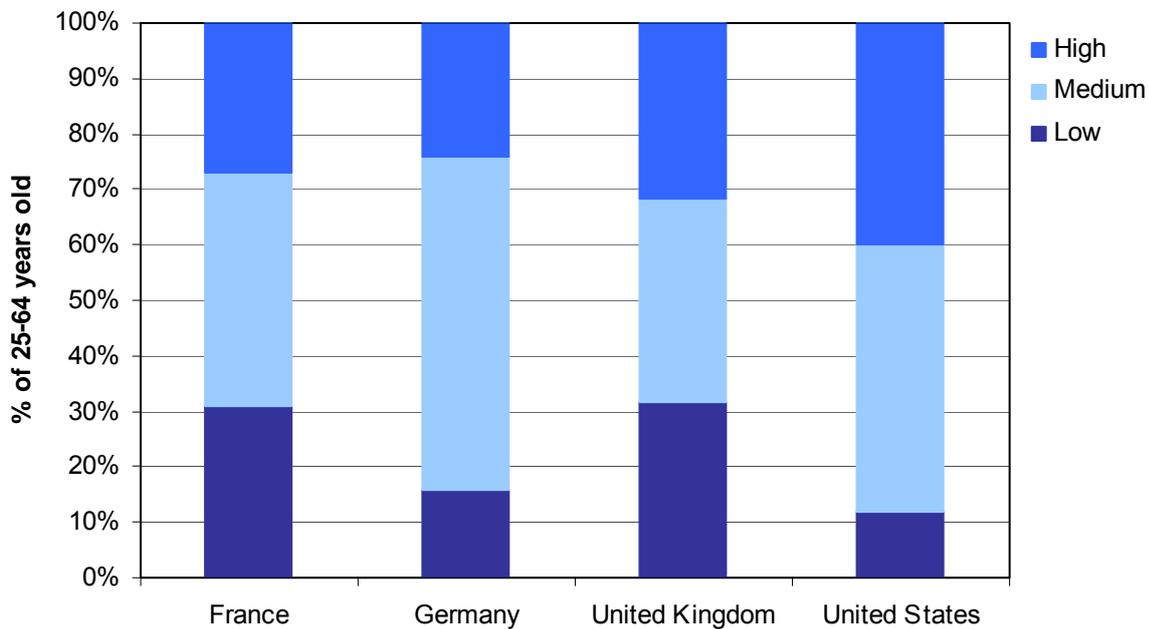
<sup>9</sup> 'Leitch Review of Skills, Prosperity for all in the global economy – world class skills', 2006.

Gambin Lynn et al., Warwick Institute for Employment Research, University of Warwick, commissioned on behalf of *emda*, 'Exploring the links between skills and Productivity', 2009.

The level of educational attainment of the population is a commonly used proxy for the stock of “human capital”, that is, the skills available in the population and labour force. It must be noted, however, that the skills composition of the population varies substantially between different countries depending on the general level of economic development, the industrial structure of the economy and the occupational structure of the workforce.

The proportion of people with low or no qualifications in the UK is double that in Germany and more than double that in the United States. The proportion of the UK population qualified to intermediate level is lower than France, Germany and the US, confirming that the UK’s skills base has deficiencies despite pockets of excellence. The proportion of people with high skills is average in international terms.

**Chart 3: Proportion of 25-64 year old population by highest qualification level, 2007 (%)**



Source: Organisation for Economic Co-Operation and Development, ‘Education at Glance: OECD Indicators – 2009 Edition’, OECD, 2009. Table A1.1a.

Note: Low level refers to “ISCED 0-3c Short” based on the International Standard Classification of Education (ISCED) which is equivalent to NVQ 1 (GCSE – below grade C). Medium level refers to “ISCED 3c long programmes/3b, ISCED 3A” which is equivalent to the NVQ 2 (GCSE – 5 or more A\*-C) and NVQ 3 (A-level – 2 or more). High level refers to ISCED 4 and above which is equivalent to NVQ 4 (first degree or equivalent) and NVQ 5 (higher degree). The source of this note is HM Treasury and DTI, ‘Productivity in the UK 5: Benchmarking UK productivity performance’ and OECD ‘Education at Glance 2009’.

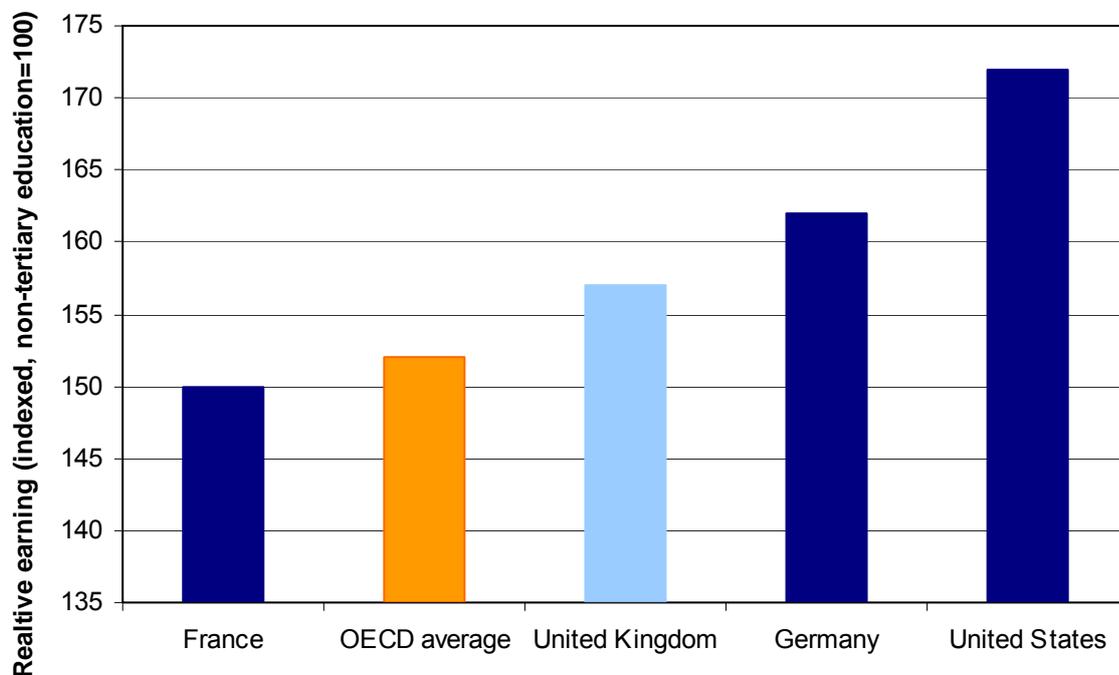
Higher education graduation rates have grown significantly in OECD countries in recent decades, including the UK. The proportion of 25-64 years old with the highest qualification at tertiary level increased in every OECD country. In the UK, 24% of the adult population was qualified at graduate level in 1998. By 2007 this increased to 32%. The OECD average increased from 20% to 27% in the same period<sup>10</sup>.

<sup>10</sup> Organisation for Economic Co-Operation and Development, ‘Education at Glance: OECD Indicators – 2009 Edition’, OECD, 2009. Table A1.4.

The expansion of higher education has had a positive impact for individuals and economies. However, concerns have been raised about whether the increasing supply of well educated labour has been matched by the creation of an equivalent number of suitable jobs.

Earnings differentials between the annual earnings of those who graduate from tertiary education and the annual earnings of those with secondary or other non-tertiary qualification is a straightforward indicator of the benefit of completing tertiary education. In 2007, in the UK, those who graduate from tertiary education, earn 57% more than those without tertiary qualifications. The earnings premium of graduates is still slightly greater in the UK than the OECD average of 52%. Earnings premium of graduates from tertiary education is slightly lower in France at 50%. In contrast, the earnings premium of those who graduate from tertiary education is the greatest in the United States of America, where they earn 72% more of those without graduate level qualification.

**Chart 4: Relative earnings from employment of 25-64 year olds with tertiary education, 2007 (non-tertiary=100)**



Source: Organisation for Economic Co-Operation and Development, 'Education at Glance: OECD Indicators – 2009 Edition', OECD, 2009. Table A7.1a

Note: Upper secondary and post secondary non-tertiary education=100.

### **Key Points: International context**

- In spite of the recession, the UK managed to maintain its historically strong employment rate in 2008 at 72.7%, which was substantially higher than the OECD average of 66.5%.
- Due to the recession, unemployment rates have increased in most of the OECD countries. The unemployment rate in the UK in December 2009 was 8.1%.
- Latest forecasts published by the OECD suggests that unemployment rates will increase in most OECD countries in 2010 but some signs of easing will emerge in 2011.
- The proportion of people with low or no qualifications in the UK is double that in Germany and more than double that in the United States. The proportion of the UK population qualified to intermediate level is the lowest among France, Germany and the US, confirming that UK's skills base has deficiencies, despite pockets of excellence.

## **4.3 Supply of and demand for labour**

One of the key factors determining how much output can be generated in an economy is the supply of available labour. The Office for National Statistics (ONS)<sup>11</sup> has developed a framework for labour market statistics which is based on the concept of labour supply. This approach has wide international acceptance, including by the International Labour Organisation (ILO).

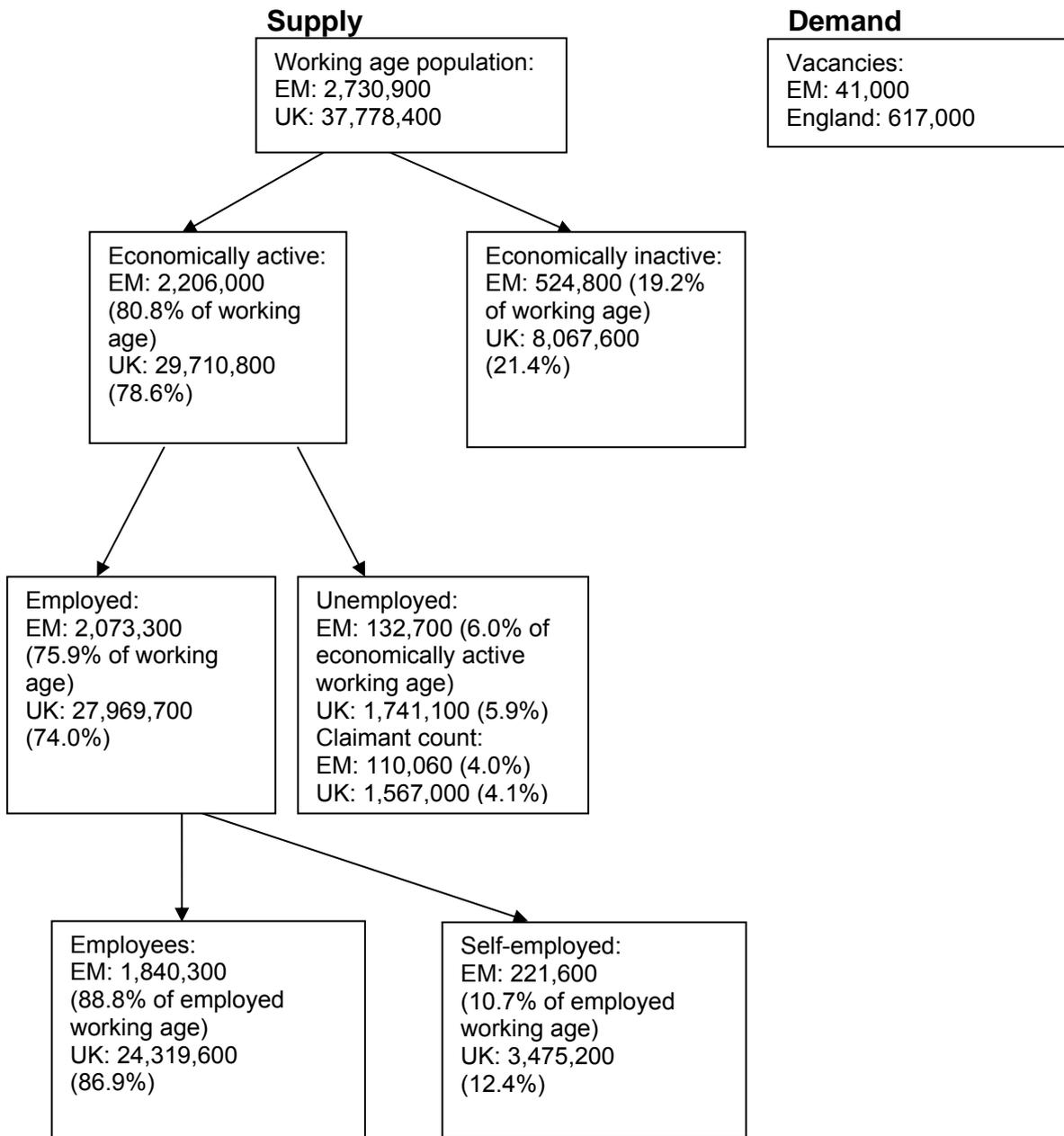
The labour supply consists of people who are employed, as well as those people defined as unemployed or economically inactive. The ONS framework distinguishes between different working arrangements as well, namely between those in employment such as employees and the self-employed and those on Government schemes.

Labour demand is a derived demand from employers who have a need for work to be done, and who offer compensation for this work. In the framework applied by this chapter, a job that has been identified by an employer, but which is not being undertaken by anyone, is a vacancy.

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<sup>11</sup> Office for National Statistics, 'Labour Market Framework'.  
<http://www.ons.gov.uk/about-statistics/user-guidance/lm-guide/lm-framework/index.html>

**Chart 5: Supply of and demand for labour, East Midlands (EM) and UK, 2008**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS. Vacancy data are from BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands', Table 13. Note: Self-employed as the proportion of employed is not the same as self employment rate. This latter is the proportion of self-employed in the working age population which was 8.1% in the East Midlands and 9.2% in the UK in 2008.

The definitions of labour market statistics used by the Office for National Statistics are in line with the recommendations of the International Labour Organisation (ILO). They are used throughout the remainder of this section unless specified. They are:

- **Economically active:** are those aged 16 and over who are either in employment or unemployed. The activity rate is the number of economically active people as a percentage of the working age population. There are 2.2 million economically active people in the East Midlands in 2008.

- **Economically inactive:** are those who are neither in employment nor unemployed. This includes those who want a job but have not been seeking work in the last four weeks, those who want a job and are seeking work but not available to start work, and those who do not want a job. The inactivity rate is the number of economically inactive people as a percentage of the working age population. The economically inactive population includes full-time students, those who do not work due to parental or elder-care responsibilities, the retired and those claiming incapacity benefits. Economic inactivity is discussed in more detail in the Deprivation and Economic Inclusion chapter. There are 524,800 economically inactive people in the East Midlands in 2008.
- **Employment and employee jobs:** There are two ways of looking at employment. The number of people with jobs, or the number of jobs. The two concepts are not the same as a person can have more than one job.<sup>12</sup>
  - As one of the labour market supply indicators, the number of people with jobs is defined as people who undertook paid work for at least one hour in the week prior to their Labour Force Survey (LFS) interview (as an employee or self-employed), those who had a job that they were temporarily away from, those on government-supported training and employment programmes, and those doing unpaid work in a family business. There are 2.07 million working age people in employment in the East Midlands in 2008.
  - As a labour market demand indicator, the number of jobs is measured by workforce jobs and is the sum of employee jobs, self-employment jobs from the LFS, those in HM Forces, and government-supported trainees. Vacant jobs are not included. Employee jobs is the biggest share of workforce jobs<sup>13</sup>. There were 1.8 million employee jobs in December 2008 in the East Midlands.
- **Vacancy:** A job that has been identified by an employer, but which is not being undertaken by anyone. There are about 17,000 vacancies in December 2008 in the East Midlands.
- **Unemployment:** The ILO definition of unemployment covers people who are not in employment, who want a job, have actively sought work in the previous four weeks and are available to start work within the next fortnight, or, out of work and have accepted a job which they are waiting to start in the next fortnight<sup>14</sup>. The unemployment rate is the number of unemployed as the percentage of the economically active working age population. There are 132,700 unemployed people in 2008 in the East Midlands.

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<sup>12</sup> The Review of Employment and Jobs Statistics highlighted differences between statistics on jobs produced from household and business surveys. The review identified many reasons why these differences occur. (First release: Labour Market, East Midlands, ONS).

<sup>13</sup> Office for National Statistics, 'Labour Market, East Midlands', and 'Guide to Regional and Local Labour Market Statistics', [http://www.statistics.gov.uk/downloads/theme\\_labour/Guide\\_regional\\_local\\_lms.pdf](http://www.statistics.gov.uk/downloads/theme_labour/Guide_regional_local_lms.pdf) At regional level data for civilian workforce jobs are published, which exclude the figures for the Armed Forces.

<sup>14</sup> Ibid.

- **Claimant count:** is the number of people claiming Jobseeker's Allowance. Claimant count proportion is the number of claimants resident as a percentage of resident working age population in that area<sup>15</sup>. There are 110,000 people claiming Jobseeker's Allowance in December 2009 in the East Midlands.

### 4.3.1 Supply of labour

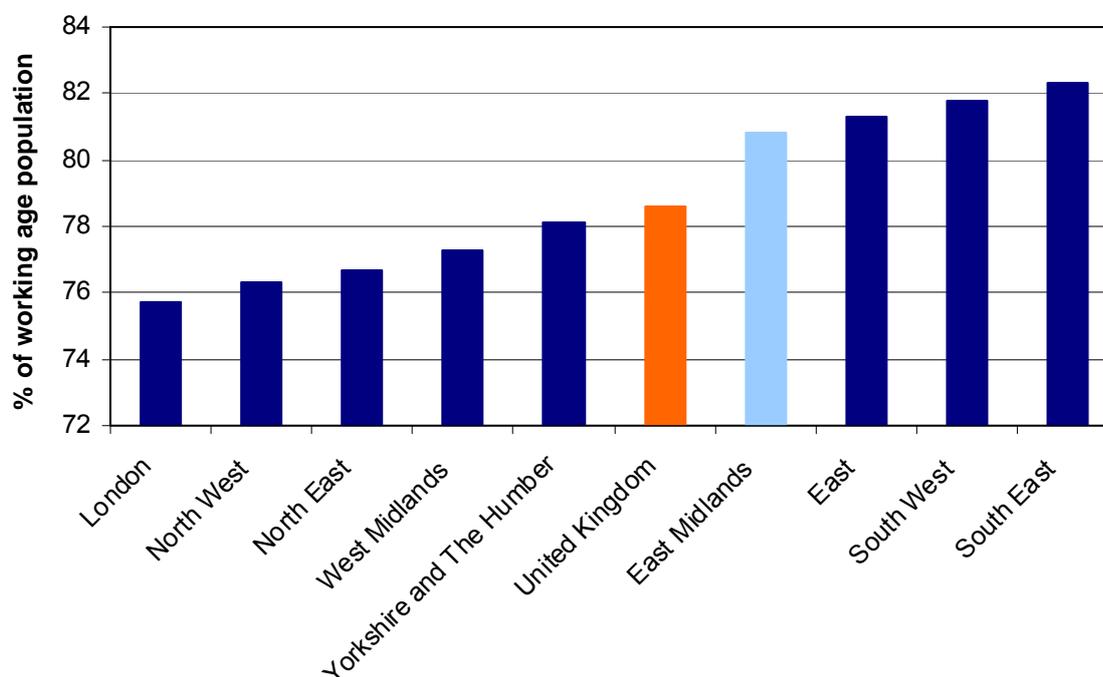
Having set out the framework above, this section discusses economic activity, employment and unemployment in the East Midlands in more detail.

#### 4.3.1.1 Economic activity

Chart 6 shows the economic activity rate by region in 2008. The economic activity rate in the East Midlands exceeds the UK average, at 80.8% compared to 78.6%. Generally, economic activity is lower in the north and higher in the south and the east. London is an exception with the lowest economic activity rate (at 75.7%). This is mainly due to the large number of students resident in the capital.

Economic activity rates are the highest in the South East at 82.3%, which reflects not just the strong economy and labour market of the region but also the fact that a significant number of those working in London commute from the South East.

**Chart 6: Economic activity rate by region, 2008 (%)**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

<sup>15</sup> Official statistics provide claimant count rates as the number of claimants in an area as a percentage of the sum of claimants and workforce jobs in the area (Office for National Statistics, 'Labour Market, East Midlands').

Due to methodological changes historical comparisons can only be made for 2005 and 2008. Economic activity in the East Midlands has increased from 79.6% to 80.8% between 2005 and 2008. At the same time economic activity in the UK has decreased from 78.3% to 78.6%.

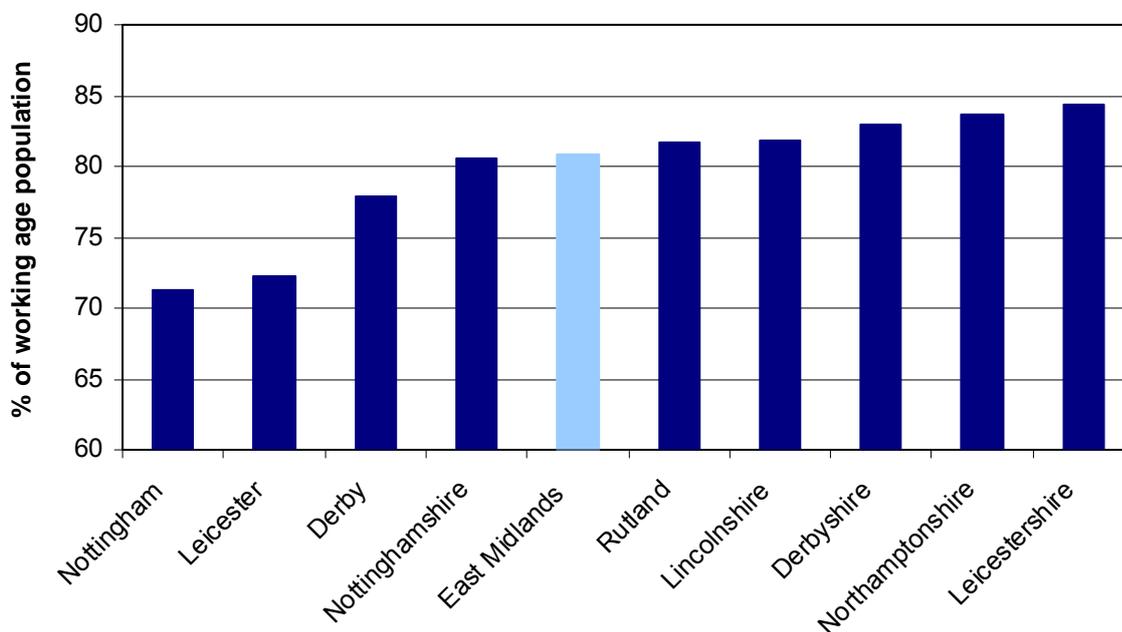
The economic activity rate of the working age population remained high in the East Midlands at 80.3% for November-January 2010. This suggests that people have not been leaving the labour market despite the recession. The economic activity rate was 78.5% in the UK for the three months to January 2010, which was 0.9 percentage points lower than a year earlier<sup>16</sup>.

### Sub-regional variations in economic activity

The high regional economic activity rate disguises significant sub-regional disparities. These sub-regional differences are much greater than the inter-regional differences noted above.

Variation in the economic activity rate exceeds 13.0 percentage points at county/UA level. Leicestershire has the highest economic activity rate (at 84.4%) and Nottingham City has the lowest (at 71.2%). Relatively low economic activity rates in Nottingham, Leicester and Derby are a function of their large student populations. The highest economic activity rates are found in the south of the region.

**Chart 7: Sub-regional economic activity rates, 2008 (%)**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

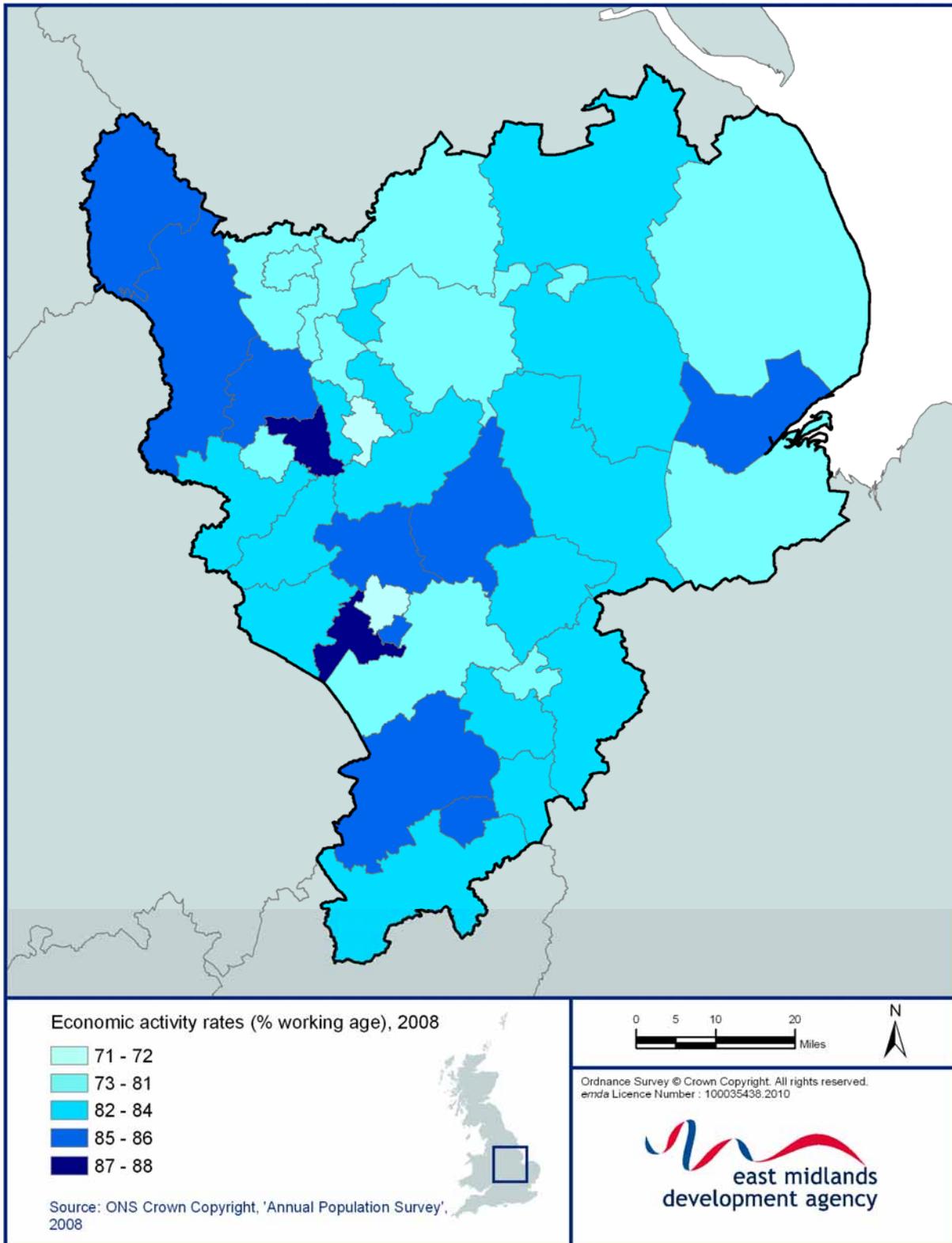
<sup>16</sup> Office for National Statistics, 'Labour Market Statistics, March 2010'. March 2010'. Office for National Statistics, 'Labour Market Statistics, March 2010: East Midlands'. March 2010'.

The economic activity rate increases with rurality. The economic activity rate of residents in the East Midlands Large Urban districts was 77.3% in 2008. This is 3.5 percentage points lower than the regional average and 5.5 percentage points lower than in Rural 80 districts (82.9%), which have the highest activity rates.

Rural areas have experienced greater increase in economic activity. Economic activity has slightly increased the most in Rural 80 districts between 2007 and 2008. In 2008 the economic activity rate was 82.9% in Rural 80 districts, 2.3 percentage points higher than the previous year. The economic activity rate in Rural 50 districts was 81.4%, 0.5 percentage points higher than the previous year. The economic activity rate has remained the same in Other Urban districts over the same period and slightly increased in Large Urban districts from 76.6% to 77.3%.

Map 1 shows that at district level the highest economic activity rates in 2008 were in Blaby and Erewash at 87.9% and 86.4% respectively. In contrast, the lowest economic activity rates were in Nottingham and Leicester at 71.2% and 72.3% respectively. Districts in the coalfields and in parts of Lincolnshire coast have also relatively low economic activity rates.

**Map 1: Economic activity rate 2008 (% working age)**



### 4.3.1.2 Employment

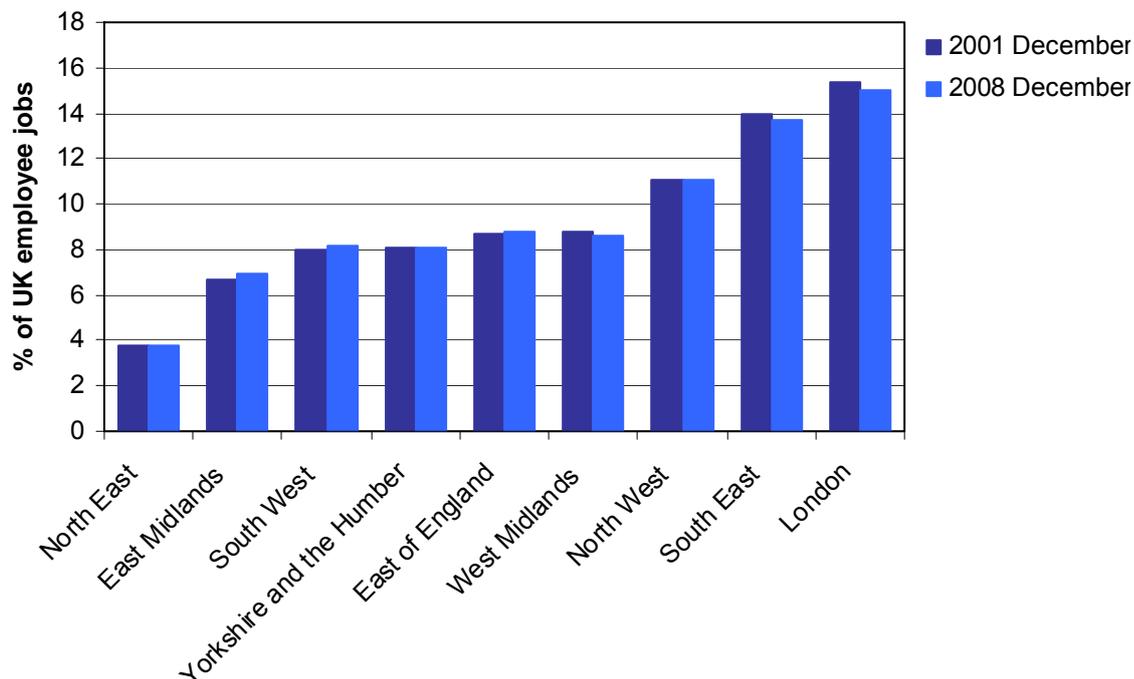
As noted above there are two ways of looking at employment: the number of jobs, or the number of people with jobs. These two concepts are not the same, as a person can have more than one job. The most commonly used measure of employment, the employment rate, is derived from the latter concept.

#### Employee jobs

Employee jobs is the biggest share of civilian workforce jobs<sup>17</sup>. The number of employee jobs slightly increased in the UK from 26.2 million to 27.0 million between December 2001 and December 2008<sup>18</sup>, a 3.0% increase. In the East Midlands, the number of employee jobs increased considerably between December 2001 and December 2008 from 1.7 million to 1.8 million. This is a 6.8% increase, the highest among the English regions.

Chart 8 shows the proportion of total UK employee jobs by region in December 2001 and 2008. The share of UK jobs in the East Midlands increased from 6.7% to 6.9%. However, there has been a decrease in the share of UK jobs in London and in the South East from 15.4% to 15.0% and from 14.0% to 13.7% respectively.

**Chart 8: Proportion of total UK employee jobs by region (%)**



Source: Department for Business Innovation & Skills, 'The Regional Economic Performance Indicators', (formerly known as Regional Competitiveness and State of the Regions), May 2009.

Table 6c. sourced Short Term Employment & Turnover Survey, Employment, Earnings & Productivity Division, Office for National Statistics. Numbers refer to December of each year. Regions may not sum to UK or England totals.

<sup>17</sup> Civilian workforce jobs is the sum of employee jobs, self-employment jobs and government-supported trainees.

<sup>18</sup> Ibid.

Note: One of the input sources of employee job estimates is the Annual Business Inquiry (ABI). Although there is a discontinuity of ABI data between up to and including 2005 and data from 2006, this does not affect on employee job estimates at regional level. Therefore, historical comparison is possible.

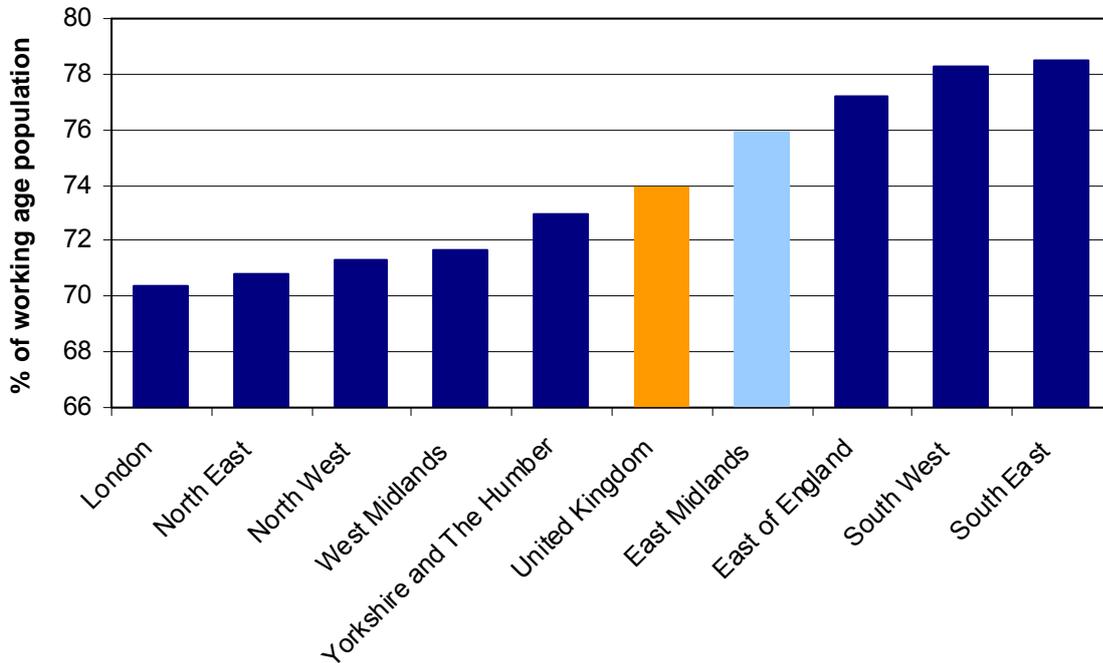
Latest statistics<sup>19</sup> on employee jobs show that there were about 26.3 million jobs in the UK and 1.8 million jobs in the East Midlands in December 2009. The number of employee jobs in the East Midlands has fallen by 43,000 on the same period a year earlier, a decrease of 2.3%. In the UK, the number of employee jobs has decreased by 578,000 on a year to December 2009, a decrease of 2.2%. Employee job losses in the East Midlands have been concentrated in manufacturing, construction, distribution and finance & business services, in line with national trends.

### Employment rate

The employment rate is the most common measure of employment and is based on the number of people with jobs and not the number of jobs, as discussed above.

The East Midlands is the only region out of the five northern and midlands regions to exceed the national average employment rate. The East Midlands employment rate was the fourth highest of the English regions at 75.9% in 2008, compared to 74.0%<sup>20</sup> in the UK. The employment rate was highest in the South East, at 78.5%, followed by the South West, at 78.3%. The employment rate was the lowest in London, at 70.4%, followed by the North East at 70.8%.

**Chart 9: Employment rate by region, 2008 (%)**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

<sup>19</sup> Office for National Statistics, 'Labour Market Statistics, March 2010'. March 2010', Table 5(1). 'Labour Market Statistics, March 2010': East Midlands'. March 2010', Table 5.

<sup>20</sup> Because of different source used here, please note that this figure is slightly different than the previous figure used in the international comparison section.

Between 2005 and 2008<sup>21</sup> the employment rate has remained quite stable in the East Midlands at around 76.0%. The employment rate in the West Midlands decreased from 73.3% to 71.7%, in the North West it decreased from 72.6% to 71.3% and in Yorkshire and the Humber it decreased from 74.1% to 73.0%. The employment rate in the UK fell from 74.3% to 74.0%.

The latest data show that for November-January 2010, the employment rate in the East Midlands was 74.1%, 1.9 percentage points below the same period of the previous year. Despite the impact of the recession, the employment rate in the region remains above the UK average. The employment rate in the UK was 72.2% in November-January 2010, 1.8 percentage points below the same period of the previous year<sup>22</sup>.

### **Sub-regional variations in employment**

The overall relatively high level of regional employment masks substantial local differences. The variation in employment rates at County/Unitary Authority level within the region is even greater than the disparity in economic activity. Leicestershire has the highest employment rate at 80.3%. On the other hand, Leicester has the lowest employment rate at 62.7% followed by Nottingham at 64.8%. In both cases this is related to the high proportion of students in the population. Apart from Leicestershire, the second highest employment rate is in Northamptonshire having an employment rate of 79.5%. The high employment rates in Leicestershire and Northamptonshire are related to commuting flows to London and its surrounding areas<sup>23</sup>.

High Peak and South Northamptonshire in particular stand out as areas people choose to live in whilst being employed outside the region. In the case of South Northamptonshire this is motivated by the employment opportunities in Milton Keynes or Cherwell which are just a short distance away<sup>24</sup>. The Spatial Economy chapter provides further information on commuting patterns.

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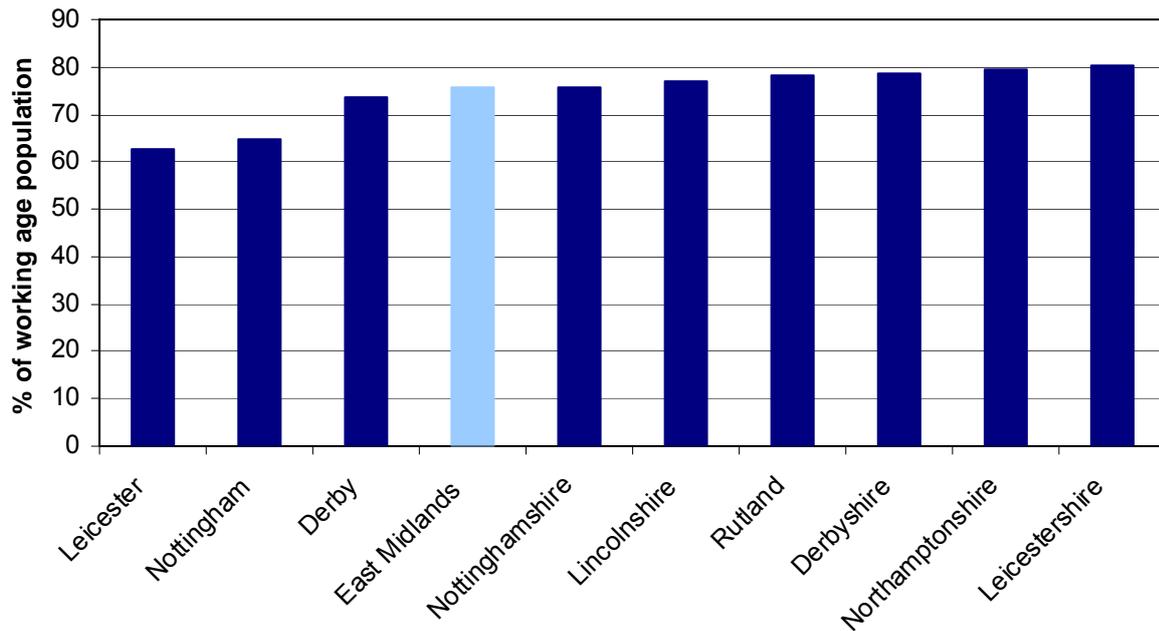
<sup>21</sup> At the time of the writing Annual Population Survey data were gradually reweighted in line with the latest ONS estimates covering the period of 2005 to 2008. ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

<sup>22</sup> Office for National Statistics, 'Labour Market Statistics, March 2010'. March 2010', 'Labour Market Statistics, March 2010': East Midlands'. March 2010'.

<sup>23</sup> Centre for Labour Market Studies (CLMS), University of Leicester, on behalf of *emda*, 'Baseline Labour Market Information for the East Midlands', 2002, October 2002.

<sup>24</sup> Experian, on behalf of *emda*, 'Commuting flows in the East Midlands' 2007.

**Chart 10: Sub-regional employment rates, East Midlands, 2008 (%)**

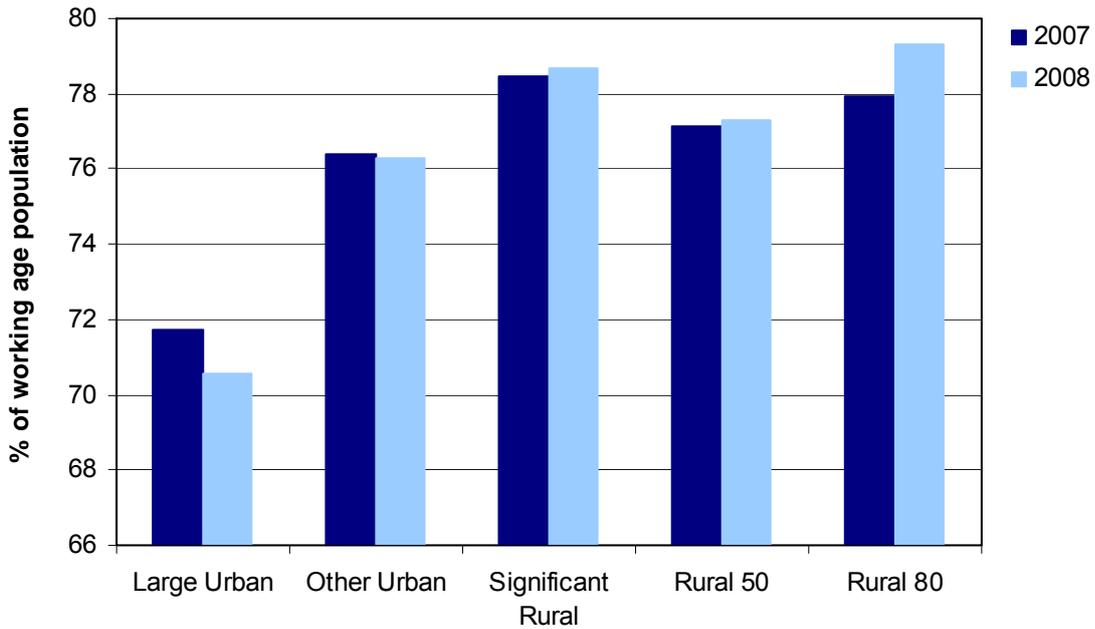


Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

The employment rate is generally higher in rural districts and lower in urban districts. The employment rate in 2008 for the East Midlands' Rural 80 districts is 79.3%, 3.4 percentage points above the regional average. However, the employment rate for Large Urban districts is 70.6%, 5.3 percentage points below the regional average.

There have been differences how employment has changed. Between 2007 and 2008 the employment rate increased in Rural 80 districts, by 1.4 percentage points. At the same time, the employment rate decreased in Large Urban districts, by 1.2 percentage points.

**Chart 11: Urban-Rural employment rates in the East Midlands (%)**

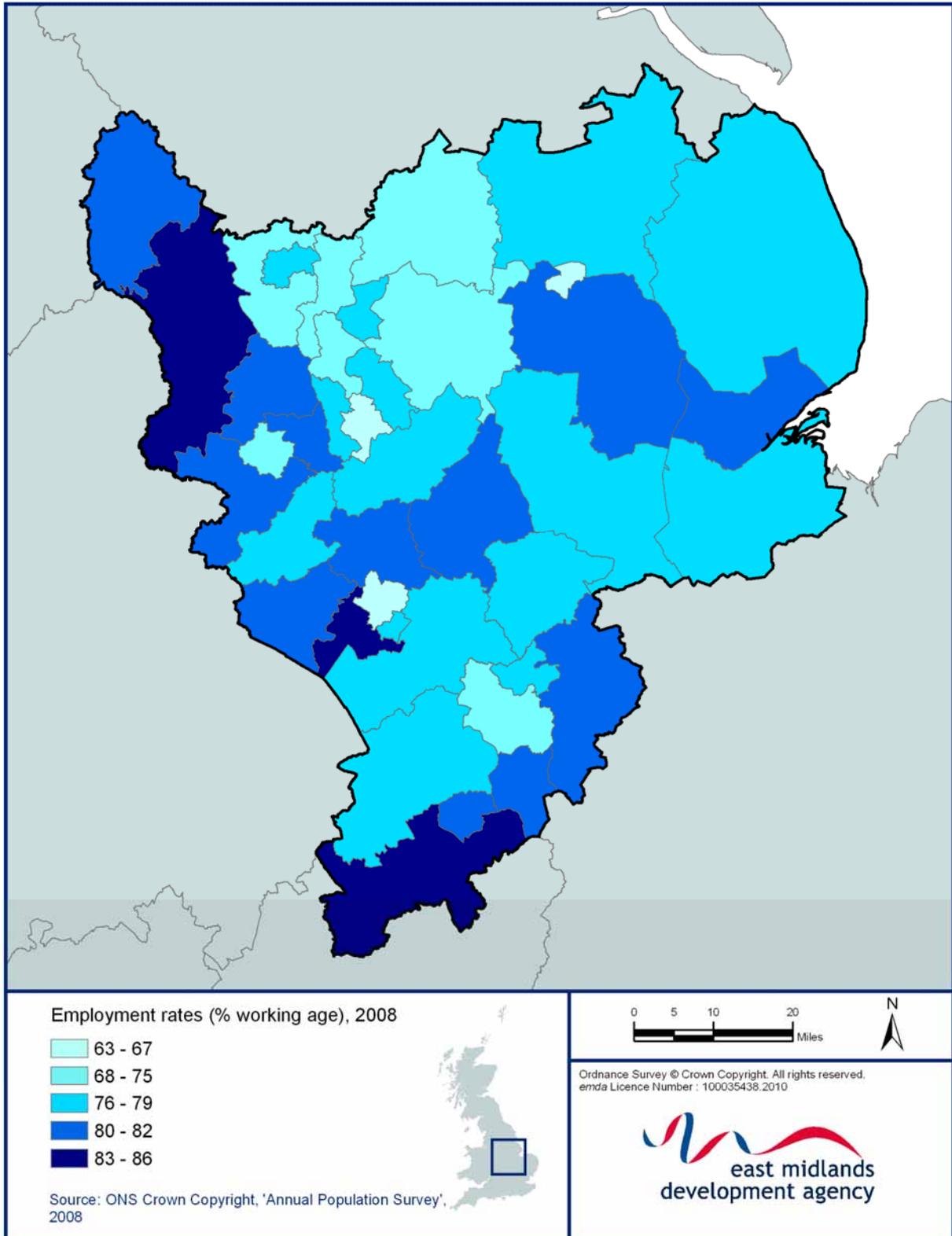


Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

Although the employment rate is generally higher in rural districts than urban districts, there are urban districts with high employment rates and rural districts with low rates of employment. For example, among urban districts the highest employment rate is in Blaby at 86.02%. Among rural districts, the lowest employment rates are around the former coalfields, in districts such as Bolsover (74.0%), Bassetlaw (74.7%) and North East Derbyshire (75.3%).

The employment rate in 2008 was the lowest in Nottingham (64.8%), Leicester (62.7%) and Lincoln (67.3%). In contrast, it was the highest in Derbyshire Dales (82.7%), Blaby (86.2%) and South Northamptonshire (83.1%).

**Map 2: Employment rates 2008 (% working age)**



#### 4.3.1.3 Type of employment in the East Midlands

This sub-section describes the structure of employment in the UK and the East Midlands in terms of gender and employment status. To examine at developments over time, and likely developments in the future, the following commentary is based on the latest Working Futures 2007-2017<sup>25</sup> projections of employment.

##### **Employment by gender**

Much of the growth in employment across the UK in the 1990s can be attributed to a dramatic increase in the number of women joining the labour market. In 1987, women accounted for 44.5% of those in employment in the UK. By 1997 this had risen to 47.6%. This shift in employment towards women was partly driven by changes in industrial structure. The contraction of the primary, utilities and manufacturing sectors has led to the loss of many full-time jobs traditionally held by men. In contrast, the number of jobs traditionally occupied by women has increased with the growth of services. Another factor is the gradual increase of part-time jobs which has made employment more accessible to many women. These changes have been accompanied by the increasing tendency of women to combine both work and family duties.

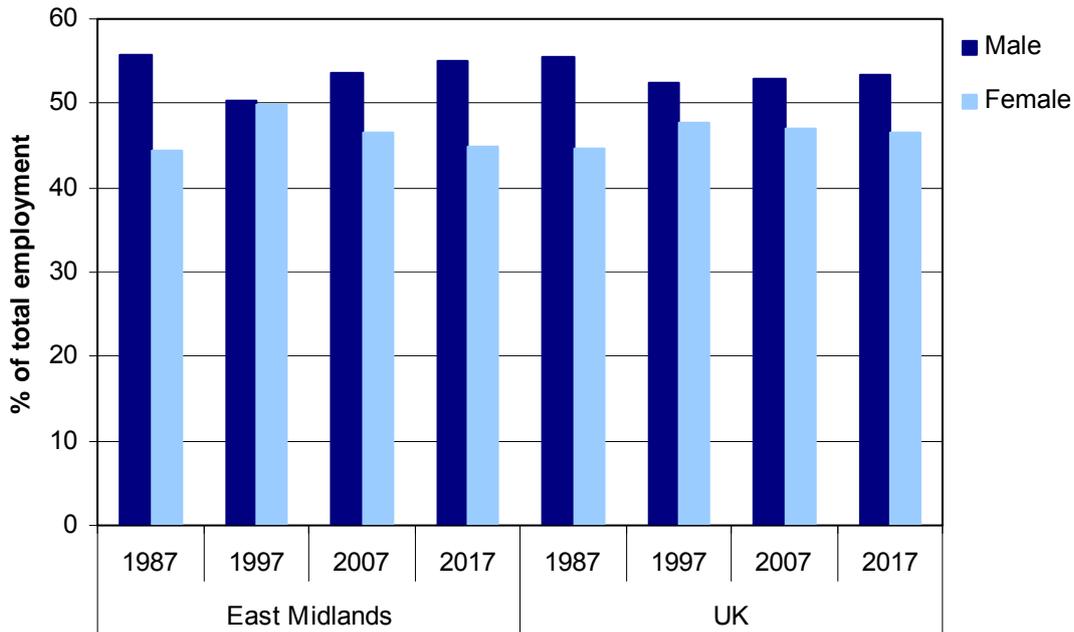
However, after the 1990s the proportion of women in the regional and national workforce has exhibited a different pattern. In the East Midlands the share of women in the regional workforce decreased from 49.8% to 46.4% between 1997 and 2007<sup>26</sup>. In contrast, the proportion of women in employment more or less stayed the same between 1997 and 2007 in the UK. In 2007 women accounted for a slightly lower proportion of jobs in the East Midlands than in the UK. This is expected to remain the case during the next decade.

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<sup>25</sup> Source: Warwick Institute for Employment Research and Cambridge Econometrics, on behalf of the UK Commission for Employment and Skills and Learning and Skills Council, 'Working Futures 2007-2017' 2008.

<sup>26</sup> This can be partly explained by the fact that the number of male employees is projected to increase more than the number of female employees and this is the case in the East Midlands. This does have an impact of the gender composition of the regional employment for the benefit of male. The activity rate projections of the Working Futures 2007-2017 are based on ONS regional and sub-regional 2004-based population projections (Working Futures 2007-2017, Technical Report page 23).

**Chart 12: Employment by gender, 1987-2017 (% total employment)**



Source: Warwick Institute for Employment Research and Cambridge Econometrics, on behalf of the UK Commission for Employment and Skills and Learning and Skills Council, 'Working Futures 2007-2017' 2008.

### Employment status

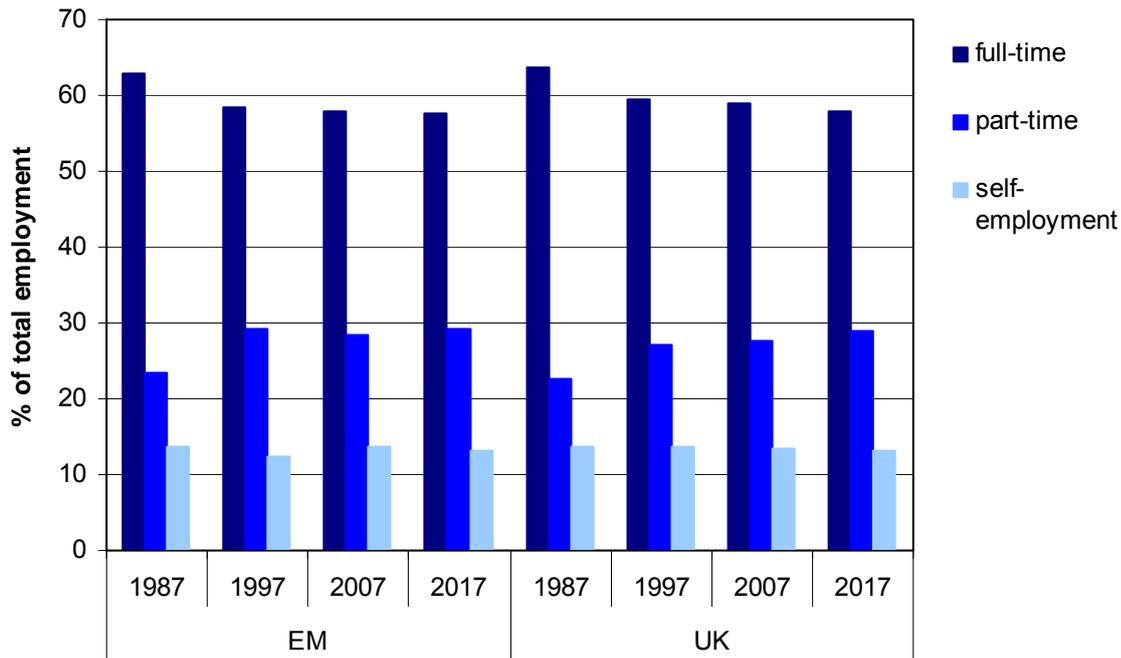
People can be classified according to whether they are working for someone else (employee) or themselves (self-employed). Additionally, employees are classified on the basis of whether they work full-time or part-time.

Working Futures 2007-2017 projections provided by the UK Commission for Employment and Skills and the Learning and Skills Council, forecast changing employment by employment status. It is important to note that the Working Futures 2007-2017 was developed in the first half of 2008, before the extent of the recession and therefore there is a significant degree of uncertainty relating to these projections.

Chart 13 shows that the breakdown by employment status in the East Midlands is quite similar to the national average and is expected to remain so in the future. In 2007 the self-employed accounted for a similar proportion of jobs in the region, at 13.7% compared to 13.5% in the UK. This is projected to decrease both regionally and nationally by 2017, to 13.3%. This should not be regarded as an indication of entrepreneurial activity as self-employment does not necessarily denote business ownership, and is sometimes pursued when other employment opportunities are limited.

In addition, the proportion of employees working part-time was slightly greater in the East Midlands than in the UK. In 2007, 28.5% of jobs in the East Midlands were accounted for by employees working part-time, compared to 27.6% in the UK. However, this difference is expected to disappear by 2017.

**Chart 13: Employment status 1987-2017 (% total employment)**



Source: Warwick Institute for Employment Research and Cambridge Econometrics, on behalf of the UK Commission for Employment and Skills and Learning and Skills Council, 'Working Futures 2007-2017' 2008.

Due to the recession in the UK, there has been a rise in part-time employment<sup>27</sup> as companies have sought to control costs through decreased hours worked and wages, rather than reducing headcount. The proportion of those in part-time employment has risen and reached 26.7% of employment in November-January 2010 in the UK. The proportion of those in part-time employment is still greater in the East Midlands than in the UK as based on the latest statistics available at regional level, the proportion of part-time working for July 2008-June 2009 was 25.1% in the East Midlands and 23.9% in the UK<sup>28</sup>. In July 2008-June 2009 the proportion of those in part-time employment increased by 1.1 percentage points in the East Midlands compared to 0.4 percentage points in the UK on the same period a year earlier.

In addition, it is likely that some sectors will be more vulnerable in the period to 2017 than the 'Working Futures 2007-2017' forecast suggests above. For example, the likely future cuts in public services, which is biased towards female and part-time employment, could lead to a greater decrease of female and part-time employment than that forecasted by Working Futures.

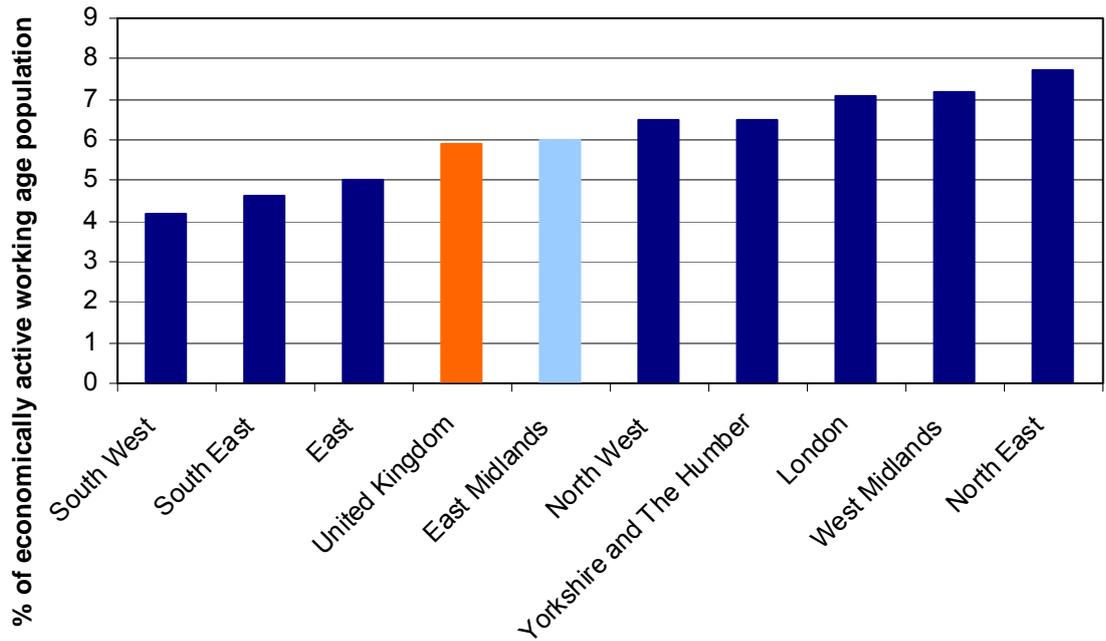
#### 4.3.2 Unemployment

Unemployed people are the second category of the economically active population. Chart 14 shows the unemployment rate for the English regions and the UK average in 2008.

<sup>27</sup> Office for National Statistics, 'Labour Market Statistics, March 2010'. March 2010', Table 3.

<sup>28</sup> Source: ONS Crown Copyright, 'Annual Population Survey', July 2008 – June 2009, from NOMIS. Percentage in employment working part-time (working age).

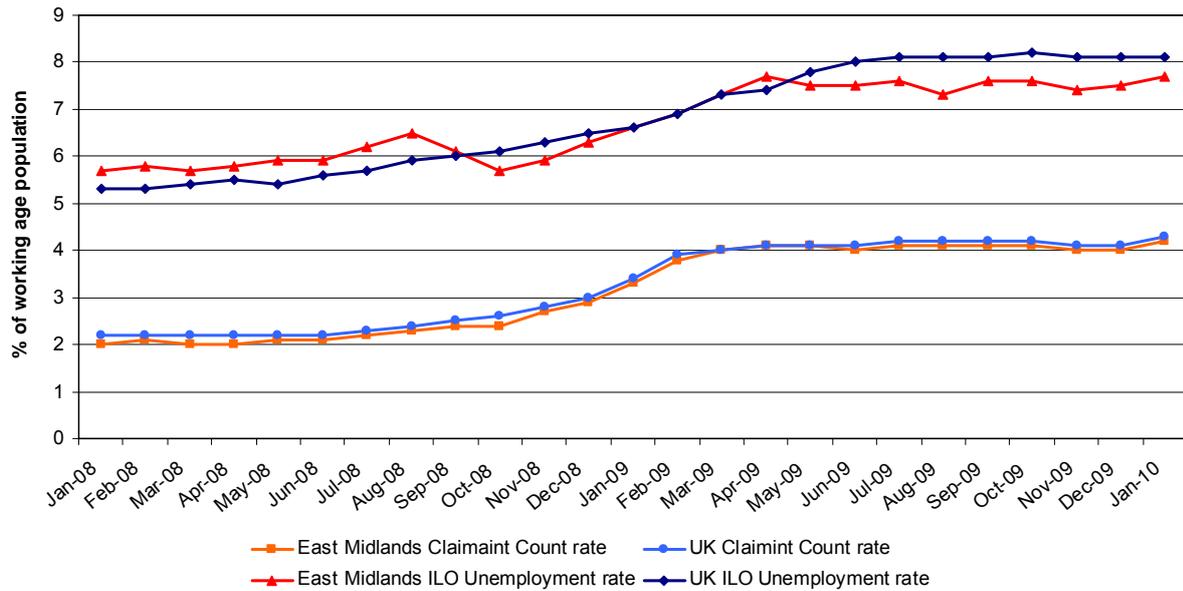
**Chart 14: Unemployment rate by region, 2008 (%)**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

The East Midlands unemployment rate was slightly above the national average at 6.0% compared to 5.9% in the UK in 2008, although the 0.1 percentage point difference is not significant. The unemployment rate in the East Midlands is lower than in the North West, Yorkshire and the Humber, London, the West Midlands and the North East. The unemployment rate in the East Midlands has increased by 0.9 percentage points between 2007 and 2008. This is 0.3 percentage points higher than the UK average. Between 2007 and 2008 the unemployment increased the most in the West Midlands and the North East at 1.1 and 1.4 percentage points respectively. The North East and the West Midlands have been the hardest hit by the recession.

**Chart 15: Employment rate and claimant count rate in the East Midlands and in the UK**



Source: Office for National Statistics, 'Labour Market Statistics, March 2010'. March 2010; 'Labour Market Statistics, March 2010'. March 2010.

Note: The ILO unemployment rate shown for January 2010 refers to November-January 2010. For definition please see the 'Supply of and demand for labour' section.

Chart 15 shows that both the unemployment rate and the claimant count rate increased during the summer of 2008. However, both measures have levelled off during the last 11 months.

The latest quarterly data for November-January 2010<sup>29</sup> shows that the unemployment rate in the East Midlands was 7.7%, 0.4 percentage points lower than the UK figure of 8.1%. Redundancy rates per 1,000 employees<sup>30</sup> covering the period October-December 2009 show some signs of decreasing. The redundancy rate in the East Midlands was 9.4 per 1,000 employees, down from 12.0 on the previous quarter. The redundancy rate was 6.7 in the UK, which has decreased from 8.2 on the previous quarter.

### Sub-regional unemployment

The unemployment rate increased in most sub-regions between 2007 and 2008 but it decreased slightly in Derby and in Derbyshire from 6.1% to 5.6% and from 5.3% to 5.0 respectively. The unemployment<sup>31</sup> is lowest in Rutland and Leicestershire, at 4.0% and

<sup>29</sup> Office for National Statistics, 'Labour Market Statistics, March 2010: East Midlands'. March 2010. Table 1.

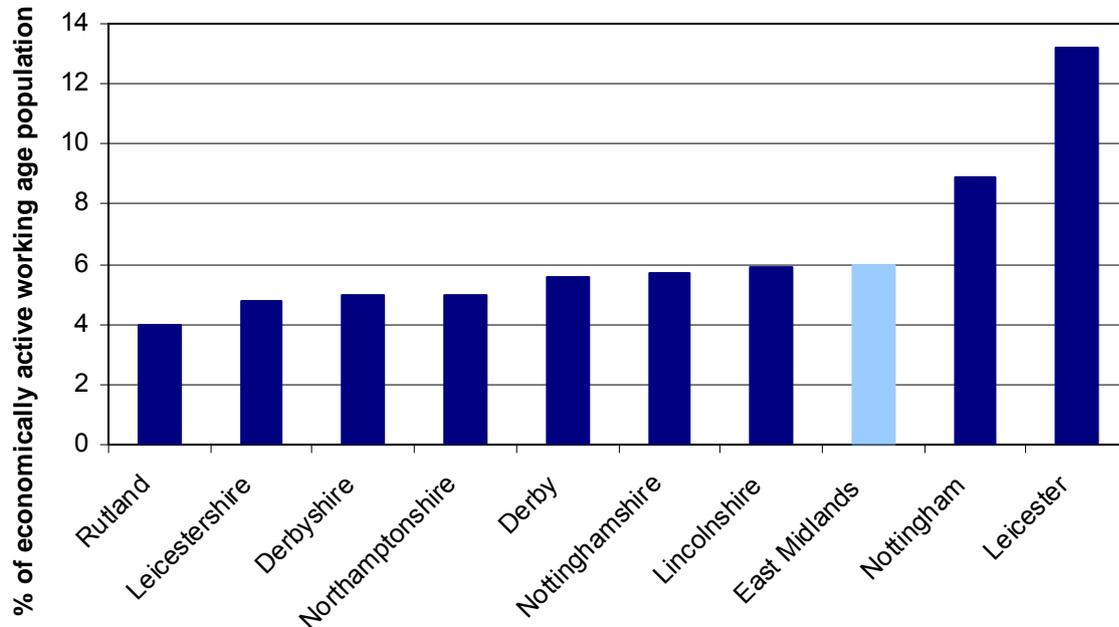
<sup>30</sup> Source: Labour Force Survey, Redundancy Tables, Calendar Quarter October-December 2009. [http://www.statistics.gov.uk/downloads/theme\\_labour/RedundancyCQ.xls](http://www.statistics.gov.uk/downloads/theme_labour/RedundancyCQ.xls)

Note: The redundancy figures correspond to the number of people, whether working or not working, who reported that they had been made redundant or had taken voluntary redundancy in the month of the reference week or in the two calendar months prior to this. The data is not seasonally adjusted.

<sup>31</sup> Local authority analysis is based on the model-based estimates of unemployment for local authorities. Local authority data refers to January-December 2008. Please note that the model-based estimate of the unemployment rate refers to the percentage of resident population aged 16+, while sub-regional and

4.8% respectively. Unemployment is concentrated in the region's larger cities such as Leicester (13.2%) and Nottingham (8.9%). Apart from the larger cities, unemployment hotspots can be identified around the former coalfields and parts of Northamptonshire, Lincoln at 8.3%, Corby at 6.6%, Ashfield at 6.6%, Mansfield, Bolsover and Wellingborough at 6.2% each.

**Chart 16: Sub-regional unemployment rates, East Midlands, 2008 (%)**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

The latest Labour Force Survey data for November-January 2010 are not available at sub-regional level. Therefore, to provide an up to date picture of the local variation in unemployment the claimant count rate for February 2010 is analysed.

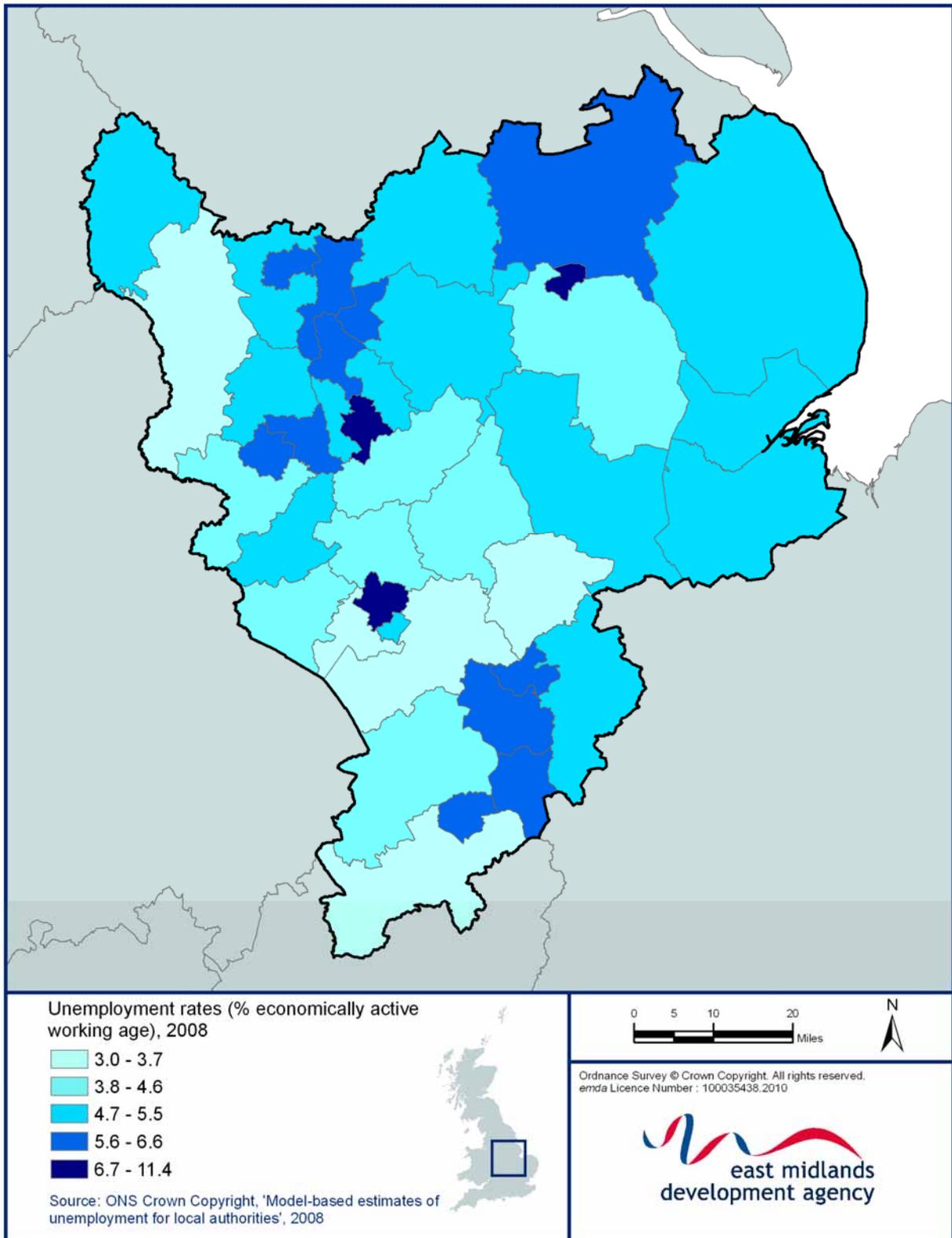
As context, in February 2010, the claimant count rate in the East Midlands was 4.2%, which is 115,400 people. The claimant count rate in the UK was 4.4% in February 2010.

In February 2010, Leicester and Nottingham had the highest claimant count rates at 6.8% and 6.3% respectively. At local authority level – apart from Leicester and Nottingham – the claimant count rate was the highest in Corby (5.9%), Lincoln (5.7%), Derby (5.3%) and Northampton (5.2%).

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regional unemployment data (APS) refers to the economically active working age population (Office for National Statistics, 'Labour Market Statistics, East Midlands' footnote of Table 12.).

**Map 3: Unemployment rates 2008 (% economically active working age)**



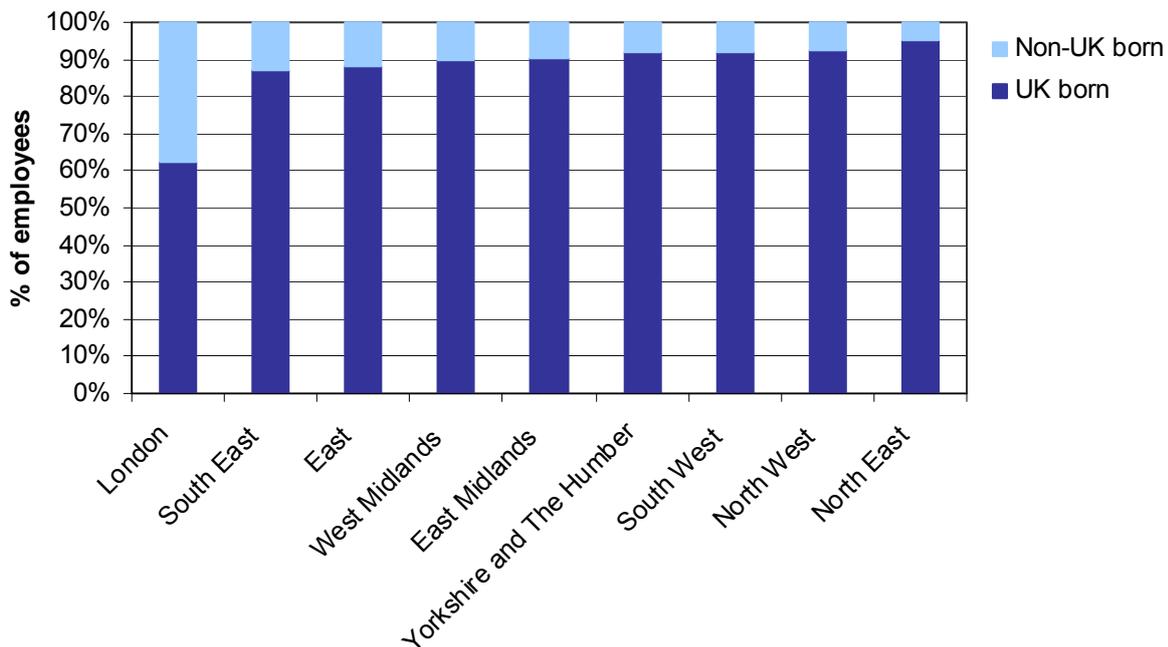
### 4.3.3 Migrant workers in the East Midlands

Migrant workers provide an addition to the labour supply in the UK and the East Midlands. However, there is no single data source on the employment of migrant workers. Therefore, data from the Annual Population Survey (APS), Workers' Registration Scheme (WRS) and National Insurance Recording System (NINO) are used to estimate the number of migrant workers at regional and local level.

The Annual Population Survey identifies migrant workers as those whose country of birth is outside the UK and who have done at least one hour's paid work during the week before the survey interview or have been temporarily away from a job (e.g. on holiday). Those are also counted in employment who have been on government-supported training schemes and those who have done unpaid work for their family's business<sup>32</sup>.

In 2008, 202,700 non-UK born working age employees worked in the East Midlands<sup>33</sup>. This is 9.8% of regional employment. In London, 1,348,800 non-UK born residents were in employment, which accounts for 37.7% of total employment, the highest by far among the English regions. In the North East only 55,800 non-UK born residents were in employment which accounts for 5.0% of total employment, the lowest proportion among the English regions.

**Chart 17: Proportion of UK and non-UK born employees by region 2008 (%)**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

The Annual Population Survey can provide robust data at unitary and local authority level about the number of UK and non-UK born workers<sup>34</sup>.

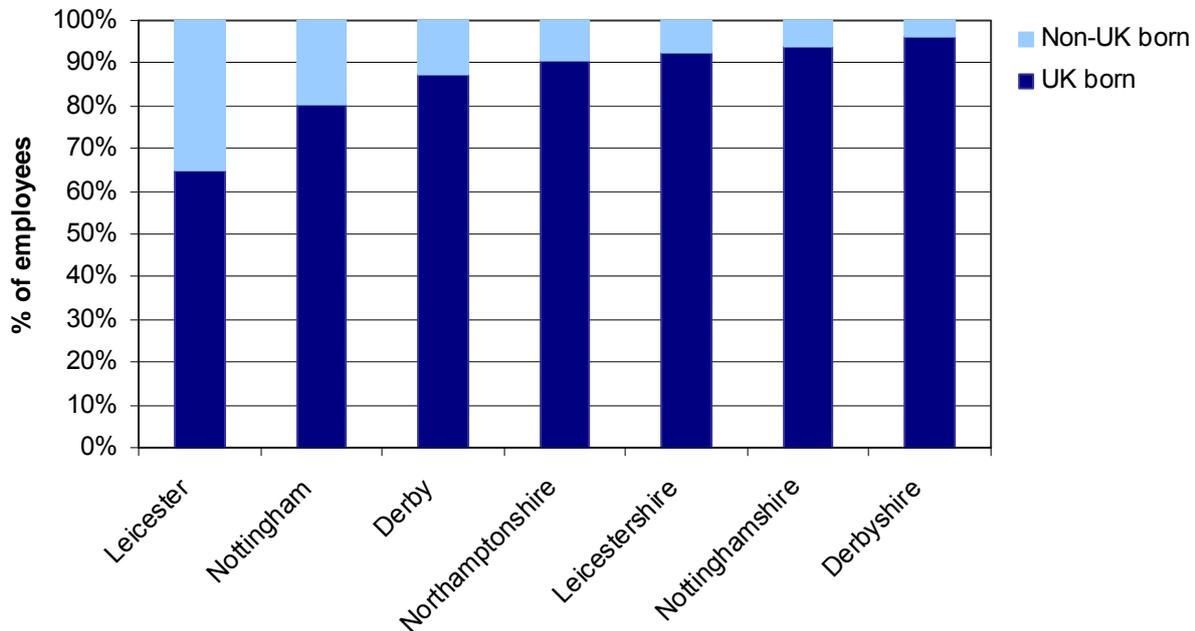
<sup>32</sup> Office for National Statistics, 'How exactly is unemployment measured?', 2008.

<sup>33</sup> Office for National Statistics, 'Population and migration statistics released', New Release, 21 August 2008. [http://www.statistics.gov.uk/downloads/theme\\_labour/MigrantLAEmpAPSJanDec07.xls](http://www.statistics.gov.uk/downloads/theme_labour/MigrantLAEmpAPSJanDec07.xls)

<sup>34</sup> Office for National Statistics, 'Population and migration statistics', New Release, 21 August 2008.

As Chart 18 shows, in Leicester the number of non-UK born working age employees exceeded 42,000 in 2008 (35.2% of Leicester’s total employment). The proportion of non-UK born employees was the lowest in Derbyshire at 3.9% in 2008.

**Chart 18: Proportion of UK and non-UK born employees by sub-region 2008 (%)**



Source: ONS Crown Copyright, ‘Annual Population Survey’, January-December 2008, from NOMIS.  
 Note: Some of the input data for this calculation for Rutland and Lincolnshire were not available at MOMIS.

#### 4.3.3.1 National Insurance Numbers and Worker Registration Scheme

The latest national statistics on National Insurance Number Allocations to Adult Overseas Nationals (NINO) entering the UK produced by the Department for Work and Pensions were released on 26th November 2009<sup>35</sup>.

A NINO is generally required by any overseas national looking to work or claim benefits<sup>36</sup>/ Tax Credits in the UK, including the self employed or students working part time. The Worker Registration Scheme (WRS) covers those workers from A8 countries<sup>37</sup> that joined the EU in May 2004 who intend to take up employment for a period of at least a month. Workers who are self-employed do not need to register and are therefore not included in these figures.

<sup>35</sup> Department for Work and Pensions, National Insurance Number Allocations to Adult Overseas Nationals entering the UK, [http://research.dwp.gov.uk/asd/asd1/nial/nino\\_allocation.asp](http://research.dwp.gov.uk/asd/asd1/nial/nino_allocation.asp)  
 Next release date is 25<sup>th</sup> February 2010.

<sup>36</sup> Those who are registered for NINO can claim Jobseekers Allowance, Incapacity Benefit/Severe Disablement Allowance and Income Support and after October 2008, Employment and Support Allowance.

<sup>37</sup> The A8 are the eight Central and Eastern European countries that joined the EU on 1<sup>st</sup> May 2004: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia. The A8 does not include the two other countries that joined on that date: Cyprus and Malta. Office for National Statistics, ‘Migration Statistics Quarterly Report: May 2009’.  
<http://www.statistics.gov.uk/pdfdir/ppmg0509.pdf>

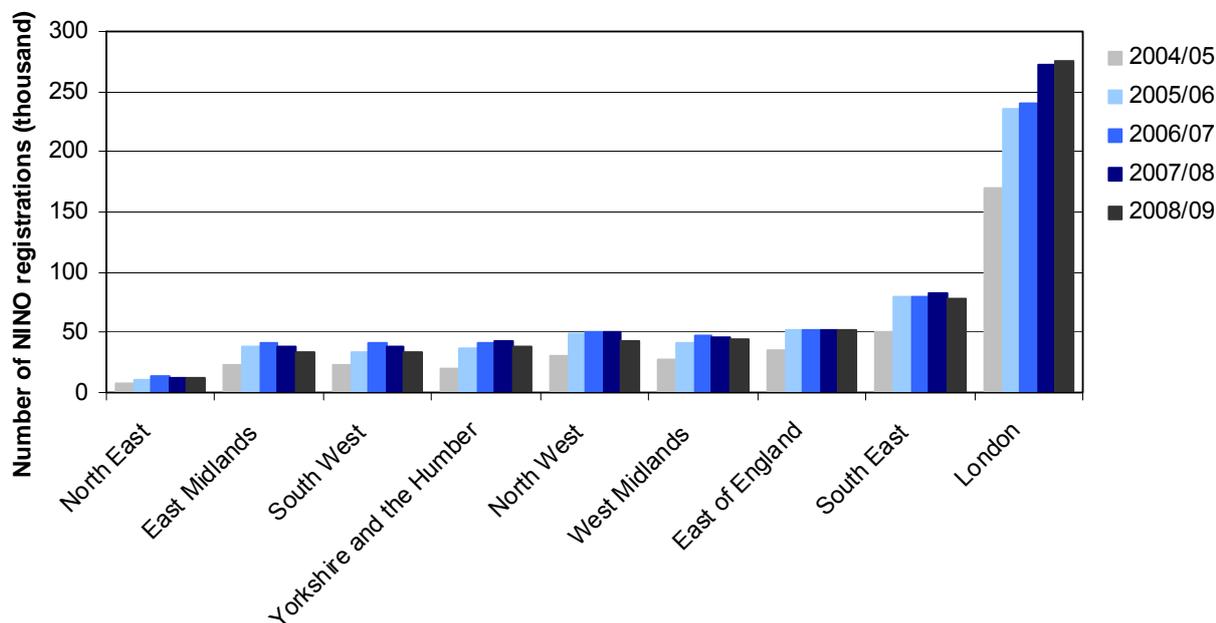
Both the NINO and WRS data are based on administrative sources and they are not direct measures of immigration and do not measure the UN definition of an international migrant which makes a distinction between short-term and long-term migrants. Both the NINO and the WRS include some short-term migrants (moves made for less than 12 months)<sup>38</sup> and long-term migrants as well. Both NINO and WRS give data at a point in time and they show where people registered but not if people have moved to a different region or if they have left the country.

### National Insurance Number registrations

In the financial year 2008-2009, 686,110 new NINOs were allocated to adult overseas nationals entering the UK. This number is 47,000 (6.4 %) lower than a year earlier. This is the first year since 2004-2005 when the number of NINO registrations in the UK decreased compared to the previous year.

Chart 19 shows that NINO registrations decreased in most of the regions between 2007-2008 and 2008-2009 except in London and the East of England. Here the number of NINO registrations slightly increased by 1.1% and 0.8% respectively. In the East Midlands there were 33,000 new NINO registrations in 2008-2009, 5,500 (14.2%) less than the previous year.

**Chart 19: NINO registrations to adult overseas nationals entering the UK by year of registration and by region (thousand)**



Source: Department for Work and Pensions, National Insurance Number Allocations to Adult Overseas Nationals entering the UK, [http://research.dwp.gov.uk/asd/asd1/niall/nino\\_allocation.asp](http://research.dwp.gov.uk/asd/asd1/niall/nino_allocation.asp)

In the East Midlands most Local Authorities experienced a decrease in the number of new NINO registrations in 2008-2009 compared to the previous year – in line with the national and regional trends. In 2008-2009 the number of new adult NINO registrations

<sup>38</sup> Office for National Statistics, '2007 Mid-Year Population Estimates Frequently Asked Questions', August 2008.

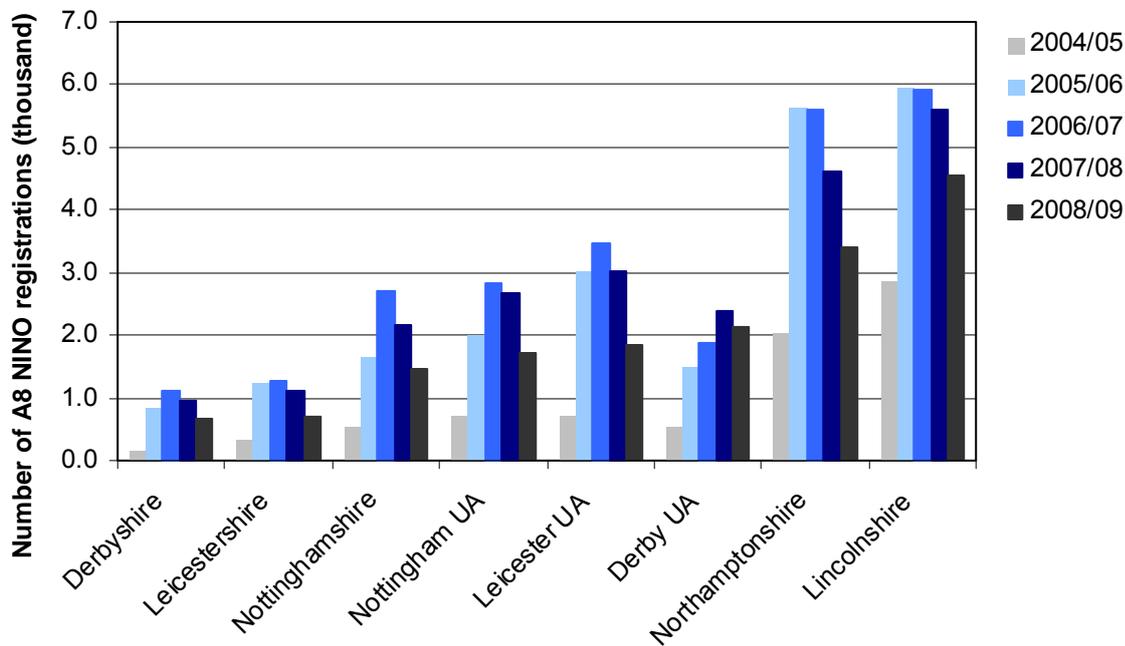
decreased the most in Ashfield and Erewash by 42.1% and 35.7% respectively. In contrast, the only local authority where the number of registrations increased was North East Derbyshire (18.2%).

Migrant workers from the A8 countries have been the most significant source of migrant labour during recent years. However, the influx of migrant workers to the UK started to decrease in 2007-2008. Between 2007-2008 and 2008-2009 the fall in NINO registrations from A8 countries was more significant than the fall in the number of overall NINO registrations. Between 2007-2008 and 2008-2009, the number of NINO registrations to adults from A8 countries decreased by 78,700 (from 293,800 to 215,200), a 26.8% fall. This is compared to a 6.4% fall in the total number of NINO registrations.

In the East Midlands, there were 16,500 new NINO registrations from A8 countries in 2008-2009, which is about 6,000 (around 26.7%) less than the previous year. Between 2007-2008 and 2008-2009 the fall in NINO registrations from Poland in particular was the most significant. The number of new NINO registrations from Poland has decreased by 37.6% in the East Midlands between 2007-2008 and 2008-2009.

NINO registrations show that the greatest number of new A8 migrants in 2008-2009 was in Lincolnshire at 4,600 individuals. This is 18.6% less than the previous year. The number of new A8 migrants decreased the most in Leicester from 3,000 to 1,900, a 38.6% decrease between 2007-2008 and 2008-2009.

**Chart 20: Number of A8 NINO registrations in the East Midlands' sub-regions by year**



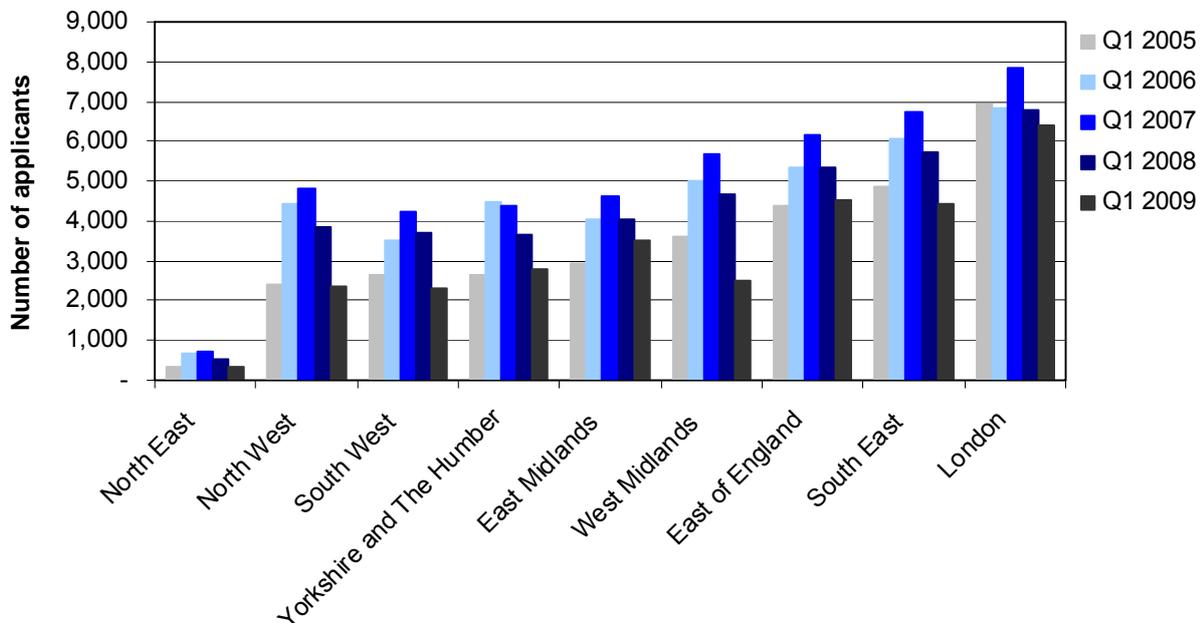
Source: Department for Work and Pensions, 'National Insurance Recording System', Tabtool.  
 Note: Rutland is left out due to small numbers.

## Worker Registration Scheme

Chart 21 shows the change in the number of approved Worker Registrations between quarter one of 2005 and quarter one of 2009. This trend confirms the main point highlighted above about the decreasing number of newly registered migrant workers both nationally and regionally:

- In the first quarter of 2009 there were 3,525 approved WRS applications in the East Midlands, 12.5% less than the first quarter of 2008; and
- Approved WRS applications decreased the most in the West Midlands (46.9%) and the North West (39.1%) between the first quarter of 2008 and the first quarter of 2009. These regions are the hardest hit by the recession and less attractive destinations for migrant workers.

**Chart 21: Approved WRS Applications by regions (Q1 2005 - Q1 2009)**



Source: Worker Registration Scheme provided by Office for National Statistics.

Note: This data is based on Management Information, is provisional and may be subject to change. The data is not National Statistics. This table shows registered workers rather than the number of applications made. The figures are for initial applications only (not multiple applications, where an individual is doing more than one job simultaneously, nor re-registrations, where an individual has changed employers).

### **Key Points: Supply of labour**

- Economic activity and employment rates in the East Midlands have historically exceeded the UK average. Economic activity and employment rates tend to be higher in rural districts. These rates are the highest in Northamptonshire and Leicestershire and are lowest in the cities and coalfields area.
- The economic activity rate of the working age population remained high in the East Midlands at 80.3% for November-January 2010. This suggests that people have not been leaving the labour market despite rising unemployment and falling employment due to the recession.
- Latest statistics on employee jobs show that there were 43,000 less jobs in the East Midlands in December 2009 than a year earlier. Employee job losses in the East Midlands were concentrated in manufacturing, construction, distribution and finance & business services, in line with the national trend.
- The East Midlands is the only region of the five northern and midlands regions to exceed the national average employment rate.
- The latest data show that for November-January 2010, the employment rate in the East Midlands was 74.1%, 1.9 percentage points below the same period of the previous year. Despite the impact of the recession, the employment rate in the region remains above the UK average of 72.2%.
- Between 1997 and 2007 the share of women in the regional workforce decreased in the East Midlands, unlike the UK. This pattern could be more significant as future cuts in public services will be more likely to have an impact on female employment.
- Self-employment accounted for a similar proportion of jobs in the region than the UK average in 2007. In addition, the proportion of employment working part-time was slightly greater in the East Midlands than in the UK.
- Latest quarterly data for November-January 2010 shows that the unemployment rate in the East Midlands was 7.7%, 0.4 percentage points lower than the UK figure of 8.1%. Redundancy rates per 1,000 employees covering the period October-December 2009 show some signs of decreasing.
- In February 2010, the claimant count rate in the East Midlands was 4.2%, which is 115,400 people. The claimant count rate in the UK was 4.4% in February 2010. The claimant count rate in the East Midlands has levelled off in the last 11 months.
- Unemployment is concentrated in the region's larger cities and around the former coalfields.
- In 2008, 202,700 non-UK born working age employees worked in the East Midlands. This is 9.8% of regional employment. However, in most East Midlands Local Authorities the number of newly arrived migrants has decreased compared to the previous year – in line with the national trend.

#### 4.3.4 Demand for labour

This section provides an analysis of labour demand, as measured by vacancies in the UK and in the East Midlands. Vacancies are those positions which need to be filled and therefore can give an early indication of what is happening in the labour market.

There are three sources of data on vacancies – two of them are official statistics, namely, the ONS Vacancy Survey and the Statistics of Jobcentre vacancies<sup>39</sup>. The third widely used source is the National Employer Skills Survey (NESS).

- The ONS Vacancy Survey is an enterprise-based survey based on a sample of 6,000 businesses and provides estimates of job vacancies in the UK. This monthly survey asks employers how many vacancies they have in total for which they are actively seeking recruits from outside their organisation. Monthly estimates began in April 2001 and are available by industry and by size of enterprise<sup>40</sup>.
- The Statistics of Jobcentre vacancies identify those vacancies in the economy which were notified to Jobcentres. The Jobcentre Plus vacancies series do not provide comprehensive measures relating to all vacancies in the economy, as it is estimated that only around a third of vacancies in the economy are notified to Jobcentres<sup>41</sup>.
- The latest available National Employer Skills Survey 2007 (NESS 2007) was commissioned by the Learning and Skills Council (LSC), the Department for Innovation, Universities and Skills (DIUS) and Sector Skills Development Agency (SSDA). The survey asks detailed questions of employers about their recruitment practices. Comparable data are available back to 2003. In 2007 the NESS covered 79,000 employers across England, including 7,612 employers in the East Midlands.

For the purpose of drawing a general picture of the number vacancies at regional and sub-regional level and supplementing this with information regarding recruitment problems such as hard to fill vacancies and skills shortage vacancies, the NESS is the most comprehensive data source. The NESS covers issues around general recruitment – and the levels and types of difficulty which employers may experience; the skill levels of their existing workforce; how the organisation approaches the training and development of their staff; issues around the graduate labour market and employer views on the Government's contribution and support to workforce development.

Recruitment problems refer to vacancies that the employer describes as hard-to-fill. Hard to fill vacancies (HtFVs) can be divided into two groups. Skills shortage vacancies

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<sup>39</sup> Office for National Statistics, <http://www.ons.gov.uk/about-statistics/user-guidance/lm-guide/concepts/employers/vacancies/index.html>

<sup>40</sup> Office for National Statistics, <http://www.ons.gov.uk/about-statistics/user-guidance/lm-guide/concepts/employers/vacancies/index.html>

<sup>41</sup> Office for National Statistics, 'Vacancy Survey: a new series of National Statistics', July 2003, [http://www.statistics.gov.uk/downloads/theme\\_labour/Vacancies\\_survey.pdf](http://www.statistics.gov.uk/downloads/theme_labour/Vacancies_survey.pdf)

(SSVs) are those HtFVs which result from applicants not having the required skills, experience, or qualifications that the employer demands. There are also other HtFVs which are attributed to other causes such as a simple lack of applicants.

This section is based on the National Employers Skills Survey 2007: report of results for the East Midlands and the National Employers Skills Survey 2007: Main Report published by the Learning and Skills Council (LSC). Data are available at regional and local LSC area level.

#### 4.3.4.1 Vacancies

Jobcentre Plus vacancy statistics are the most up to date data on vacancies. It should be noted that it has been estimated that JCP handles about one third of the available vacancies in the economy.

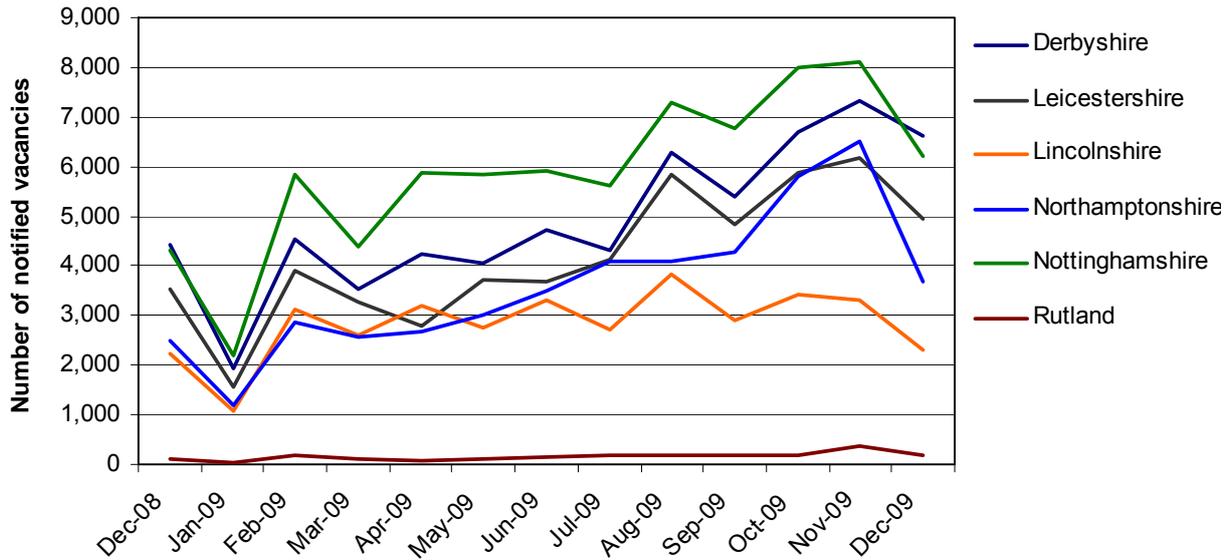
In December 2009 there were 262,500 vacancies in Great Britain and 23,900 vacancies in the East Midlands. Between December 2008 and December 2009 the number of vacancies has increased by 40% in the East Midlands and by 11% in Great Britain. The gradual improvement in vacancy volumes reflects the fact that employers are tightly controlling their costs and there is demand for staff as the economy has begun to recover<sup>42</sup>.

Chart 22 shows that the number of vacancies increased across most of the region during 2009. Usually there is a seasonal dip in the number of vacancies around December and January before a recovery from February, and this is apparent in the data. The number of vacancies was highest in Derbyshire (6,630) and Nottinghamshire (6,210) in December 2009.

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<sup>42</sup> Jobcentre Plus, 'East Midlands Labour Market Review', January 2010. JCP vacancy statistics are available via NOMIS.

**Chart 22: Vacancies in the East Midlands**



Source: Jobcentre Plus Vacancies – summary analysis, notified vacancies accessed from NOMIS.  
 Note: Lincolnshire data excludes armed forces vacancies. Derbyshire includes Derby; Leicestershire includes Leicester; Nottinghamshire includes Nottingham.  
 Data are rounded.

There are some significant sectoral differences in the concentration of vacancies. In December 2009 in the East Midlands, the sectors with most vacancies were banking, finance & insurance (54.8% of all vacancies), distribution, hotels & restaurants (22.1%) and public administration, education and health (13.3%).

In terms of occupations, the East Midlands has a lower share of vacancies in the three upper tier occupations (managers & senior officials, professional occupations, and associate professionals & technical occupations) than England at 18.1% compared to 23.5% in December 2009. On the other hand, there are more vacancies in operatives and elementary jobs at 44.3% compared to 32.6% in England<sup>43</sup>. This reflects the industrial structure of the region.

**Hard to fill vacancies**

Hard to fill vacancies (HtFVs) are an indicator of recruitment problems among businesses. They indicate possible mismatches between the supply of labour and the demands of the business. The reasons for HtFVs are diverse: from ‘not enough interest in the job’ to ‘applicants have not got the required attitude’; from ‘low number of applicants’ to ‘poor terms and conditions, such as pay’.

Hard to fill vacancies for the East Midlands are only available from the National Employers Skills Survey 2007, which is dated to prior the recession. The Key Findings from the National Employer Skills Survey for England 2009 (NESS 2009) were

<sup>43</sup> ONS Crown Copyright Reserved, vacancies – notified by occupation via NOMIS.

published on 10 March 2010<sup>44</sup>. Headline figures for England show that the proportion of HtFVs has continued to fall from 30% (of all vacancies) in 2007 to 22% in 2009, as has the number of vacancies.

The East Midlands had 12,126 HtFVs in 2007, which is equivalent to 30% of all vacancies. This is the same as the English average. HtFVs in the East Midlands have the following characteristics:

- HtFVs are concentrated in small establishments. The proportion of HtFVs in the East Midlands businesses employing 2-4 employees was 41% compared to the regional average of 30% in 2007. There are a number of reasons for this. For example, the proportion of vacancies that are hard to fill was particularly high in hospitality (9.8%), land-based industries (7.0%), engineering (8%) and construction (6.6%), which have a particularly large number of very small businesses<sup>45</sup>.
- In terms of occupational distribution of HtFVs, the share of operatives and elementary jobs was proportionately higher in the East Midlands than in England at 25%, compared to the national average of 20%<sup>46</sup>. In addition, the distribution of hard to fill vacancies in skilled trades occupations is higher in the region than in England at 23% compared to 16%.
- Within the region, vacancies are hardest to fill in Lincolnshire and Rutland (40.5% of all vacancies)<sup>47</sup>. The reason could be the industrial structure of this part of the region: land-based industries and hospitality are more important in the industrial composition of Lincolnshire than the regional average. These recruitment difficulties partly explain some of the migrant worker movements identified above.

**Table 2: Hard to fill vacancies in the East Midlands, 2007**

	Number of HtF vacancies	HtF vacancies as % of all vacancies
Derbyshire	2,120	25.2
Leicestershire	2,610	28.3
Lincolnshire and Rutland	3,130	40.5
Northamptonshire	1,960	29.2
Nottinghamshire	2,350	26.3
East Midlands	12,130	30.0
England	183,470	30.0

Source: BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands', Table 17.

Note: Data is weighted. Data are rounded in this table.

<sup>44</sup> UK Commission for Employment and Skills, 'National Employer Skills Survey for England 2009: Key findings report' [http://www.ukces.org.uk/upload/pdf/NESS%20Key%20findings%202009\\_2.pdf](http://www.ukces.org.uk/upload/pdf/NESS%20Key%20findings%202009_2.pdf)

<sup>45</sup> BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands', Page 29-30, Table 19-20.

<sup>46</sup> BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands', page 44, Table 29.

<sup>47</sup> BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands', page 27, Table 17.

## Skill shortage vacancies

The NESS 2007 investigates the employers' perception of causes of recruitment difficulties by asking a series of questions from those who indicated they had HtFVs.

- At aggregate level the most reported reason for HtFVs was the “low number of applicants with required skills”, at 34% in the East Midlands and 36% in England in 2007.
- The “lack of work experience the company demands” was the second most often mentioned recruitment difficulty by employers. In the East Midlands 20% of employers reported this reason compared to the English average of 19% in 2007.
- Generally, employers were significantly less likely to mention “lack of qualification” as a recruitment problem. However, the East Midlands appears to have proportionately greater recruitment problems because of “lack of qualification”. The percentage of establishments reporting lack of qualification as one of the recruitment problems was 14% in the East Midlands and 12% in England in 2007.

The overall indicator that captures these three reasons for HtFVs is Skill Shortage Vacancies (SSVs).

The national findings from NESS 2009<sup>48</sup>, show that in England, the number of SSVs in 2009 is far lower than that found for 2007 as it has decreased from 130,000 to 63,100. The SSVs as the proportion of vacancies has fallen from 21% in 2007 to 16% in 2009. This drop is due to the overall fall of vacancies and the larger pool of potential employees with the required skills as unemployment increased.

In the East Midlands there were 8,450 SSVs in 2007. This is equivalent to 20.6% of all vacancies in the East Midlands and compares to 21.1% for England<sup>49</sup>. The proportion of SSVs was the highest in London (25.9%), in the South East (22.2%) and in the South West (21.8%). There are significant sub-regional differences. Derbyshire has the lowest proportion of SSVs, at 16.8%, whilst Lincolnshire and Rutland has the highest at 27.2%.

However, it is worth noting that here is a debate, about how recruitment difficulties should be interpreted in a wider labour market context. Regions with dynamic labour markets tend to have a greater proportion of HtFVs and SSVs (South East, London, South West). High proportion of HtFVs and SSVs may suggest increasing demand for skills by employers and more dynamic recruitment practices. At the same time a high percentage on these indicators may also show a genuine gap between employees characteristics and employers requirements.

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<sup>48</sup> UK Commission for Employment and Skills, 'National Employer Skills Survey for England 2009: Key findings report' [http://www.ukces.org.uk/upload/pdf/NESS%20Key%20findings%202009\\_2.pdf](http://www.ukces.org.uk/upload/pdf/NESS%20Key%20findings%202009_2.pdf)

<sup>49</sup> BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands', Table 21.

**Table 3: Skills shortage vacancies in the East Midlands, 2007**

	Number of skills shortage vacancies	Skills shortage vacancies as % of all vacancies
Derbyshire	1,420	16.8
Leicestershire	1,970	21.3
Lincolnshire and Rutland	2,100	27.2
Northamptonshire	1,330	19.9
Nottinghamshire	1,640	18.3
East Midlands	8,450	20.6
England	130,000	21.1

Source: BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands', Table 21.

Note: Data is weighted. Data are rounded in this table.

SSVs are most common in the manufacturing (33% as a proportion of all vacancies) engineering (33%) and construction (32%)<sup>50</sup> sectors.

In terms of occupations, the East Midlands has a proportionately higher share of SSVs in operatives and elementary jobs than England, at 23% compared to the national average of 17%<sup>51</sup>. In addition, in the East Midlands 26% of all SSVs are concentrated in skilled trades occupations. This can be partly explained by the significant replacement demand of skilled trades which is associated with the high share of employment in manufacturing in the region and the ageing workforce.

#### **Key Points: Demand for labour**

- There were 23,900 vacancies in the East Midlands in December 2009. Between December 2008 and December 2009 the number of vacancies increased by 40% in the East Midlands and by 11% in Great Britain. The gradual improvement in vacancy volumes reflects that employers are tightly controlling their costs, there is demand for staff as the economy has begun to recover.
- The East Midlands has a lower share of vacancies in managerial and professional jobs and a higher share in operatives and elementary jobs than England.
- Hard to fill vacancies are concentrated in small businesses and are more prevalent in sectors such as construction, passenger transport and land-based activities. Within the region, there are more hard to fill vacancies in Lincolnshire and Rutland than in other areas.
- Skills shortage vacancies are most common in manufacturing, engineering and construction. The region has a proportionately higher share of skill shortage vacancies in operatives and elementary jobs and skilled trade occupations.

<sup>50</sup> BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands', page 36, Table 23.

<sup>51</sup> BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands', page 44, Table 29.

## 4.4 Supply of skills

The 2004 Pre-Budget Report: “Skills in the global economy” emphasised first, the comparatively high stock of adults in the UK without basic skills (literacy and numeracy); second, evidence of the UK’s relatively poor position in intermediate level skills; and third, the need for a highly skilled workforce to compete successfully in an international market. The Government commissioned Sandy Leitch to undertake an independent review of the UK’s long-term skills needs. The final report “Leitch Review of Skills, Prosperity for all in the global economy – world class skills” shows that the UK must urgently raise achievements at all levels of skills.

The Leitch review emphasises that skills and capacities are the main differentiating factor of competitiveness among developed countries. As competitive pressure increases in the global economy, the utilisation of skills through a better match of skills supply and skills demand has become a policy priority.

In the Leitch review the term ‘working age’ is defined as 19 to state pension age. To be consistent with this the qualification and skills issues in the region will be discussed using this definition. The indicators are based on datasets obtained from the Department for Children, Schools and Families with data from 2001-2002 until 2008.

Qualification level is an imperfect but the most widely used ‘proxy’ for skills. The National Qualifications Framework (NQF)/National Vocational Qualifications (NVQ) level equivalences defines Level 2, 3, and 4 qualifications as follows<sup>52</sup>:

- **Level 4 and above:** People are counted as being qualified to Level 4 and above if they have achieved a first or higher degree, an NVQ Level 4 or 5, a recognised degree-level professional qualification, an HNC/HND or other higher-level vocational or management qualification, a teaching or nursing qualification, or a diploma in higher education.
- **Level 3:** People are counted as being qualified to Level 3 and above if they have achieved at least two A Level passes, four AS Levels, an Advanced GNVQ, an Access to HE qualification or an NVQ Level 3 or equivalent vocational qualification.
- **Level 2:** People are counted as being qualified to Level 2 and above if they have achieved at least five GCSEs at grades A\*-C, an Intermediate GNVQ, two or three AS Levels or an NVQ Level 2 or equivalent vocational qualification.

Apprenticeships are allocated to their equivalent NQF/NVQ level and those apprenticeship reported without a specific level are split evenly between Level 2 and Level 3 qualification.

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<sup>52</sup> Department for Children, Schools and Families, ‘Qualifications and Participation in Learning at a local level: England 2007, Population aged 19-59/64’.

<http://www.dcsf.gov.uk/rsgateway/DB/STA/t000809/Table1.xls>

As with all DCSF analyses, other qualifications have been apportioned in the proportions 10% to Level 3, 35% to Level 2 (i.e. 45% Level 2+) and 55% below Level 2.

In November 2009 the Government published Skills for Growth<sup>53</sup>, the national skills strategy. The strategy's commitments include:

- Creating a modern technician class through more advanced apprenticeships;
- Investing in skills in the sectors on which future growth and jobs depend as skills are recognised as key part of the economic recovery;
- Empowering individuals through skills accounts giving people 'consumer choice' and better information about courses; and
- Simplifying the skills landscape by reducing the number of separately publicly funded agencies by over 30 in the next three years.

#### 4.4.1 Qualifications of the workforce

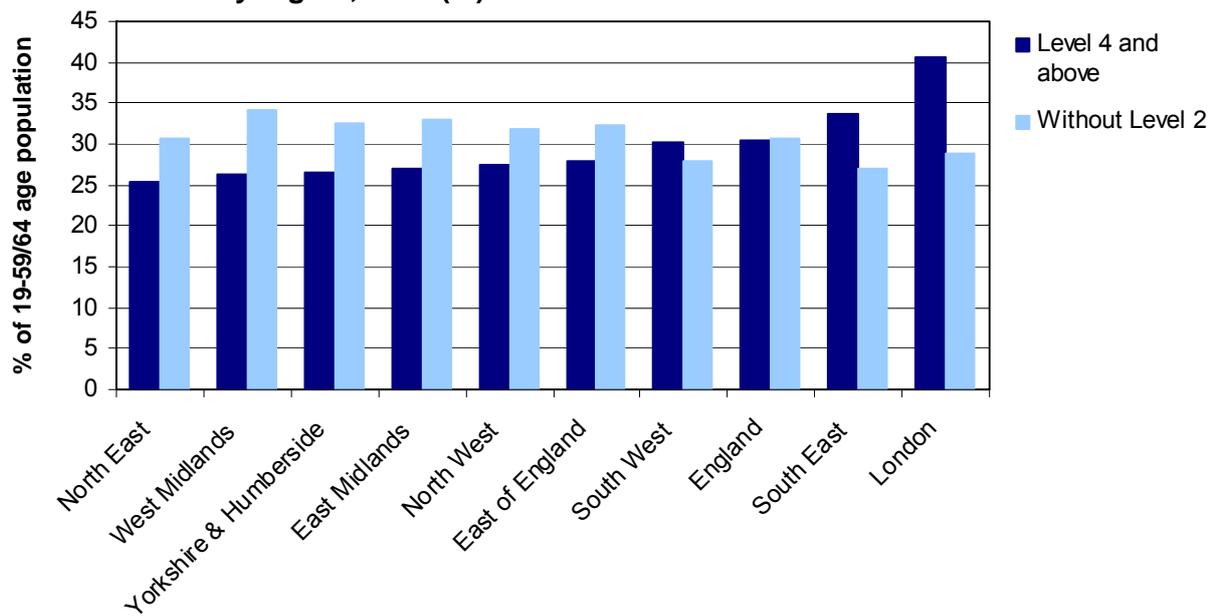
People with higher qualifications have access to a wider range of options in the labour market and higher earnings. Higher qualifications also increase the chances of working in positions which have better working conditions for example in terms of working environment, working hours and employment contracts.

This sub-section provides an assessment of the skills levels of the current workforce of the East Midlands in 2008. Chart 23 presents the proportion of adults qualified to Level 4 and above and without Level 2 in 2008.

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<sup>53</sup> Department for Business, Innovation & Skills, 'Skills for Growth – the national skills strategy', November 2009. <http://www.bis.gov.uk/policies/skills-for-growth>

**Chart 23: Proportion of working age population qualified to Level 4 and above and without Level 2 by region, 2008 (%)**



Source: Annual Population Survey 2001-2008.

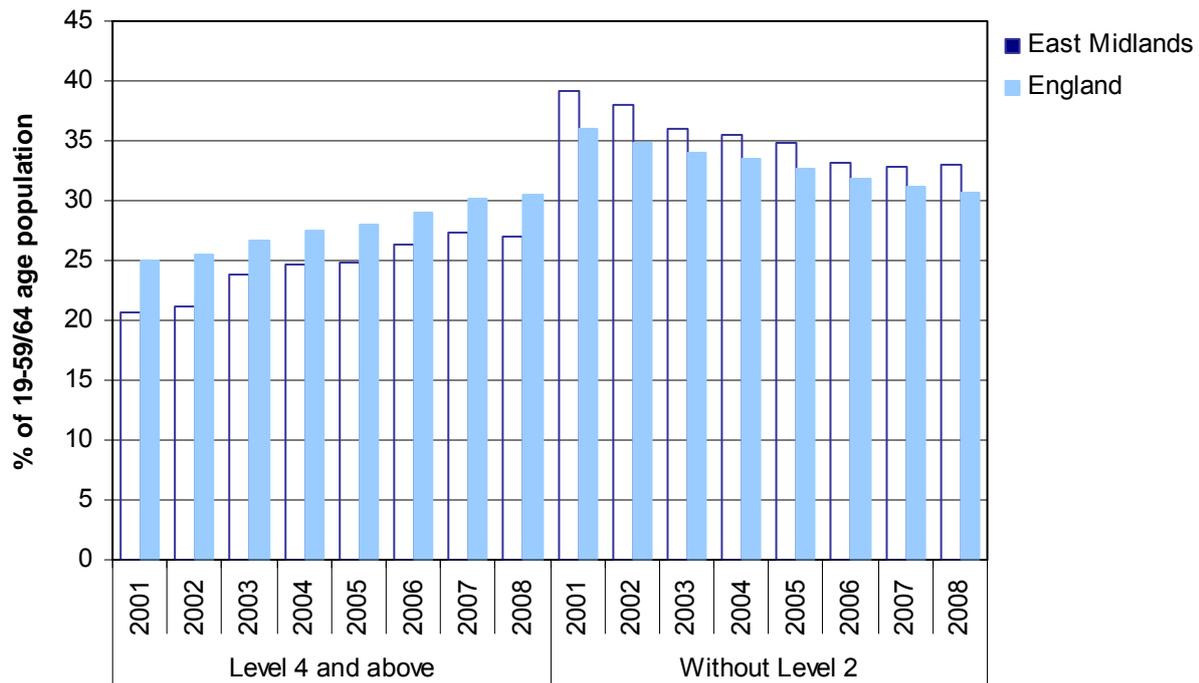
[http://www.thedataservice.org.uk/statistics/sfrdec09/sfr\\_dec09\\_labour\\_force\\_tables.htm](http://www.thedataservice.org.uk/statistics/sfrdec09/sfr_dec09_labour_force_tables.htm)

Note: Without Level 2 qualification is the sum of those with lower than Level 2 and those with no qualification.

The East Midlands is ranked the fourth lowest out of the nine English regions in terms of the proportion of the adult population qualified to Level 4 and above, at 27.0%. This compares to the English average of 30.5%. The regions with the highest proportion of the working age population qualified to Level 4 and above are London (40.6%) and the South East (33.6%).

The proportion of the working age population without a Level 2 qualification (including those without any formal qualification) was 33.0% in the East Midlands in 2008, the second highest among the English regions. This compared to 30.6% in England. The percentage of those without a Level 2 qualification was the highest in the West Midlands (34.2%) and lowest in the South East and the South West, at 26.9% and 27.8% respectively.

**Chart 24: Proportion of working age population qualified to Level 4 and above and without Level 2, East Midlands and England 2008 (%)**



Source: Annual Population Survey 2001-2008.

[http://www.thedataservice.org.uk/statistics/sfrdec09/sfr\\_dec09\\_labour\\_force\\_tables.htm](http://www.thedataservice.org.uk/statistics/sfrdec09/sfr_dec09_labour_force_tables.htm)

Note: Without Level 2 qualification is the sum of those with lower than Level 2 and those with no qualification.

However, there have been significant improvements in the region. The percentage of the East Midlands workforce qualified to Level 4 and above was 20.6% in 2001 and increased to 27.0% by 2008, a 6.4 percentage points increase. In England there was a 5.5 percentage points increase. The gap in the proportion of the workforce qualified to Level 4 and above between the East Midlands and England has narrowed between 2001 and 2008 from 4.4 percentage points to 3.5 percentage points.

The proportion of the working age population without a Level 2 qualification has decreased more significantly in the East Midlands than in England. Between 2001 and 2008 the proportion of those without Level 2 has decreased by 6.3 percentage points in the East Midlands compared to 5.5 percentage points in England.

Between 2001 and 2008 the fall in the proportion of those without qualifications has also been more significant in the East Midlands than in England. In the East Midlands there was a fall of 5.2 percentage points compared to 3.8 percentage points for England.

In terms of economically valuable skills, the Government ‘5 drivers framework’<sup>54</sup> provides a useful framework. In assessing how skills can be used to foster further productivity gains in the East Midlands it needs to be borne in mind that skills are a derived demand stemming from, amongst other things, the entrepreneurial and innovative actions of economic agents in the region (employers, individuals, and governmental agencies).

<sup>54</sup> HM Treasury, DTI, ‘Productivity in the UK 5: Benchmarking UK productivity performance’, March 2004. The five drivers are: investment, innovation, skills, enterprise and competition.

In addition, the interaction between skills, enterprise and innovation has both direct and indirect implications for regional (and firm) productivity<sup>55</sup>.

- Enterprise requires many skills including 'entrepreneurial skills', business acumen and numerical ability. In addition, entrepreneurs are necessary to exploit business opportunities presented by innovations;
- Innovation is also largely influenced by skills: academic skills, research skills and creativity are examples of skills that enhance innovation activity and knowledge creation. Innovations in turn present business opportunities for entrepreneurs; and
- Management capability at firm level is crucial in order to construct an appropriate product market strategy, being able to identify skill needs to support that strategy, sourcing skills, and ensuring they are effectively deployed. Managerial support and working practices can also promote innovative working and ultimately enhance productivity.

### **Sub-regional variations in qualifications**

The adult skills profile varies considerably across the East Midlands. Chart 23 shows the proportion of working age adults without a Level 2 qualification and with at least a Level 4 qualification by County and Unitary Authority in the East Midlands.

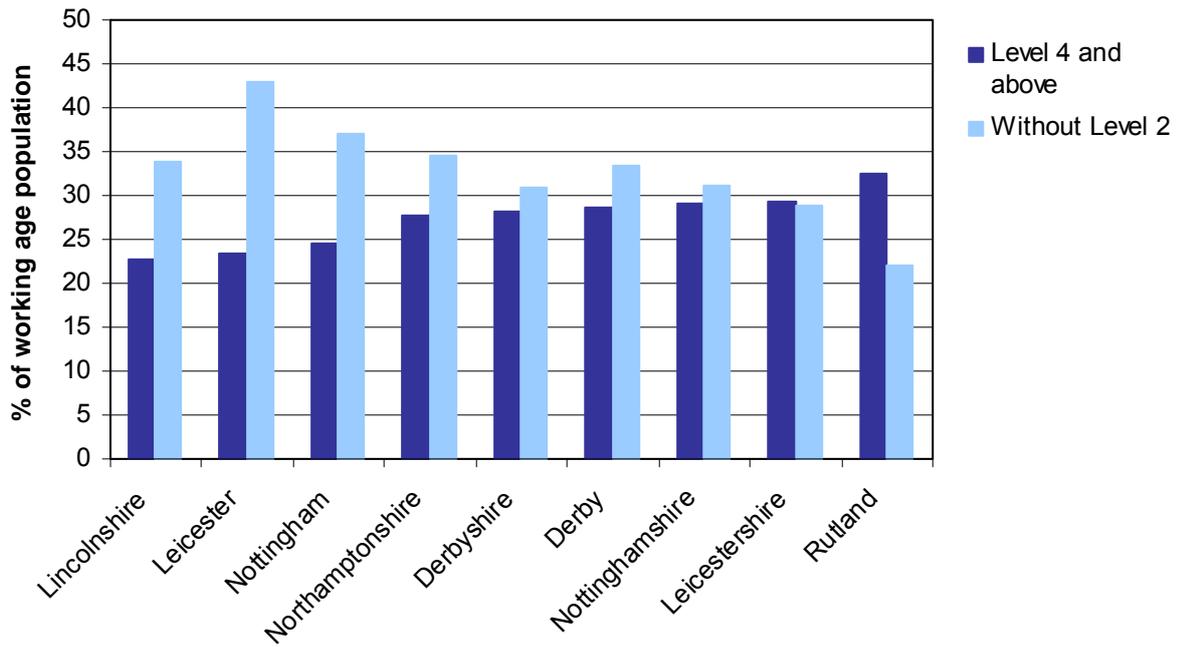
A combination of the low proportion of the workforce qualified to Level 4 and above and a high proportion of the working age population without a Level 2 qualification is concentrated in Lincolnshire, Leicester and Nottingham.

- In 2008, the percentage of the workforce qualified to Level 4 and above was 22.7% in Lincolnshire, 23.4% in Leicester and 24.6% in Nottingham which are lower than the regional average of 27.0%. The proportion of adults qualified to Level 4 and above was the highest Rutland (32.5%), in Leicestershire (29.2%) and Nottinghamshire (29.0%); and
- In 2008, the percentage of workforce without a Level 2 qualification was the highest in Leicester (43.0%) and Nottingham (37.2%), which compares to the regional average of 33.0%. The proportion of adults without a Level 2 qualification was the lowest in Rutland and Leicestershire at 22.0% and 28.8% respectively.

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<sup>55</sup> Gambin Lynn et al., Warwick Institute for Employment Research, University of Warwick, commissioned on behalf of *emda*, 'Exploring the links between skills and Productivity', 2009.  
[http://www.intelligenceeastmidlands.org.uk/index.php?option=com\\_research&task=showReportA&hidemenu=1&id=2239&lead=11&Itemid=29&s=sdate&o=ASC](http://www.intelligenceeastmidlands.org.uk/index.php?option=com_research&task=showReportA&hidemenu=1&id=2239&lead=11&Itemid=29&s=sdate&o=ASC)

**Chart 25: Sub-regional variation in the qualification level of the workforce, 2008 (%)**

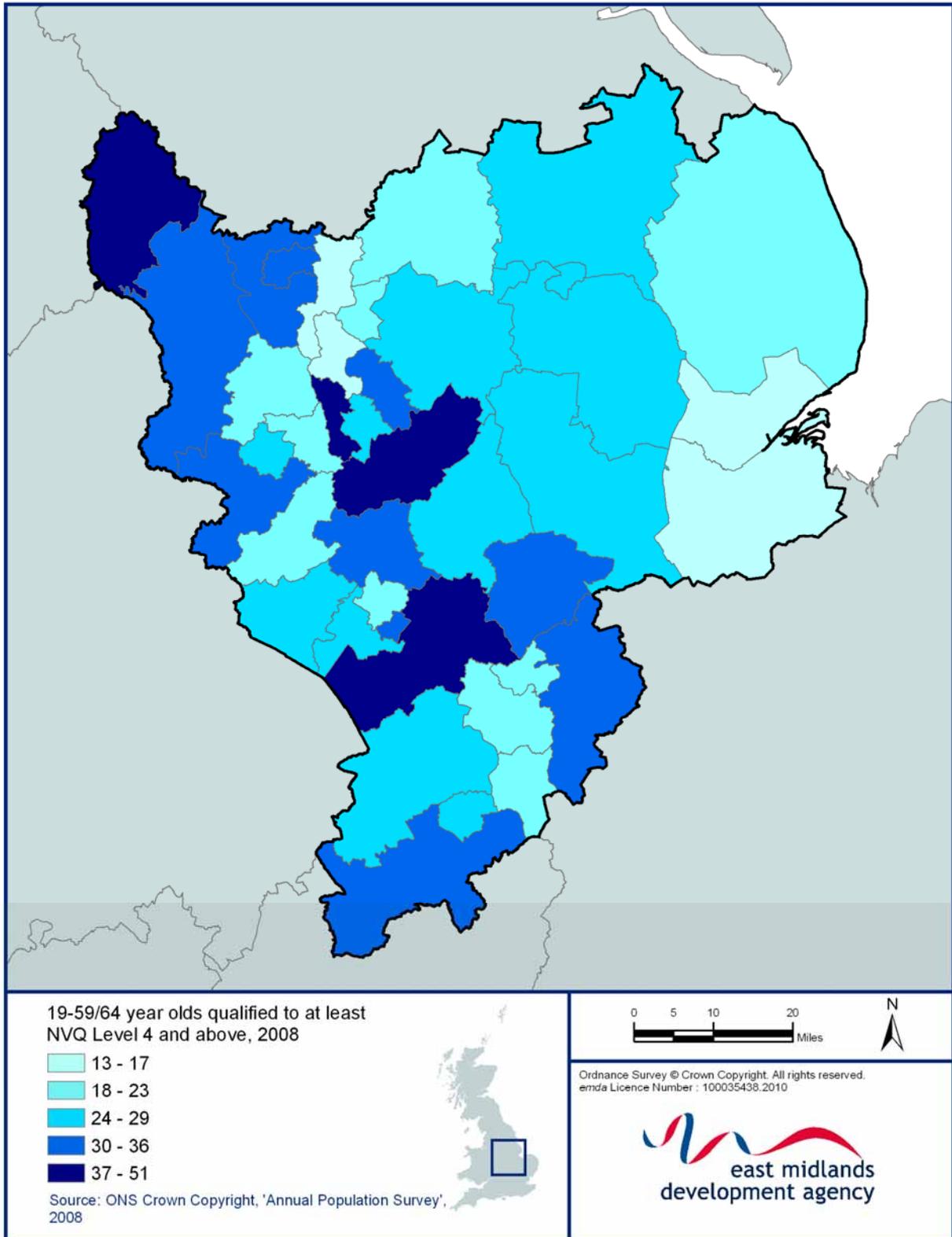


Source: Annual Population Survey 2001-2008.

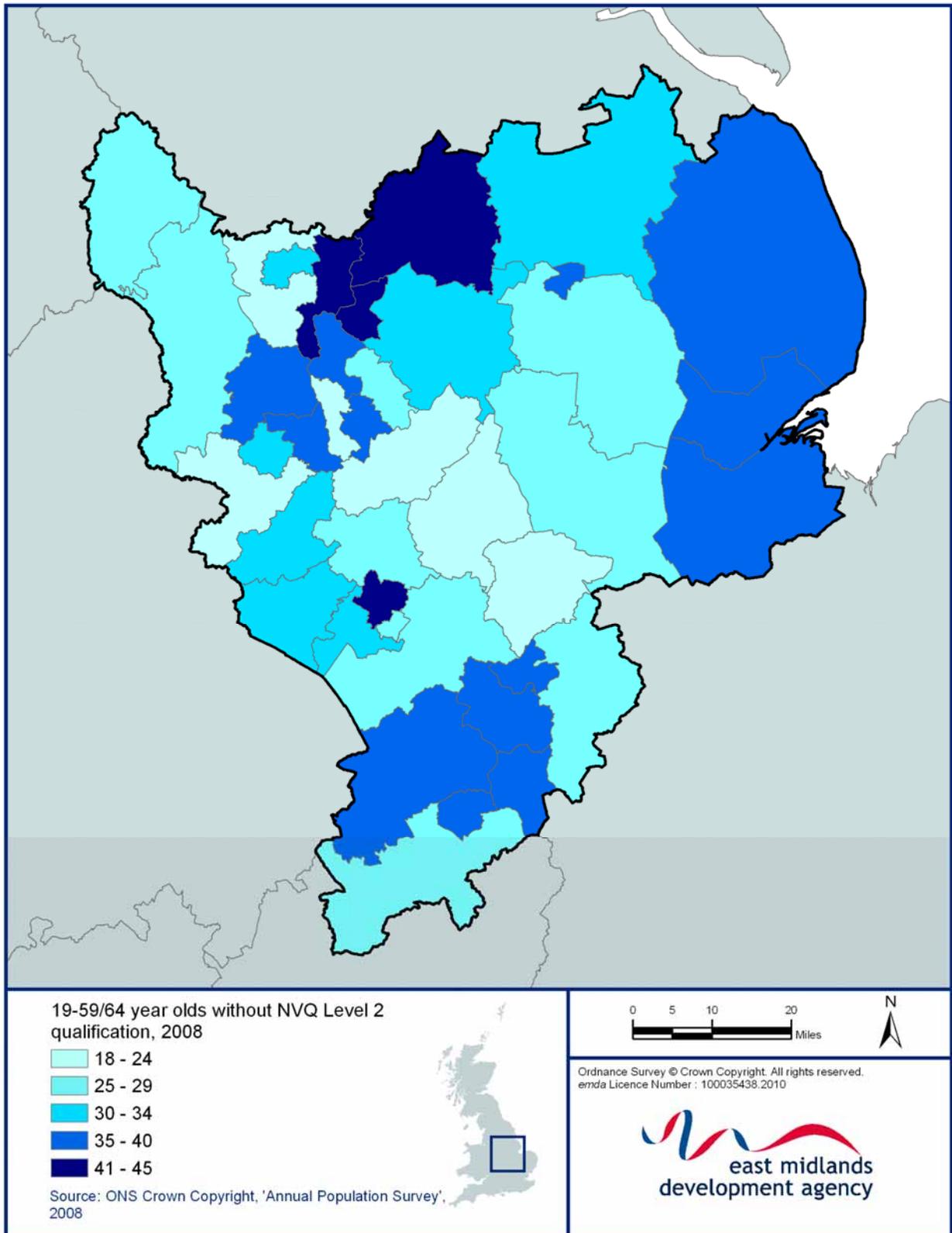
[http://www.thedataservice.org.uk/statistics/sfrdec09/sfr\\_dec09\\_labour\\_force\\_tables.htm](http://www.thedataservice.org.uk/statistics/sfrdec09/sfr_dec09_labour_force_tables.htm)

Note: Without Level 2 qualification is the sum of those with lower than Level 2 and those with no qualification.

**Map 4: Proportion of 19-59/64 year olds qualified to at least NVQ Level 4 and above, 2008**



**Map 5: Proportion of 19-59/64 year olds without NVQ Level 2 qualification, 2008**

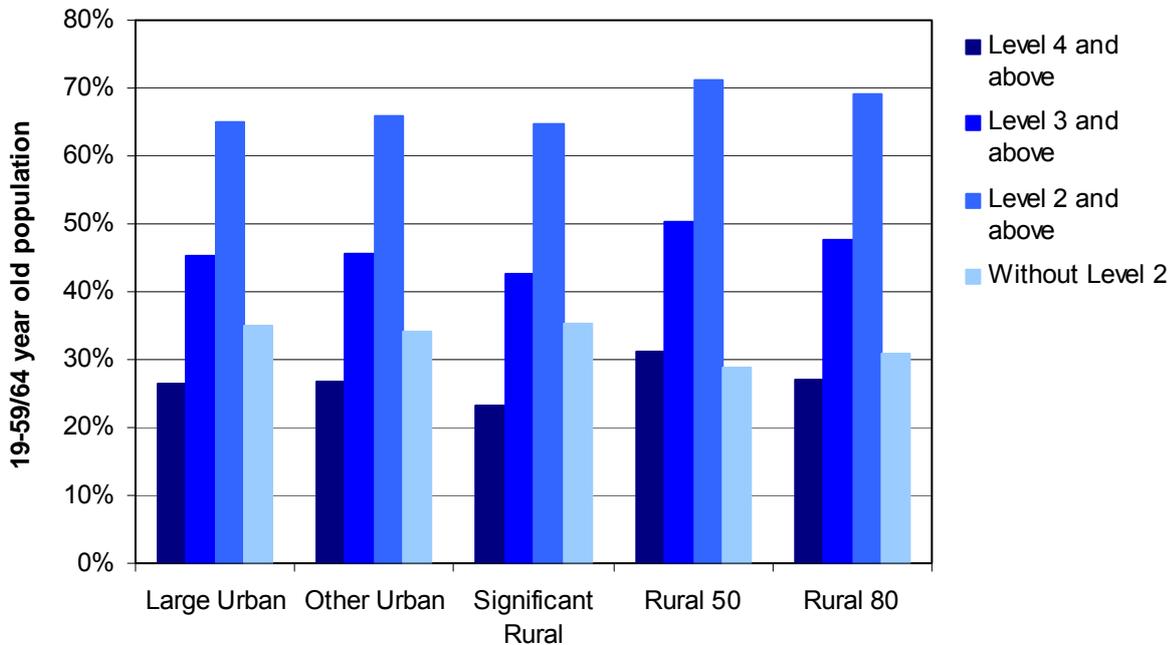


## Urban and rural variations in qualifications

Many individuals in higher paid, higher skilled employment live in rural districts and commute to work elsewhere. Chart 24 shows that on average, Rural 50 districts have a the highest proportion of the workforce qualified to Level 4 and above at 31.2%, compared to the regional average of 27.0%. On average urban districts perform slightly less well on this measure than rural districts. The proportion of those with a Level 4 and above qualification in the Large Urban districts was 26.4% and the proportion of adults qualified to Level 4 and above in Other Urban districts was 26.7%. However, only 23.2% of the adult population of Significant Rural districts are qualified to Level 4 and above in 2008, which is 3.8 percentage points lower than the regional average.

Rural 50 and Rural 80 districts have a lower proportion of the workforce with a qualification below Level 2 at 28.7% and 31.0% respectively compared to the regional average of 33.0%. Significant Rural, Other Urban and Large Urban districts perform less well on this measure.

**Chart 26: Urban and rural variations of workforce qualification, 2008**



Source: Annual Population Survey 2001-2008.

Note: Without Level 2 qualification is the sum of those with lower than Level 2 and those with no qualification.

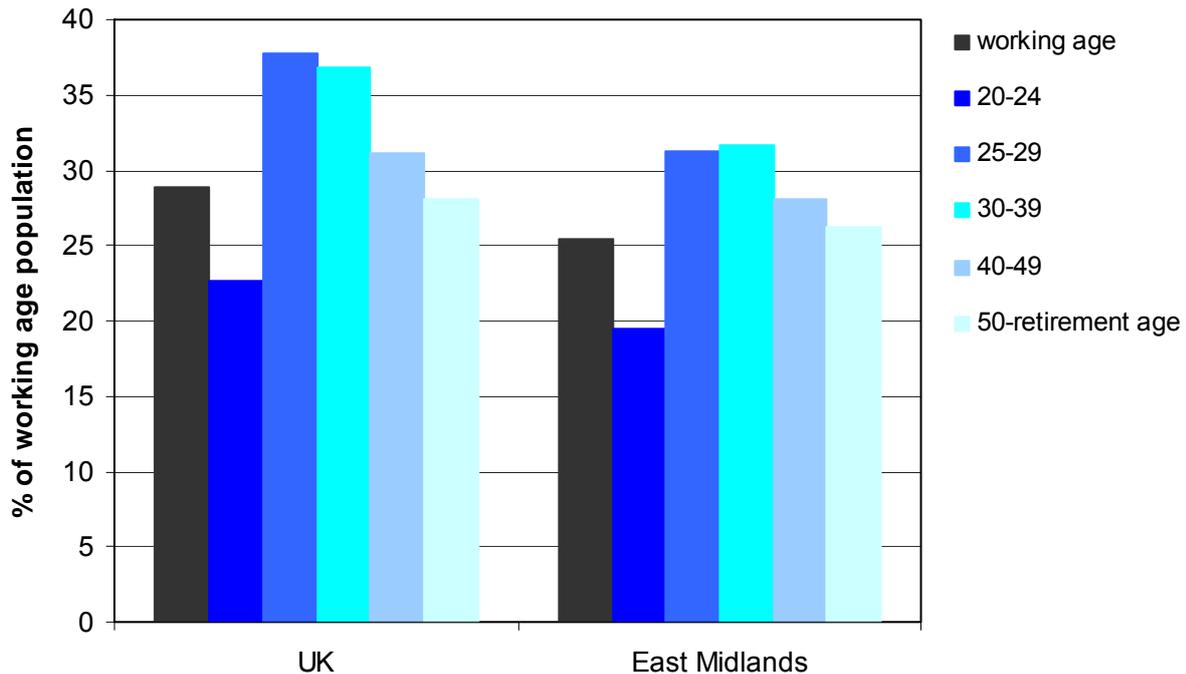
### 4.4.2 Qualification by age group in the East Midlands

Due to improved access to education over the last decade, the general qualification level of younger people tends to be higher than in older age groups. The level of qualifications by age is illustrated by using the latest annual data from the Annual Population Survey for 2008. The definition of working age population used is 16-59/64 year olds, slightly different than the Leitch definition used before because the data is unavailable for the Leitch definition of working age.

Chart 27 shows that both in the region and in the UK, the 25-29 and the 30-39 year old age groups are more highly qualified compared to the other age bands. In the East Midlands 31.3% of 25-29 year olds were qualified to Level 4 and above and 31.6% of 30-39 year olds. This is compared to 28.1% of the region's 40-49 year old population and 26.2% of 50-retirement aged people.

The proportion of the working age population qualified to Level 4 and above is lower in every age group in the East Midlands than in the UK. The gap is highest among 25-29 year olds, a difference of 6.4 percentage points.

**Chart 27: Working age population qualified to Level 4 and above (% by age band), 2008**

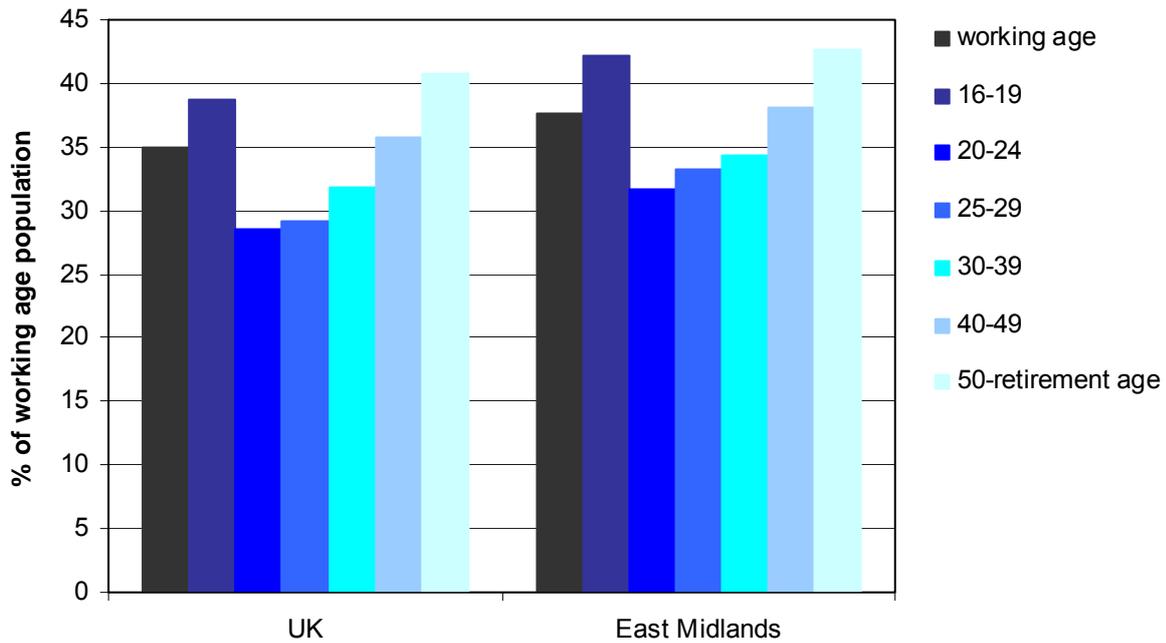


Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.  
 Note: this does not include the 16-19 age band, as the number of individuals in this age group qualified to an equivalent of NVQ4 and above is too small to provide sufficient cell sizes for disaggregation by region.

Chart 28 shows the proportion of the working age population with a qualification below Level 2 by age band. This includes those with no qualification, those with other qualification and those with a NVQ1 qualification.

The proportion of people with a qualification below Level 2 is higher in every age group in the East Midlands than in the UK. The gap is the highest among 25-29 year olds. The proportion of 25-29 year olds with a qualification below Level 2 was 33.2% in the East Midlands and 29.2% in the UK, a difference of 4.0 percentage points.

**Chart 28: Working age population qualified to below Level 2 (% by age band), 2008**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.  
 Note: Below Level 2 qualification includes those without any formal qualification, those with other qualification and those with Level 1 qualification. Because of the definition of 'other qualification' – see definitions of section 6.4 – some overestimation is possible.

#### 4.4.3 Qualifications and employability in the East Midlands

The higher the qualification level, the more employable an individual becomes. Labour market engagement shows a clear pattern by qualification level. Chart 29 shows the employment rates by highest qualification level in the East Midlands and in the UK in 2008.

In terms of changes in the employment rate between 2007 and 2008, the following points can be made:

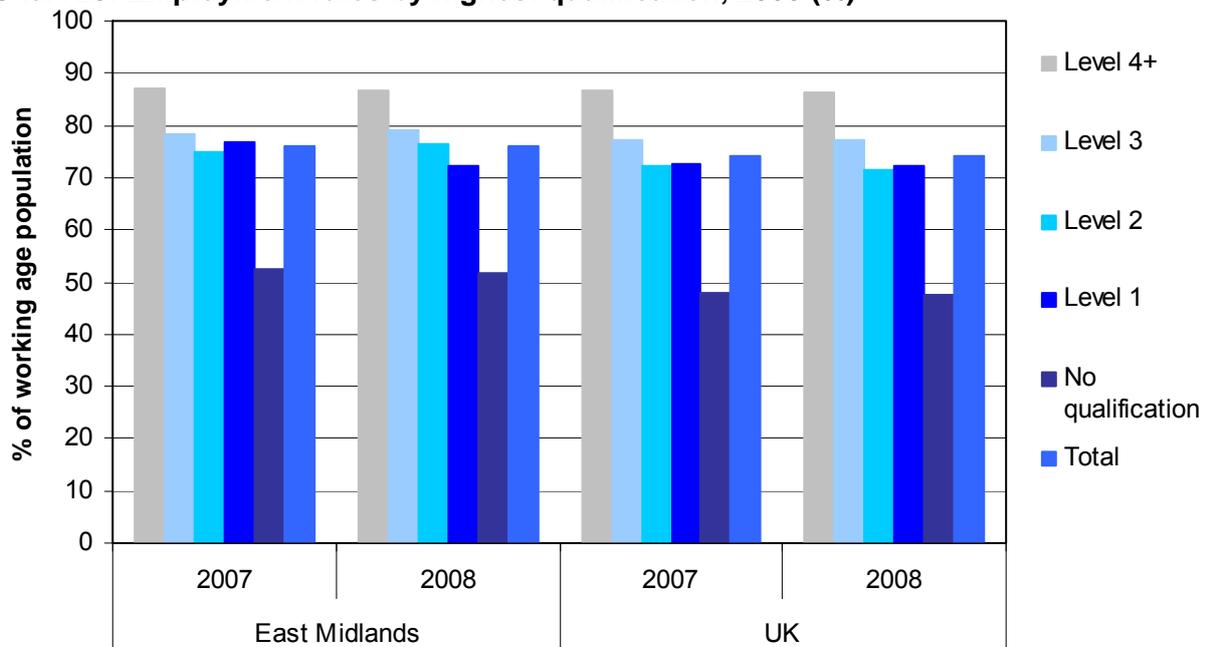
- The employment rate of those with no qualifications is higher in the East Midlands (51.7%) than in the UK (47.4%) confirming that the regional economy has proportionately more jobs in the lower value activities than the national average. The employment rate of the least qualified remained largely the same between 2007 and 2008 both regionally and nationally; and
- Between 2007 and 2008, the employment rate of those with Level 1 as their highest qualification, decreased by 4.7 percentage points in the East Midlands from 77.0% to 72.3%. This is partly related to the job losses concentrated in low skilled occupations and in particular sectors such as manufacturing and construction. These sectors have relatively greater importance in the regional economy as the Economy chapter highlights.

- Between 2007 and 2008, the employment rate of those with Level 2 and Level 3 as their highest qualification increased slightly in the East Midlands, while the employment rate of those with Level 4 and above largely stayed the same.

Chart 29 also shows that although the overall employment rate in 2008 in the East Midlands is slightly higher than in the UK, a Level 4 and above qualification level seems to have less impact on employability in the region than nationally. The employment rate of those with Level 4 and above qualifications was 11 percentage points higher in the East Midlands than the average of all qualification levels. In the UK, the difference was 12.2 percentage points.

Respondents with no qualifications had the lowest employment rates, at 51.7% in the East Midlands and 47.4% in the UK. The employment rate of those with no formal qualification was 24.2 percentage points lower than the average of all qualifications levels in the East Midlands. In the UK, the difference was 26.6 percentage points. Those without any formal qualifications are more likely to be employed in the East Midlands than in the UK.

**Chart 29: Employment rates by highest qualification, 2008 (%)**



Source: Annual Population Survey January-December 2008 Client File, ONS Regional Statistician.

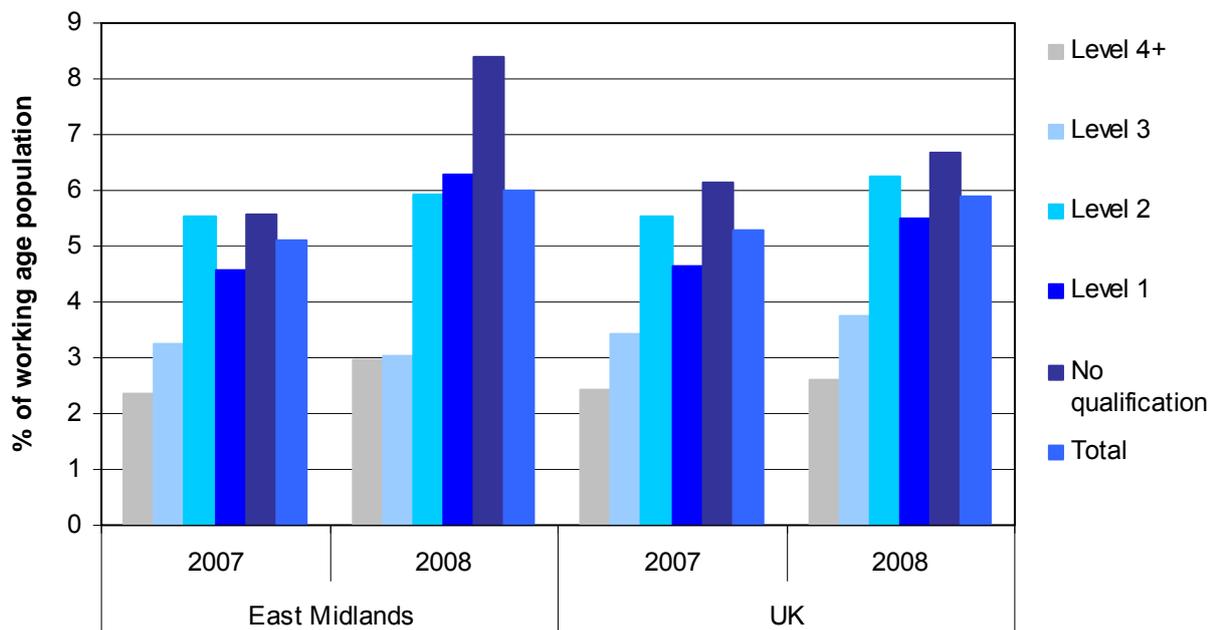
The unemployment rate also shows significant differences by qualification level. As the qualification level of the resident population rises, the proportion of those who are unemployed decreases. In terms of changes in the unemployment rate between 2007 and 2008, the following points can be made:

- Between 2007 and 2008, the unemployment rate increased at every qualification level both in the East Midlands and in the UK, but increased more among those with lower level qualifications. Between 2007 and 2008, the increase in the unemployment rate among those without any qualifications was 2.8 percentage points in the East Midlands, from 5.6% to 8.4%. The unemployment rate for this group increased from 6.1% and 6.7% in the UK, an increase of 0.6 percentage points. Between 2007 and 2008, the unemployment rate for those with Level 1

as their highest qualification increased by 1.7 percentage points in the East Midlands from 4.6% to 6.3%. This is compared to the increase of 0.8 percentage points in the UK.

The unemployment rate of those with a Level 4 and above qualification is the lowest both in the UK and in the East Midlands. This confirms that employees with high qualification are more likely to possess and maintain a position in sustainable employment. In contrast, the risk of those with a Level 4 and above qualification being unemployed is somewhat greater in the East Midlands than the national average. The unemployment rate for those with a Level 4 and above qualification was 3.0% in the East Midlands, compared to 2.6% in the UK in 2008.

**Chart 30: Unemployment rate by highest qualification, 2008 (%)**



Source: Annual Population Survey January-December 2008 Client File, ONS Regional Statistician.

#### 4.4.4 Educational achievement of pupils

One of the recommendations of the Leitch review is to shift the balance of intermediate skills from Level 2 to Level 3. Level 2 qualifications are generally achieved by the age of 15. This sub section provides an overview of the qualification level of pupils aged 15 in the East Midlands and in England in 2008-2009.

Sixteen years old is the official age when a person can leave compulsory education in the UK. However, when the Education and Skills Bill becomes law all young people in England will be required to continue in education or training until their 18th birthday<sup>56</sup>.

<sup>56</sup> The increase in the minimum age at which young people can leave school will be introduced in two steps. The minimum age will increase to 17 from 2013 and to 18 from 2015. The first cohort to benefit from these changes began Year 7 (age 13) in September 2009.  
<http://www.dcsf.gov.uk/14-19/index.cfm?go=site.home&sid=42&pid=344&ctype=TEXT&ptype=Single>

Generally, between 2007-2008 and 2008-2009 the education attainment of pupils show a significant overall improvement across the UK<sup>57</sup>.

Chart 31 shows that in 2008-2009, the proportion of 15 year old pupils achieving five or more GCSEs graded A\*-C was 68.9% in the East Midlands. This was slightly lower, by 1.1 percentage points, than the English average of 70.0%. This overall picture masks significant sub-regional differences:

- Achievement is significantly higher in Lincolnshire and in Rutland compared to the regional or national average. In both counties, more than 73% of 14-16 year old pupils enrolled at the end of Key Stage 4 gained 5 or more A\*-C GCSEs during the 2008-2009 academic year; and
- The lowest proportion of 14-16 year old pupils enrolled at the end of Key Stage 4 achieving five or more A\*-C GCSEs was in Leicester (64.5%), Northamptonshire (66.0%) and Derby (66.6%).

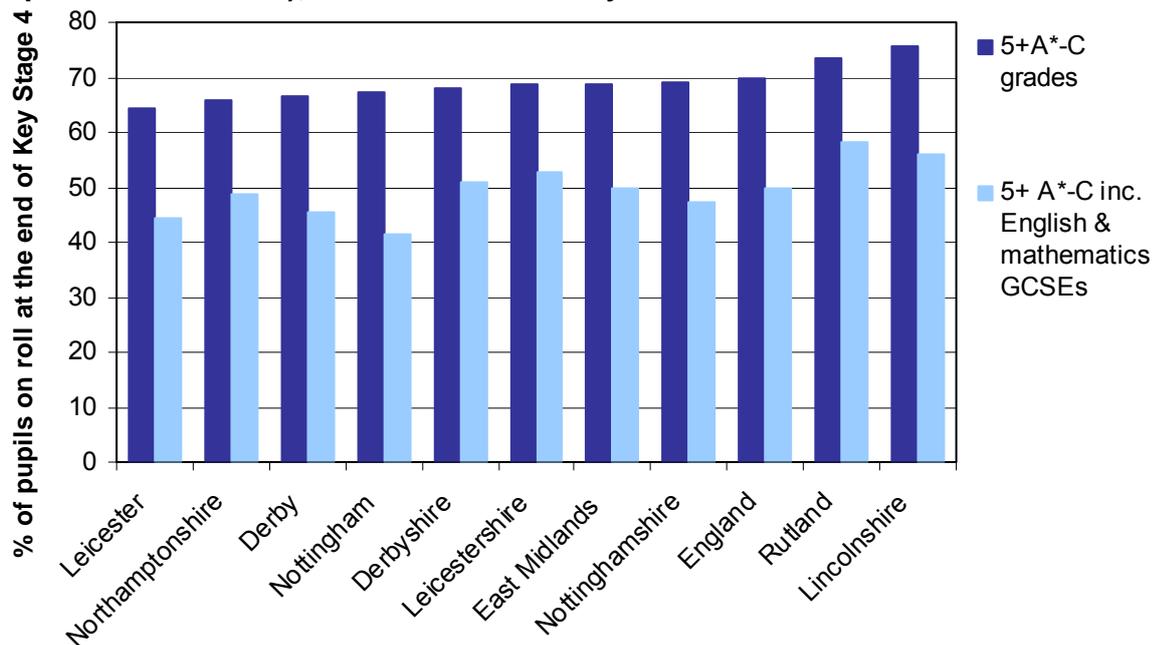
When English and Maths are included, the proportion of pupils achieving five or more A\*-C GCSEs drops significantly. In the East Midlands 49.9% of pupils achieved five or more A\*-C GCSEs including English and Maths during the 2008-2009 academic year. This is almost the same as the English average of 49.8%. Sub-regionally, the following points should be noted:

- 14-16 year old pupils enrolled at the end of Key Stage 4 attending school in Rutland, Lincolnshire and Leicestershire performed the best in the East Midlands, with 58.2%, 56.1% and 52.6% of them achieving five or more A\*-C GCSEs including English and Maths respectively; and
- Only 41.4% of pupils gained five or more A\*-C GCSEs including English and Maths in Nottingham, which is 8.5 percentage points lower than the regional average and 8.4 percentage points lower than the national figure.

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<sup>57</sup> Based on Table 17, Department for Children, Schools and Families, 'GCSE and Equivalent Results in England, 2008/09 (Revised)'.

**Chart 31: Percentage of pupils enrolled at the end of Key Stage 4 achieving five GCSE (equivalent to Level 2), 2008-2009 academic year**



Source: Department for Children, Schools and Families, 'GCSE and Equivalent Results in England, 2008-2009 (Revised)' Table 16.

Note: Denominators is the number of pupils on roll at the end of Key Stage 4 in the 2008-2009 academic year, 14-16 year olds.

#### 4.4.5 Young labour market entrants

The skills level, competence and personal features, such as motivation and work ethic, are essential factors for doing a job well and performing effectively in a working environment. These attributes are also important for later career progression.

The National Employers Skills Survey 2007 interviews employers about their recruitment of young people entering the labour market. Young labour market entrants are 16 year old school leavers, 17-18 year old college leavers and university leavers aged between 21 and 23. These questions cover issues around whether employers recruit anyone from these three groups and whether these young people were seen as unprepared or not<sup>58</sup>.

The pattern of recruitment practices of young labour market entrants seems to be similar both regionally and nationally. In addition, the recruitment level has stayed broadly stable over the two years prior to the survey both in the East Midlands and in England.

In 2007 employers who recruited young people from any of these three groups in the East Midlands were more satisfied with their general preparedness for work<sup>59</sup>. The proportion of those employers who think that the preparedness of young labour market entrants aged 16 was poor or very poor was 23% in the East Midlands and 28% in

<sup>58</sup> BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands'.

<sup>59</sup> Preparedness covers not just tangible attributes of general and specific skills and knowledge but more intangible personal features such as motivation or discipline.

England. The corresponding figure for 17 and 18 year olds are 16% and 21%, and for graduate labour market entrants, 9% and 11%<sup>60</sup>.

There is little variation in the recruitment of young people sub-regionally. However, there are some differences by sector:

- Graduate recruitment tends to be higher in financial services and in the public sector; and
- Recruitment of 16 year olds and 17-18 year olds is high in retail and hospitality which suggests that employers in these sectors tend to hire young labour market entrants for casual and part-time positions.

In terms of recruitment by size of establishment, very small businesses, with 2-4 employees, are less likely to hire young labour market entrants. This suggests that young labour market entrants are not seen by small businesses as a solution to recruitment problems<sup>61</sup>.

Students in Higher Education Institutions 2007-2008<sup>62</sup> reports that there was a total of 149,000 students in the East Midlands in 2007-2008. Of these 33,600 were postgraduates<sup>63</sup>, 93,200 undergraduates and 22,200 other undergraduates.

Only 45.6% of those students who obtained their qualification in the East Midlands stay in the region and enter the regional labour market. This proportion is the lowest among the English regions. The retention rate is the highest in London and in the North West at 71.6% and 73.6% respectively.

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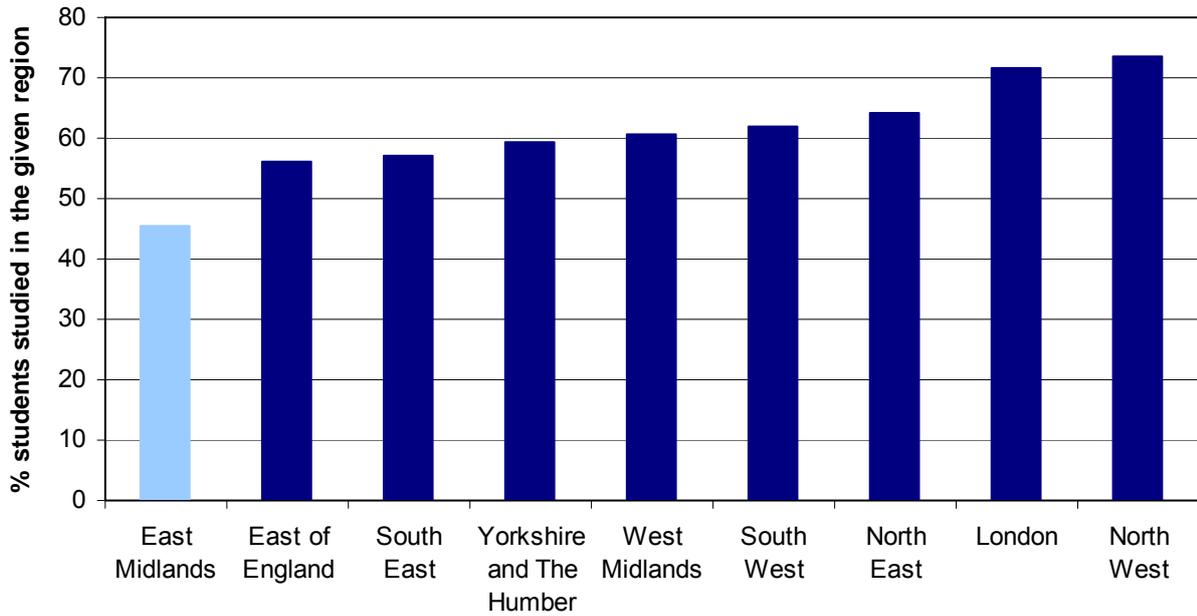
<sup>60</sup> BMG Research on behalf of the Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands'.

<sup>61</sup> BMG Research on behalf of the Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands'.

<sup>62</sup> Higher Education Statistics Agency, 'Students in Higher Education Institutions 2007-2008'. 2009, Table 8.

<sup>63</sup> Students cover postgraduates, first degree students and other undergraduates. Postgraduate qualifications are those courses which leading to higher degrees, diplomas and certificates which usually requires a first degree as an entry qualification. First degrees are qualifications with degree. Other undergraduate qualifications are those qualifications which aim equivalent to and below first degree level, such as foundation degrees and all other higher education qualifications not included above. Open University is excluded. For more details see Higher Education Statistics Agency, 'Students in Higher Education Institutions 2007-2008', 2009.

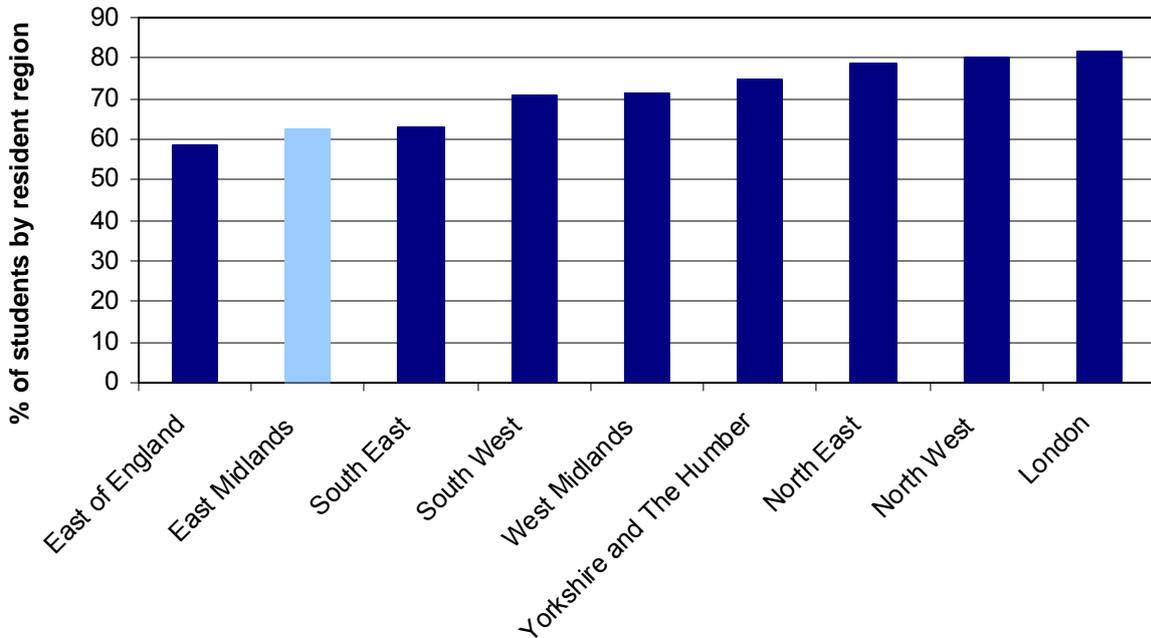
**Chart 32: Proportion of students by regions who took up employment in the same region where they studied, 2007-2008 (%)**



Source: Higher Education Statistics Agency, 'Destination of Leavers from Higher Education Institutions 2007/2008'. Table 7b.

Just over 62.0% of East Midlands residents find a job in the East Midlands after graduation, regardless of the region where they gained their qualification. This proportion is the third lowest among English regions.

**Chart 33: Proportion of students by residency who took up employment in their resident region, 2007-2008 (%)**



Source: Higher Education Statistics Agency, 'Destination of Leavers from Higher Education Institutions 2007/08'. Table 7a.

Although, graduate retention is relatively low in the region, some graduates may return to the region at a later stage in their career and therefore, the challenge is to make the East Midlands attractive for them to do so.

### **Key Points: Supply of skills**

- The East Midlands was ranked the fourth lowest of the nine English regions in terms of the proportion of adult population qualified to Level 4 and above in 2008.
- There has been a greater than average increase of the proportion of the East Midlands population with a Level 4 and above qualification between 2001 and 2008.
- Although the proportion of those without Level 2 qualifications was higher in the East Midlands than in England, the decrease in the proportion of the adult population without a Level 2 qualification was more significant than the national average between 2001 and 2008.
- Individuals living in rural areas are more likely to have a Level 4 and above qualification. Urban residents tend to have lower qualifications.
- Due to wider access to education in the last decade the general qualification level of younger people tends to be higher than in older age groups.
- The proportion of 15 year old pupils achieving five or more GCSEs graded A\*-C was only slightly lower in the region than the national average. When English and Maths is included, the region performs similar to the national average.
- Although, the overall employment rate in the East Midlands is higher than in the UK, higher qualifications seem to have less impact on employability in the region than nationally. In addition, those without any formal qualifications are more likely to be employed in the East Midlands than in the UK.
- Recruitment practices of employers in relation to young labour market entrants seem to be broadly similar regionally and nationally.
- In terms of recruitment by size of establishment, there is a clear pattern that very small businesses with 2-4 employees are less likely to hire young labour market entrants in the East Midlands.
- Less than half of those students who obtained their qualification in the East Midlands stay in the region and enter the regional labour market. This proportion is the lowest among the English regions.

## 4.5 Demand for skills

Although the scale of the upskilling of the East Midlands workforce is significant, the demand for these higher level skills seems to be lagging behind the increased supply. The proportion of those who reported that their highest qualification was above that required for the job they do ('over-qualified' individuals) in the East Midlands was 39.1% in 2006<sup>64</sup>. This represents a rise of 7.4 percentage points from the figure reported in 1997 when 31.7% reported being 'over-qualified'. In England, 'over-qualification' also rose by around eight percentage points over the same period from 31.4% to 39.4%.

The demand for skills is a derived demand. It depends upon the nature of the product or service that a business supplies to its customer. This sub-section provides measures of employer demand for skills such as 'knowledge intensity' of employment and the skills gaps among current staff. The provision of and participation in training is also assessed.

### 4.5.1 The knowledge intensity of employment in the East Midlands

The 'knowledge intensity' of employment in the region is a measure of the demand for higher skill levels. It is measured as the proportion of total employment in four classifications of sectors: K1 sectors, which are all sectors with more than 40% of their workforce qualified to graduate level (equivalent to Level 4 and above); K2 sectors, which have between 25% and 40% of their workforce qualified to graduate level; K3 sectors, which have between 15% and 25% of their workforce qualified to graduate level; and K4 sectors, which have less than 15% of their workforce qualified to graduate level<sup>65</sup>.

Due to technological developments and changes in working practices over the past decade, the shift from industrialised to knowledge industries has been a general trend in developed economies. If the East Midlands is to remain competitive, growth in knowledge intensive industries is essential.

Chart 34 shows that there has been a reduction in the proportion of the workforce employed in the **least** knowledge intensive (K4) sectors both regionally and nationally between 2006 and 2008. In the East Midlands the proportion of the workforce in the least knowledge intensive sectors has decreased by 7.0 percentage points (from 30.7% to 23.7%). In the UK, the proportion of the workforce in K4 sectors has decreased by 14.1 percentage points (from 29.4% to 15.3%). However, it must be noted, that due to the sample size in the Annual Population Survey, which was used for this calculation, tend to be more volatile at regional level.

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<sup>64</sup> Alan Felstead and Francis Green on behalf of *emda*, 'Skills at Work in the East Midlands, 1997 to 2006'. 2007.

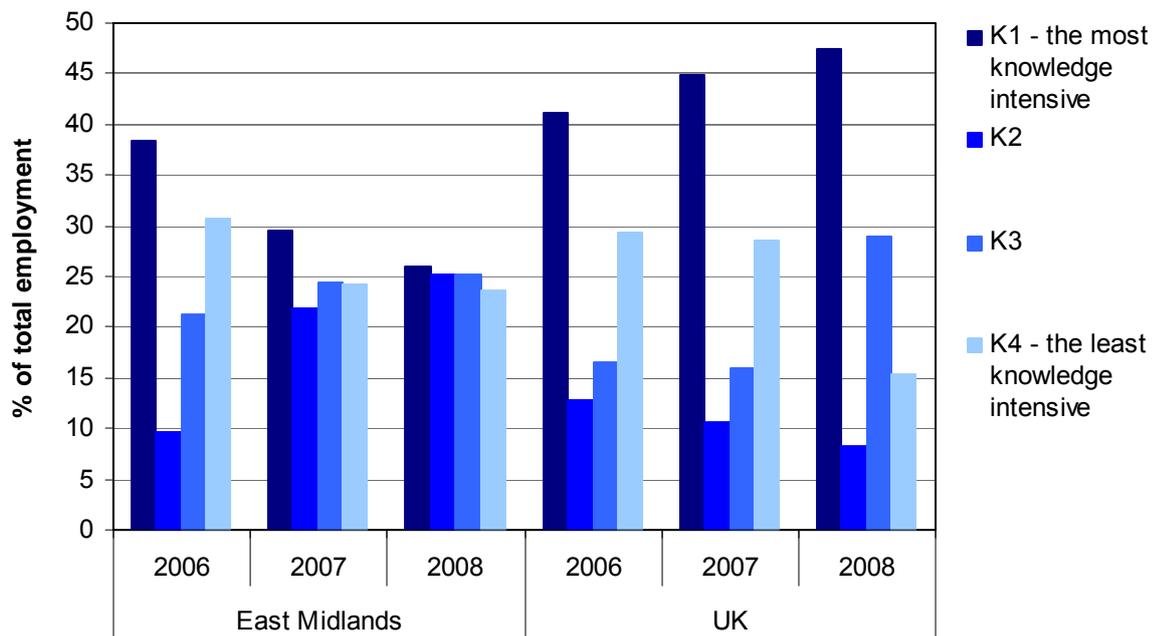
[http://www.intelligenceeastmidlands.org.uk/index2.php?option=com\\_docman&task=doc\\_view&gid=380&Itemid=99999999](http://www.intelligenceeastmidlands.org.uk/index2.php?option=com_docman&task=doc_view&gid=380&Itemid=99999999)

<sup>65</sup> This methodology was proposed by the European Commission in the 2000 edition of 'Employment in Europe', and has since been widely used in the UK for comparing the relative knowledge intensity of regional employment. *emda*, 'Regional Economic Strategy for the East Midlands 2006-2009 – 'A Flourishing Region': Technical Paper Number 1 – Measuring Progress Towards RES Objectives', July 2006.

There has also been a reduction in the proportion of the workforce employed in the **most** knowledge intensive sectors (K1) in the East Midlands compared to an increase in the UK. Between 2006 and 2008, in the East Midlands the proportion of the workforce in the most knowledge intensive sectors has decreased by 12.5 percentage points from 38.4% to 25.9%, while the proportion of the workforce in these sectors has increased by 6.2 percentage points in the UK from 41.2% to 47.4%.

In the East Midlands there has been a corresponding increase in the proportion of the workforce employed in the K2 and the K3 sectors between 2006 and 2008.

**Chart 34: Proportion of employment in different knowledge intensive sectors 2006-2008 (%)**



Source: ONS Crown Copyright, 'Annual Population Survey', 2006-2008, data provided by Office for National Statistics.

#### 4.5.2 Skills gaps within the existing workforce

Skills gaps refer to the extent to which employers perceive their employees as not being fully proficient to undertake their job.

This section is built on evidence collected by the Learning and Skills Council from employers about existing skills issues and other recruitment problems. By using data from the employer's point of view we can complement and in some cases, contrast the employees' and the employers' perception about skills issues in the region.

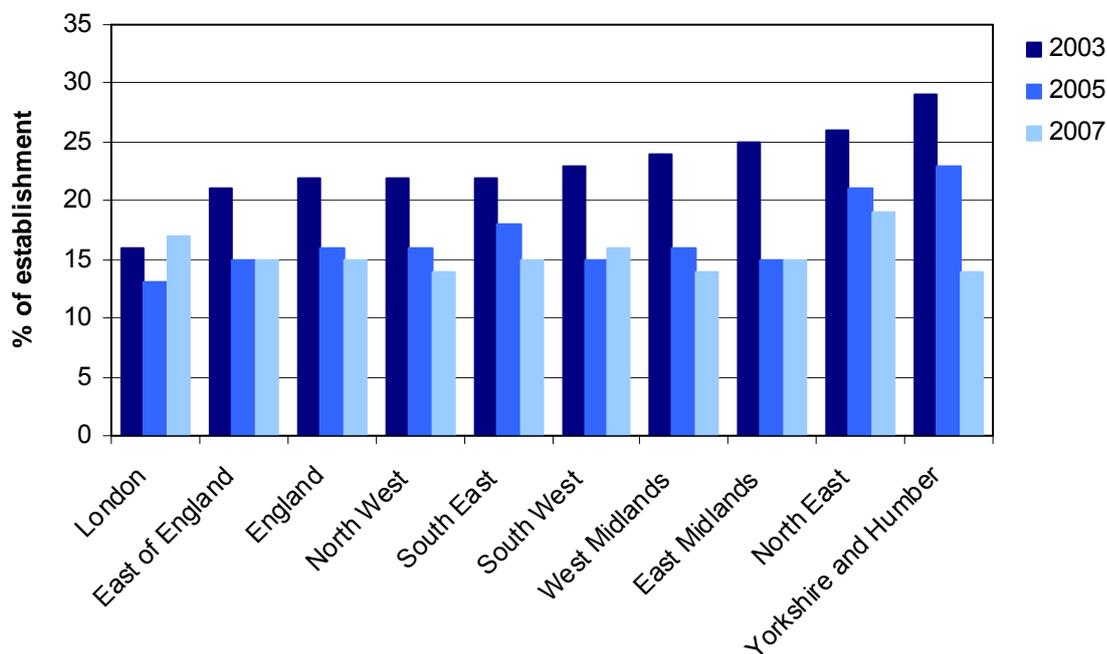
The national findings from NESS 2009<sup>66</sup> show that the proportion of establishments reporting skills gaps has risen from 15% in 2007 to 19% in 2009 in England. This can

<sup>66</sup> UK Commission for Employment and Skills, 'National Employer Skills Survey for England 2009: Key findings report' [http://www.ukces.org.uk/upload/pdf/NESS%20Key%20findings%202009\\_2.pdf](http://www.ukces.org.uk/upload/pdf/NESS%20Key%20findings%202009_2.pdf)

be related to the fact that due to the recession, companies controlled their costs by decreasing their headcount. As a result, the workload of remaining staff can increase meaning that they appear to be less able to fully perform in their role – as they may not have the required skills.

There was broad stability in the level of skills gaps reported in the regional and national economy between 2005 and 2007 after a sharp fall between 2003 and 2005. In the East Midlands 15% of establishments reported skills gaps in 2007 (the same as in 2005) compared to 25% in 2003. This is a 10 percentage point fall between 2003 and 2007, which is greater than the national fall of 7 percentage points over the same period. In Yorkshire and the Humber the proportion of skills gaps decreased the most among all English regions by 15 percentage points.

**Chart 35: Proportion of establishments with skills gaps (%)**

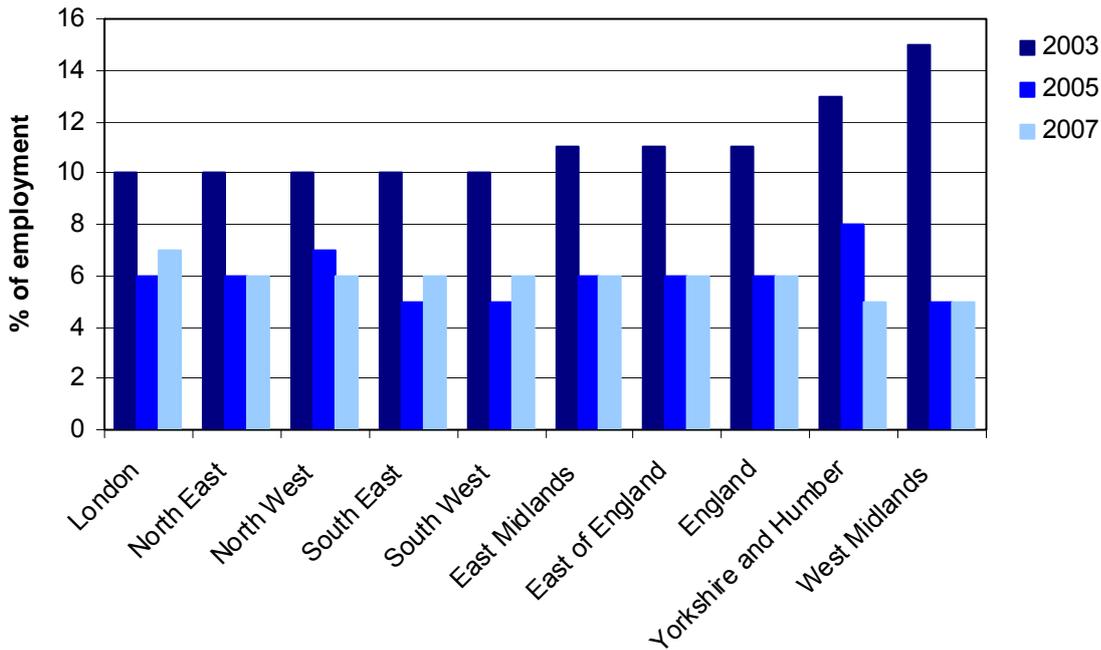


Source: BMG Research on behalf of the Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands'.

Chart 36 shows that skills gaps in the East Midlands affected around 6% of jobs in 2007, 5 percentage points lower than in 2003 and similar to the average for England. In 2007 there were around 114,700 people not seen as fully proficient by their managers in the East Midlands. In the West Midlands the percentage of skills gaps has fallen by 10 percentage points between 2003 and 2007, the largest fall among all English regions.

The reasons for this trend are not obvious, but it is possible that education and training provision and increased in-migration may have contributed to the fall in skills gaps in all the English regions. However, because of the recession cuts have been imposed on training budgets which may have negative impacts on skills gaps.

**Chart 36: Skills gaps as a proportion of employment (%)**



Source: BMG Research on behalf of the Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands'.

In terms of sectors, skills gaps both in absolute and in relative terms tend to be concentrated in hospitality (16% of employers with skills gaps) and retail (17%), engineering (18%) and construction (more than 14%). Skills gaps in engineering are more related to higher level skills. Generally skills gaps are most common with workers who perform quite routine tasks, such as sales and elementary occupations<sup>67</sup>. Larger employers are more likely to have skills gaps, largely because they employ more people and the chance of having an employee who is not fully proficient is higher.

Employees are perceived to lack a mix of skills. Broadly, one group comprises a range of 'technical, practical or job specific skills' such as customer-handling skills, IT skills etc. A second group covers 'generic skills' such as, problem solving, team working, oral and written communication skills which are essential in any kind of job. The data suggests that:

- 54% of employees lack technical, practical or job specific skills;
- 31% lack team working skills;
- 28% lack customer handling skills;
- 24% lack oral communication skills; and
- 23% lack management skills.

<sup>67</sup> BMG Research on behalf of The Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands'

One of the instruments to address skills gaps is to provide training to develop the skills needed by the economy. The next section will examine training provision and participation in the East Midlands.

#### 4.5.3 Training provision and training participation

The 2006 Skills Survey identified the training time for the type of work individuals carry out and the learning time needed to do jobs well<sup>68</sup>. The summary measures of training and learning times are shown in Table 5.

In the East Midlands 58.6% of jobs were reported as requiring less than three months' training time, while a quarter (25.8%) reported training times of over two years. This is compared to the national figures of 56.1% and 29.3%. The training index is slightly lower in the region than in Great Britain (see note of the table for the definition of training index).

Learning time shows that some jobs took a long time to do well, while others were picked up relatively quickly. In the East Midlands 28.8% of jobs could only be done well after spending more than two years in post, but around a fifth (20.1%) could be learnt in under a month. This is compared to the national figures of 24.9% and 19.5% respectively. Overall, the learning index is slightly higher in the East Midlands than in Great Britain (see note of the table for the definition of the learning index).

On the basis of this data it appears that the level of skills exercised in jobs in the East Midlands is not significantly different to skills level of jobs in Great Britain.

**Table 5: Training and learning time required to do the given job well, East Midlands and Great Britain, 2006 (% of jobs reported by jobholders)**

	East Midlands	Great Britain
Training Time		
> 2 years	25.8	29.3
< 3 months	58.6	56.1
Training Index	2.37	2.56
Learning Time		
> 2 years	28.8	24.9
< 1 month	20.1	19.5
Learning Time Index	3.69	3.59

Source: Alan Felstead and Francis Green on behalf of *emda*, 'Skills at Work in the East Midlands, 1997 to 2006' 2007, page 38, Table 3.1.

Figures for Britain are from 'Skills at Work, 1986 to 2006' National Report, page 37, Table 3.1.

Notes: Training time is defined as 'Since completing full time education, have you ever had, or are you currently undertaking, training for the type of work that you currently do? Respondents answering 'yes' were then asked: 'How long, in total, did (or will) that training last?' A range of options was given.

Training Time Index was calculated from the responses: none=0; less than 1 month=1; 1-3 months=2; 3-6 months=3; 6-12 months=4; 1-2 years=5; and over 2 years=6.

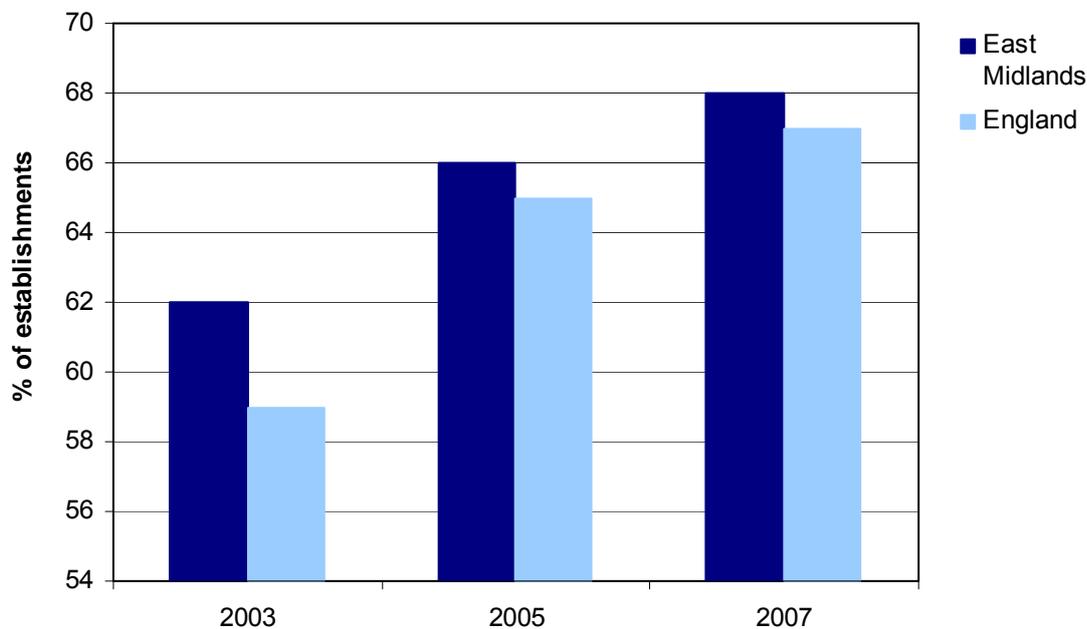
<sup>68</sup> Alan Felstead and Francis Green on behalf of *emda*, 'Skills at Work in the East Midlands, 1997 to 2006' 2007.

Learning time is defined as 'How long did it take for you after you first started doing this type of job to learn to do it well?'. The Learning Time Index was calculated from the responses: less than 1 month=1; less than 3 months=2; 3-6 months=3; 6-12 months=4; 1-2 years=5; and over 2 years=6.

There is a comprehensive literature about the relationship between investment in training and the growth potential of businesses. However, it is important to note, that training per se does not improve economic performance as skills development strategies have to be supplemented by efficient human resource management practices i.e. skills need to be deployed effectively<sup>69</sup>.

Chart 37 shows a positive trend in establishments providing training for their staff, both in the East Midlands and across England. The data shows a strong growth in the proportion of training provision between 2003 and 2005 followed by slower growth between 2005 and 2007. In 2007 68% of employers in the region provided training for their staff, 6 percentage points higher than in 2003. In 2007 67% of employers across England provided training to their staff, 8 percentage points higher than in 2003.

**Chart 37: Proportion of establishments providing training in past year (%)**



Source: BMG Research on behalf of the Learning and Skills Council in the East Midlands, 'National Employers Skills Survey 2007: report of results for the East Midlands' Page 83, Table 49.

NESS 2009 national findings<sup>70</sup> also show that between 2007 and 2009 there was no significant difference in the proportion of employers providing any training or development to their staff in England. In 2007, 67% of employers provided training over the last 12 months compared to 68% reported in 2009. However, on balance, among firms that have trained any staff in the last 12 months, a larger proportion report that they train less or have spent less as a result of the recession.

Data on participation in training is available from the Annual Population Survey.

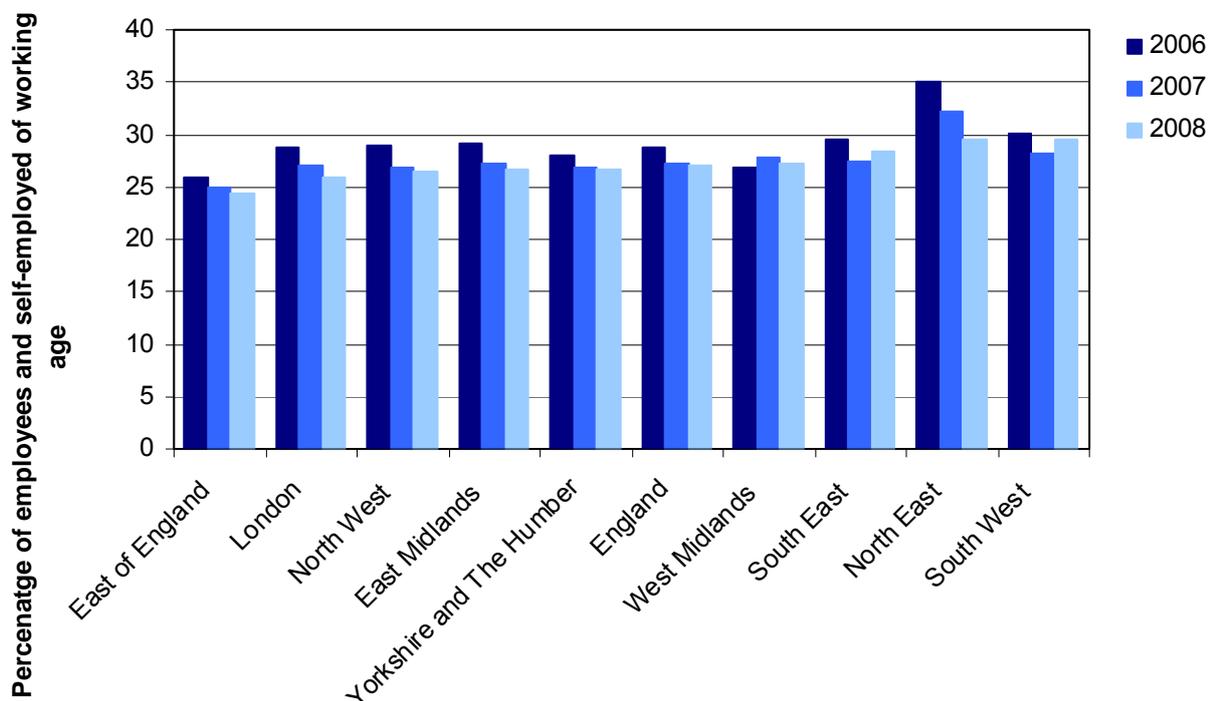
<sup>69</sup> Gambin Lynn et al, Warwick Institute for Employment Research, University of Warwick, commissioned on behalf of *emda*, 'Exploring the links between skills and Productivity', 2009.

<sup>70</sup> UK Commission for Employment and Skills, 'National Employer Skills Survey for England 2009: Key findings report' [http://www.ukces.org.uk/upload/pdf/NESS%20Key%20findings%202009\\_2.pdf](http://www.ukces.org.uk/upload/pdf/NESS%20Key%20findings%202009_2.pdf)

Chart 38 shows that in 2008 in the East Midlands 26.6% of employees and self-employed people participated in training during the last 13 weeks, which is very similar to the national average of 27.0%. In 2008, in the South West and the North East 29.5% of employees and self-employed received job related training in last 13 weeks prior to the survey. In the East of England and in London the proportion of employees and self-employed undertaking any training was somewhat lower than the national average in 2008.

Chart 38 also shows that in most regions, training participation of employees and self-employed people in 2008 was lower than in 2006 or in 2007.

**Chart 38: Proportion of those who received job related training in last 13 wks – employees and self-employed of working age**



Source: ONS Crown Copyright, 'Annual Population Survey', via NOMIS.

The national findings from NESS 2009<sup>71</sup> show that in 2009, 12.8 million workers participated in training over the previous 12 months which is equivalent to 56% of the workforce in England. By comparison, in 2007, 14.0 million workers had been trained over the previous 12 months, which is equivalent to 63% of all workers in England. Between 2007 and 2009, the decrease in the proportion of workforce trained is significant.

<sup>71</sup> Ibid.

Table 6 shows differences in training participation by socio-economic group in the East Midlands and in England in 2008. The major patterns in training provision by socio-economic group are similar in both the East Midlands and in England:

- Women are more likely to participate in training than men;
- The higher the qualification level the greater the training participation rate, which suggests a widening knowledge divide between the more and less qualified;
- Part-time workers are less likely to participate in training compared to their full-time counterparts; and
- Employees in the public sector are significantly more likely to participate in training.

**Table 6: Proportion of those who received job related training in last 13 wks – employees and self-employed of working age by characteristics, 2008**

East	Midlands	England
Male	23.9%	23.9%
Female	30.0%	30.9%
Level 4 and above	37.7%	36.7%
Managers and senior officials	33.1%	33.6%
Public sector	43.4%	43.0%
Production	19.6%	19.9%
Service industries	29.6%	29.4%
Private services	21.2%	21.8%
Full-time	27.4%	27.6%
Part-time	24.3%	25.3%
Total	26.6%	27.0%

Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, via NOMIS.

**Key Points: Demand for skills**

- The education system has been successful in increasing the qualification level of the regional workforce. However, the demand for skills has not kept pace with this increased supply. Almost 40% of East Midlands' employees reported that their highest qualification was above that required for the job they do. This is similar to the English average.
- There has been a reduction in the proportion of the workforce employed in the least knowledge intensive (K4) sectors both regionally and nationally between 2006 and 2008.
- Between 2006 and 2008 there has also been a reduction in the proportion of the workforce employed in the most knowledge intensive sectors in the East Midlands compared to an increase in the UK. However, data tend to be more volatile at regional level.
- In the East Midlands 15% of establishments reported skills gaps in 2007, compared to 25% in 2003.
- In terms of sectors, skills gaps tend to be concentrated in hospitality (16% of employers with skills gaps) retail (17%), engineering (18%) and construction (more than 14%).
- The data shows a strong growth, both nationally and regionally, in the proportion of establishments providing training between 2003 and 2005, followed by a slower growth between 2005 and 2007.
- However, data also shows that in most regions, training participation of employees and self-employed people in 2008 was lower than in 2006 or in 2007.
- The higher the qualification level the greater the training participation rate, which suggests a widening knowledge divide between the more and less qualified.

## 4.6 Occupational structure

The term 'occupation' describes what individuals do in their work place. The two main concepts on which major occupational groups are defined are the type of job and the skills required by the given job.

Recent changes in the occupational structure of developed economies can be related to the decline of primary and manufacturing industries and a shift of the workforce towards services and an increase in management activities. This latter point is related to the fundamental changes in the way the production of goods and services are organised in developed economies.

These changes obviously have an impact on the skill requirements across occupations. There are different opinions about whether technological changes have increased or decreased the required skills level of different occupations. However, overall, it can be concluded that the way goods and services are produced in developed economies has pushed the demand for skills upwards.

### 4.6.1 Current occupational structure of the East Midlands

Chart 37 shows the occupational structure of employment in the East Midlands. It is useful to think in terms of three broad groups: upper tier occupations, intermediate occupations and lower tier occupations. This shows that there are relatively fewer employees in upper tier occupations in the East Midlands compared to the UK.

#### Upper tier occupations

Upper tier occupations are managers and senior officials<sup>72</sup>, professional occupations<sup>73</sup> and associate professional and technical occupations<sup>74</sup>. The proportion of those in employment who work in upper tier occupations was 39.1% in the East Midlands, 3.9 percentage points below the UK figure of 43.0% in 2008.

- Managers and senior officials account for 15.5% of both regional and national employment.

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<sup>72</sup> Managers and senior officials describes jobs with greater responsibilities and management skills to coordinate an organisation or business such as senior officials, directors. Office for National Statistics, 'Standard Occupational Classification 2000', <http://www.ons.gov.uk/about-statistics/classifications/current/SOC2000/>

<sup>73</sup> Professional occupations describes jobs requiring a degree or equivalent, such as physiotherapists, laboratory technicians, engineering technicians. Office for National Statistics, 'Standard Occupational Classification 2000'.

<sup>74</sup> Associate professionals describes jobs often requiring a high level of vocational qualification, such as legal associate professionals, brokers, graphic designers. Office for National Statistics, 'Standard Occupational Classification 2000'.

- Professional occupations are also under-represented in the East Midlands labour market compared to the UK accounting for 11.3% and 13.0% of employment respectively.
- The difference between the East Midlands and the UK is more significant for associate professional occupations which makes up 12.3% of regional employment, 2.2 percentage points less than in the UK.

### Intermediate occupations

Intermediate occupations are administrative and secretarial<sup>75</sup>, skilled trades<sup>76</sup>, personal service and sales and customer service occupations<sup>77</sup>. The proportion of those in employment who work in intermediate tier occupations was similar in the East Midlands and the UK at 38.9% and 38.1% respectively in 2008.

- Personal service occupations account for 8.3% of regional and 8.2% of national employment. Sales and customer service occupations make up 7.8% of the regional and 7.6% of the national employment.
- Due to the greater relative importance of manufacturing in the regional economy, the proportion of skilled trades occupations is slightly higher in the East Midlands than in the UK, at 12.0% and 10.9% respectively. On the other hand, administrative and secretarial occupations contributes a slightly lower share of employment in the East Midlands at 10.8% compared to 11.4% in the UK.

### Lower tier occupations

Lower tier occupations are machine and transport operatives<sup>78</sup> and elementary occupations<sup>79</sup>. These positions have lower associated skill requirements and lower earnings. The proportion of those in employment who work in lower tier occupations was 21.8% in the East Midlands, 3.3 percentage points above the UK figure (18.5%).

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<sup>75</sup> Administrative and secretarial occupations include jobs in administrative work, generally requiring a good standard of general education, such as administrative officers and assistants. Office for National Statistics, 'Standard Occupational Classification 2000'.

<sup>76</sup> Skilled trades occupation include goldsmith, butchers and TV engineers, where the individual performs often complex manual tasks, requiring a level of experience and sometimes formal vocational training. Office for National Statistics, 'Standard Occupational Classification 2000'.

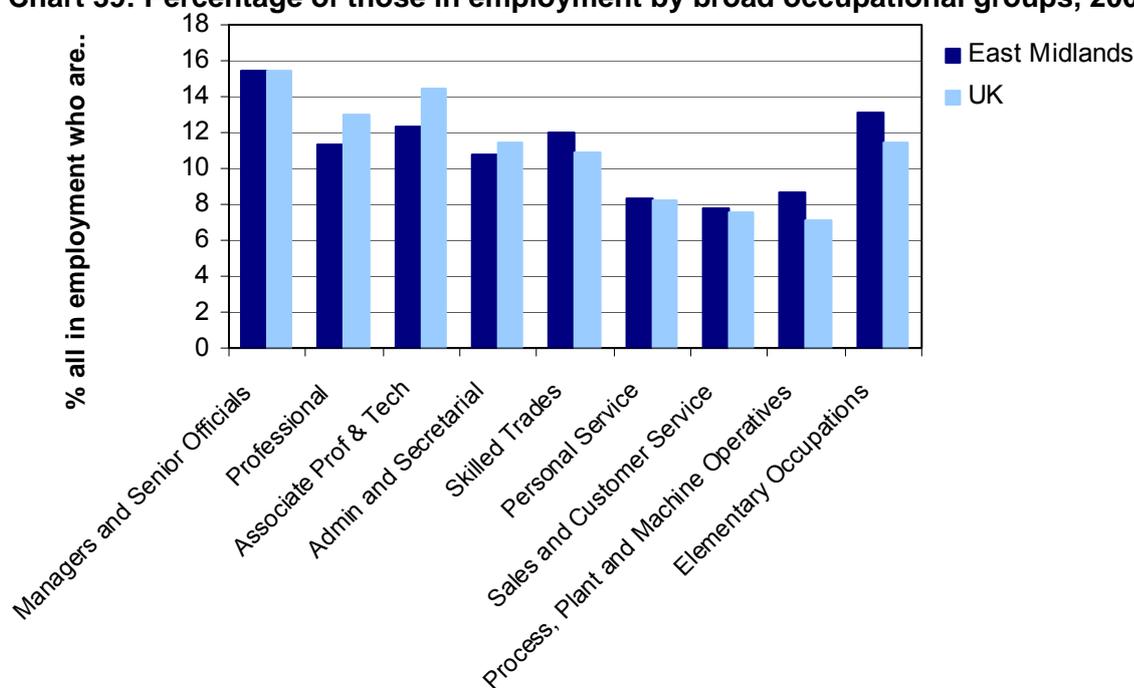
<sup>77</sup> Sales and customer services occupations covers jobs such as cashiers, market and street traders and call centre agents, whilst personal service occupations describes jobs such as nurses, hairdressers or home carers. Office for National Statistics, 'Standard Occupational Classification 2000'.

<sup>78</sup> Process, plant and machine operatives describes occupations where knowledge is required to operate and monitor machines or tools such as textile machine operatives, construction operatives. These occupations include transport and mobile machine drivers and operatives such as taxi drivers. Office for National Statistics, 'Standard Occupational Classification 2000'.

<sup>79</sup> Elementary occupations describe jobs predominated by routine tasks, usually requiring no formal educational qualifications, such as shelf fillers and window cleaners Office for National Statistics, 'Standard Occupational Classification 2000'.

- More than 13.0 % of employment in the region was in elementary occupations in 2008 compared to 11.4% in the UK.
- The proportion of process, plant and machine operatives in the East Midlands was also above the UK figure at 8.7% compared to 7.1%.

**Chart 39: Percentage of those in employment by broad occupational groups, 2008**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.  
Note: Residence based analysis.

#### 4.6.2 Future prospects for occupational change

Technological change, globalisation and other factors continuously influence the patterns of demand for goods and services and consequently the demand for skills. Occupations that benefit from such changes will experience employment growth. Conversely some will experience job losses<sup>80</sup>. The following analysis provides an assessment of future prospects for occupational change in the East Midlands.

Working Futures 2007-2017 projections provided by the UK Commission for Employment and Skills and the Learning and Skills Council, forecast changing employment by sector, occupation, gender and status. However, it is crucial to note that these projections should not be regarded as facts more as a likely future map of the occupational structure of employment<sup>81</sup> given current information.

It is important to note that Working Futures 2007-2017 projections represent a view of what the future might look like assuming that past performance and behaviours continue

<sup>80</sup> Warwick Institute for Employment Research and Cambridge Econometrics, on behalf of the UK Commission for Employment and Skills and Learning and Skills Council, 'Working Futures 2007-2017' 2008.

<sup>81</sup> Warwick Institute for Employment Research and Cambridge Econometrics, on behalf of the UK Commission for Employment and Skills and Learning and Skills Council, 'Working Futures 2007-2017' 2008.

over time. It is also important to note that the baseline macroeconomic forecast that underpins the Working Futures results was developed in the first half of 2008, before the extent of the recession became fully apparent. There is, therefore, a significant degree of uncertainty relating to these projections. However they still provide a useful assessment of the potential change in occupational structure over the next decade.

Changes in the structure of occupation are driven by two factors, expansion demand and replacement demand. Expansion demand refers to job creation which is generated by sectoral growth. These jobs are genuinely new jobs which did not exist before and which are the result of the changing demand for goods and services. The underlying factors of this change are related to the evolving global, national and regional economic landscape. The second factor is replacement demand which are not new jobs, but jobs that need filling as their current occupants leave the labour market (predominantly into retirement).

#### 4.6.3 Expansion demand

Working Futures 2007-2017 projects an increase of employment in the East Midlands of 5.9% which is similar to the UK average of 6.2%<sup>82</sup>.

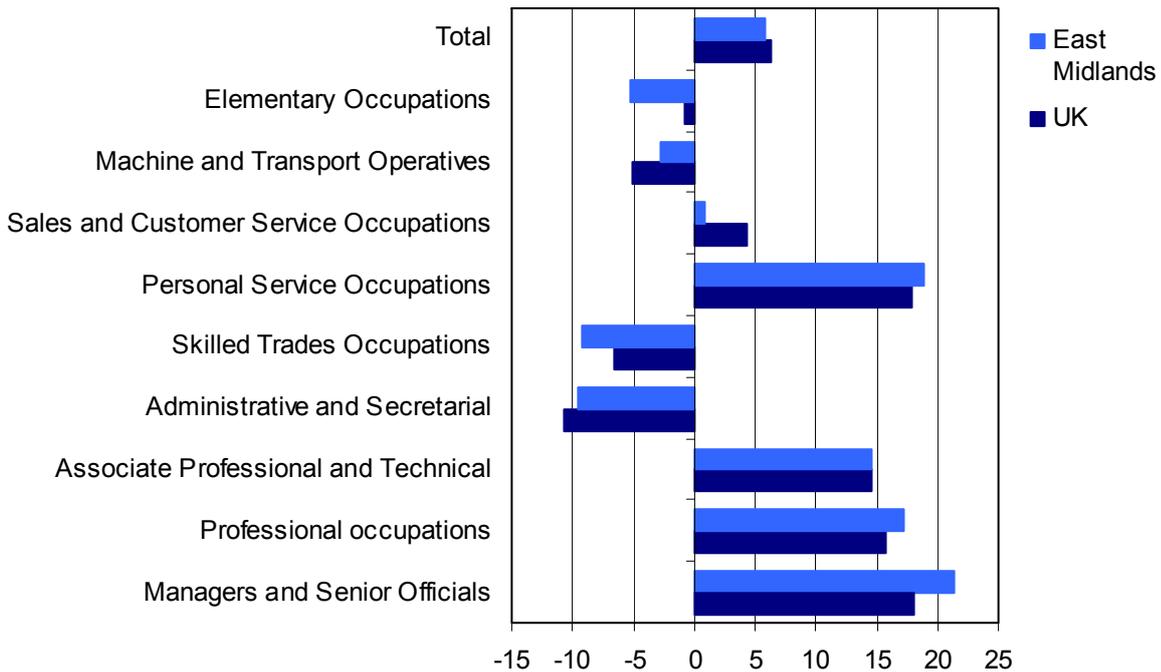
In both the UK and in the East Midlands, employment in managerial and professional occupations is expected to increase, whilst the number of employees in elementary occupations and machine and transport operatives are projected to decline. Skilled trade occupations and administrative and secretarial positions are also projected to decline. The East Midlands will continue to employ a relatively small share of its workforce in upper tier occupations. These patterns of expansion demand were highlighted in the previous Working Futures estimations as well and these changes are often referred to as “hollowing out the middle”.

- The increase in employment in upper tier occupations is projected to be more significant in region than in the UK between 2007 and 2017. However, by 2017, the proportion of those in upper tier occupations is forecast to be 44.4% in the East Midlands, 2.5 percentage points below the UK figure of 46.9%.
- The proportion of those in employment who work in intermediate occupations in 2017 is forecast to be 36.9% in the East Midlands, around 1 percentage point above the UK figure of 36.0%.
- The decrease of those in lower tier occupations is projected to be more significant in the East Midlands than in the UK. Still, the proportion of those in employment who work in lower tier occupations in 2017 is forecast to be 18.7% in the East Midlands, about 1.5 percentage points above the UK figure of 17.1%.

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<sup>82</sup> Quantitatively, this projection is different from that in the Economy chapter which is based on the Scenario Impact Model developed by Experian on behalf of *emda*. However, both suggests that employment growth in the East Midlands will be similar to the national average.

**Chart 40: Projected change in employment by major occupation groups, 2007-2017, (% change), expansion demand**



Source: Warwick Institute for Employment Research and Cambridge Econometrics, on behalf of the UK Commission for Employment and Skills and Learning and Skills Council, 'Working Futures 2007-2017' 2008.

#### 4.6.4 Replacement demand

Replacement demand takes into account the need to replace those who leave their jobs because of retirement or other reasons. These are not new jobs but jobs that need filling as their current occupants leave the labour market. These replacement demand jobs therefore need to be added to any structural change (or so called expansion demand or decline) that is projected, in order to obtain an estimate of the overall change in the occupational structure of employment<sup>83</sup>.

The Working Futures 2007-2017 report suggests that all occupations are expected to have a large and positive replacement demand. In addition, replacement demand will considerably exceed the number of jobs created by economic growth. Therefore, replacement demand is likely to be much more significant in terms of education and training requirements than expansion demand.

Chart 41 shows the East Midlands expansion demand, replacement demand and the overall change in the occupational structure of the region's employment by occupation between 2007 and 2017.

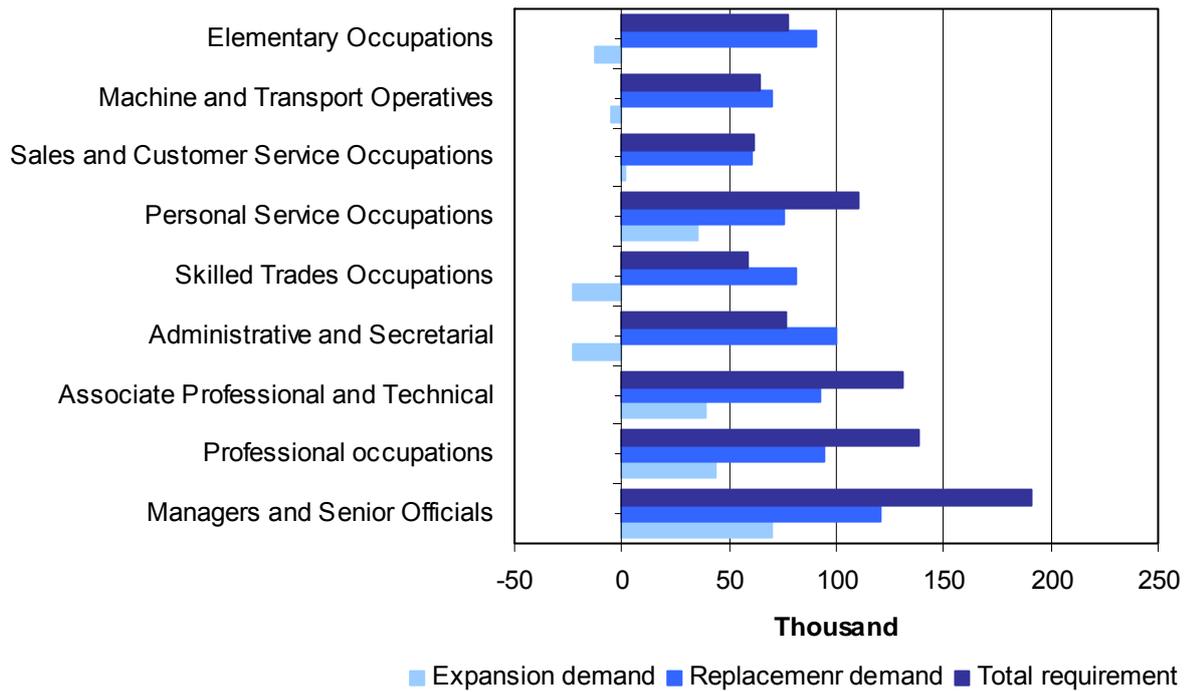
Due to structural changes in the economy, some occupations are expected to shrink, such as administrative and secretarial occupations, skilled trades, process plant and elementary occupations. However, there will still be a large number of vacant posts that will need filling as their current occupants retire.

<sup>83</sup> Warwick Institute for Employment Research and Cambridge Econometrics, on behalf of the UK Commission for Employment and Skills and Learning and Skills Council, 'Working Futures 2007-2017' 2008.

Chart 41 shows that expansion demand of lower tier occupations is often negative or insignificant. However, replacement demand outweighs negative expansion demand and results in positive total requirements in these lower tier occupations.

Replacement demand between 2007 and 2017 in the East Midlands is forecast to be the most significant among managers and senior officials. There will also be a significant replacement demand for professionals and associate professional, administrative and secretarial occupations.

**Chart 41: Projected change in occupations, East Midlands, 2007-2017, thousands**



Source: Warwick Institute for Employment Research and Cambridge Econometrics, on behalf of the UK Commission for Employment and Skills and Learning and Skills Council, 'Working Futures 2007-2017' 2008.

Note: Replacement Demand = Retirements + Occupational Mobility + Migration.  
 Total requirement = Expansion demand + Replacement demand.

**Key Points: Occupational structure**

- The East Midlands has significantly more people in 'lower tier occupations' than the UK average.
- 'Intermediate occupations', account for a similar share of the workforce in the East Midlands than in the UK. However, due to the relatively greater importance of manufacturing in the regional economy, the proportion of skilled trades is slightly higher in the East Midlands than in the UK.
- The difference between the East Midlands and the UK is more significant for 'upper tier' occupations which make up a lower share of the regional workforce.
- Expansion demand by occupation shows that in the East Midlands and UK the number of manager and professional occupations are expected to increase, whilst the number of elementary occupations, machine and transport operatives and particularly skilled trades and administrative and secretarial occupations are projected to decline. These patterns of expansion demand are often referred to as "hollowing out the middle".
- Replacement demand between 2007 and 2017 in the East Midlands is forecast to be the most significant among managers and senior officials. There will also be a significant replacement demand for professionals and associate professional, administrative and secretarial, skilled trades and elementary occupations.
- As replacement demand will considerably exceed the number of jobs created by economic growth, replacement demand is likely to be much more significant in terms of education and training requirements than expansion demand.

## 4.7 Earnings in the East Midlands

This section analyses the general pattern of earnings in the East Midlands in 2009<sup>84</sup>. Although earnings reflect factors other than workforce skills, skills are an important determining factor. On the basis of lower levels of qualifications and occupational structure outlined above, it is expected that earnings in the East Midlands would be lower than average. Differences in earnings by gender are discussed more fully in the Deprivation and Economic Inclusion chapter.

Chart 42 compares gross weekly workplace based full-time earning estimates for men and women working full-time in each of the English regions and the UK average.

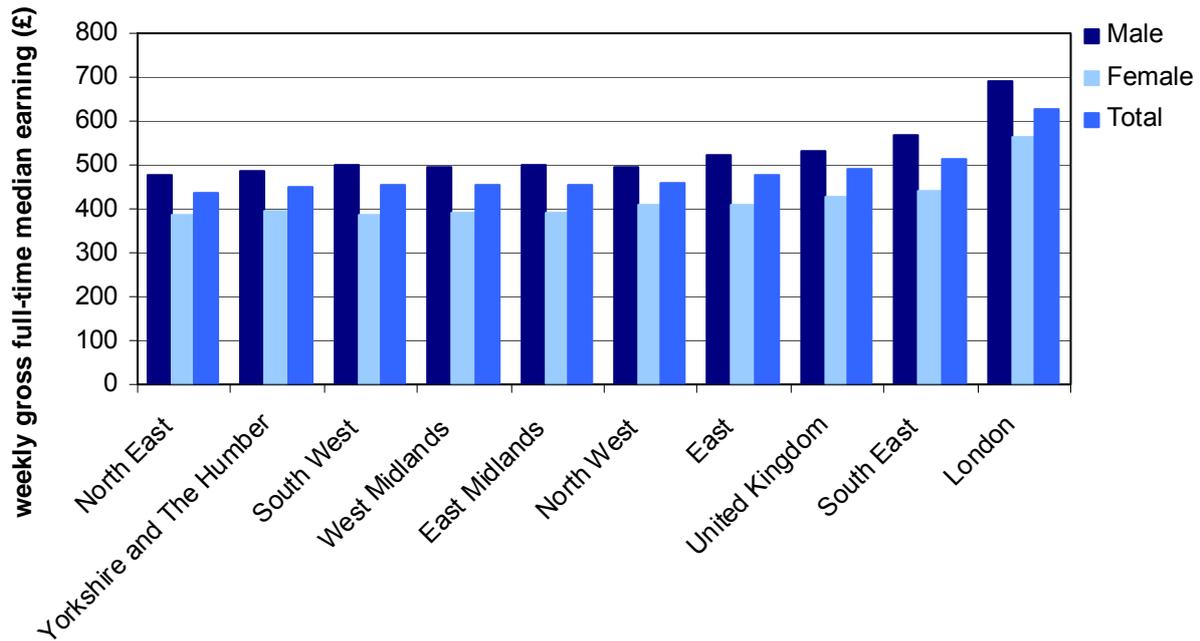
Median weekly earnings for all full-time workers in the East Midlands were below the UK average by 6.6%, at £456.6 compared to £488.7, in 2009. Compared to the UK average, earnings are the highest in London (28.4 % above average) and lowest in the North East (lagging behind the national average by 10.8%).

The median weekly gross full-time earnings for men was £531.1 in the UK in 2009. The difference between male and female earnings in the UK was £104.7 – a 19.7% difference. The median earnings for men working in the East Midlands were £500.0, which is £111.3 a week more than the median for women – a 22.3% difference. The difference between male and female earnings in the East Midlands is greater than in the UK and is the third highest among the English regions after the South West (22.4%) and the South East (22.4%). The smallest differential between male and female earnings was in London (18.1%) and the North West (18.1%).

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<sup>84</sup> Data from the 2009 Annual Survey of Hours and Earnings (ASHE), produced by the Office for National Statistics is used. The analysis will focus on the median, which is the mid-point of the distribution, if one imagines all results set out in a line. This is preferable to the mean (the arithmetic average) as it is not skewed by a small number of respondents reporting very high earnings.

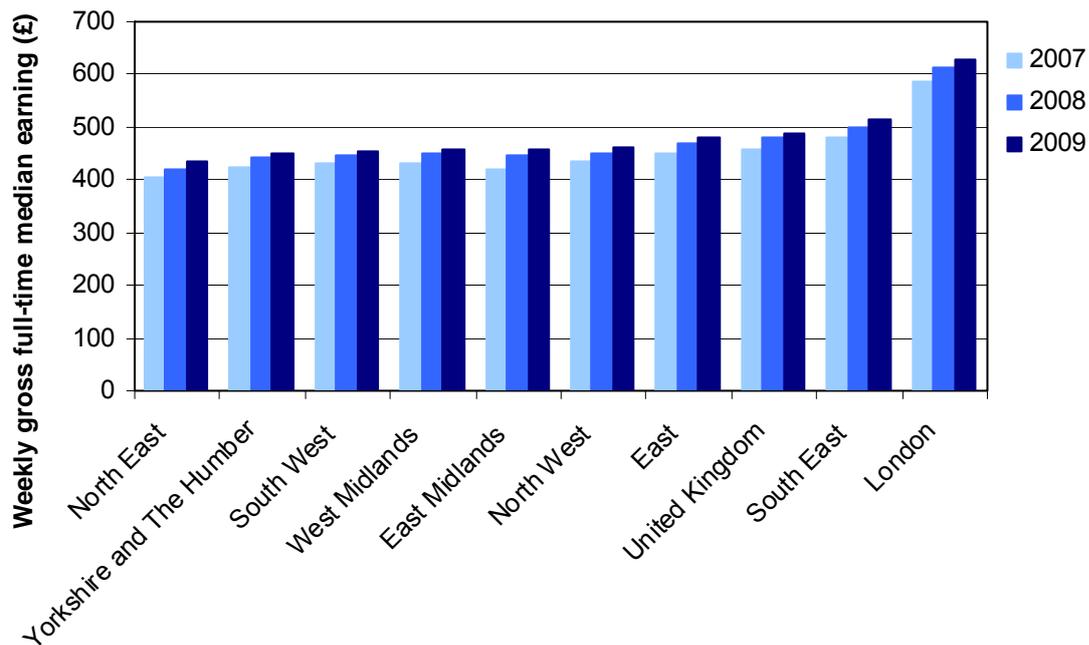
**Chart 42: Regional comparisons of gross weekly workplace based full-time earnings (median), 2009**



Source: ONS Crown Copyright, 'Annual Survey of Hours and Earnings - workplace analysis' 2009, from NOMIS.

Due to the recession, there has been a greater increase in weekly median gross full-time earnings between 2007 and 2008 than between 2008 and 2009. Weekly median gross earnings increased by 4.7% in UK between 2007 and 2008 and by 2.0% between 2008 and 2009. The corresponding figures for the East Midlands were 5.6% and 2.6% respectively. Between 2008 and 2009 earnings growth in the East Midlands was the second highest among the English regions after the North East (3.6 %). Between 2008 and 2009, earnings increased the least in the South West at 1.5%.

**Chart 43: Weekly pay - Gross (£) – For full-time earnings (workplace based)**



Source: ONS Crown Copyright, 'Annual Survey of Hours and Earnings - workplace analysis', from NOMIS.

#### 4.7.1 Earnings by occupation

As higher level occupations tend to be associated with higher pay, lower levels of employment in these occupations goes some way to explaining why overall median earnings are lower in the East Midlands.

Chart 44 shows comparative earnings for broad occupational groups. Across all occupational groups, with three exceptions – sales and customer service occupations, skilled trades and elementary occupations – all other occupations have lower earnings in the East Midlands than in the UK.

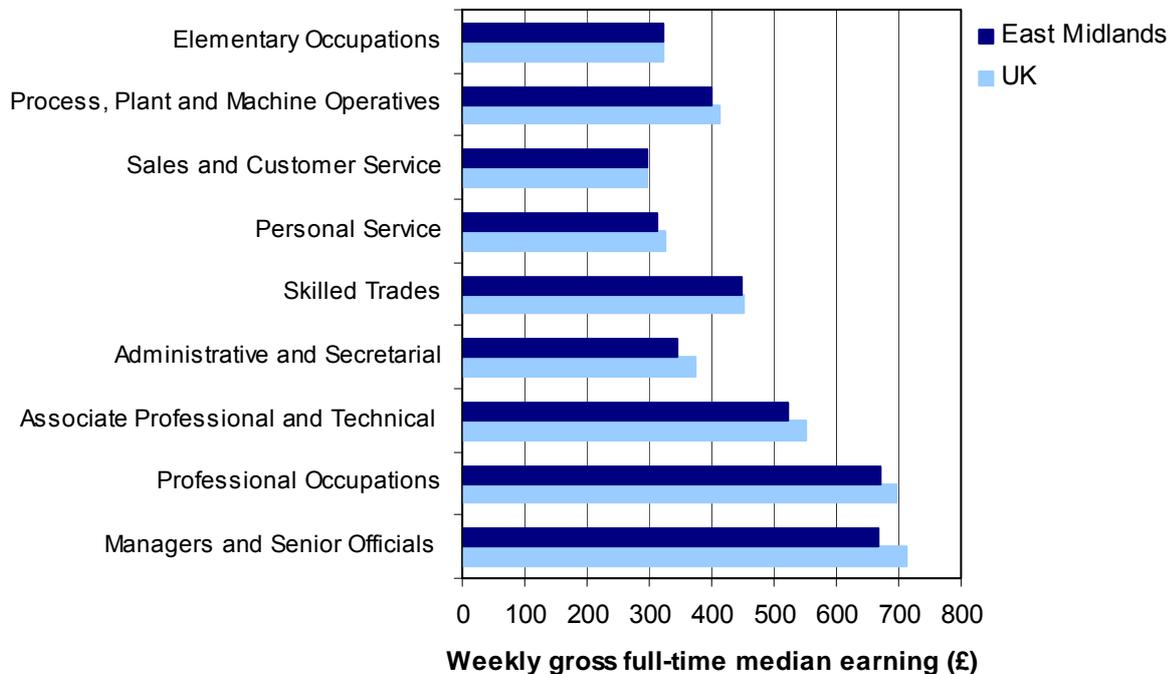
The largest pay gap between the East Midlands and the UK is for upper tier occupations and administrative and secretarial occupations.

- Among administrative and secretarial occupations the median in the East Midlands was £345, £28.7 less than the median in the UK, a 7.7% difference.
- Among managers and senior officials, the median in the East Midlands was £667.8, £45.1 less than the median in the UK, a 6.3% difference.
- The third largest gap in earnings was for associate professional and technical occupations, where the median in the East Midlands was £521.3 compared to the national average of £551.1 (a gap of £29.8, equivalent to a 5.4% difference).

The pay gap between the East Midlands and the UK was somewhat lower for intermediate occupations. The median weekly pay of those working in personal service occupations was £311.5 in the East Midlands, £14.3 less than the median in the UK – a 4.4% difference.

Although the median weekly full-time earnings for elementary occupations were not significantly different in the East Midlands than in the UK, earnings for process, plant and machine operatives are slightly lower than the national average by 3.1%. This reflects the sectoral composition of the East Midlands and the high demand for unskilled employment in the regional labour market.

**Chart 44: Weekly pay – Gross (£) – for full-time employee jobs, 2009**



Source: Office for National Statistics, 'The Annual Survey of Hours and Earnings (ASHE) 2009' From Table 3\_1a, Levels, distribution and make-up of earnings and hours paid for employees within industries, occupations and regions.

Between 2008 and 2009 in the East Midlands the increase in median earnings were the highest in personal service occupations at 5.1%, associate professional at 3.9% and sales and customer services at 3.9%. The lowest increase was in process, plant and machine operatives and elementary occupations at 0.3%<sup>85</sup>. This is largely related to the sectoral and occupational characteristics of the recession as the most hard hit jobs were low skilled low paid positions in the manufacturing and the construction sectors. The following section provides some more information on the earnings by sectors.

#### 4.7.2 Earnings by industry

There are a significant pay differences among industries both in the East Midlands and in the UK.

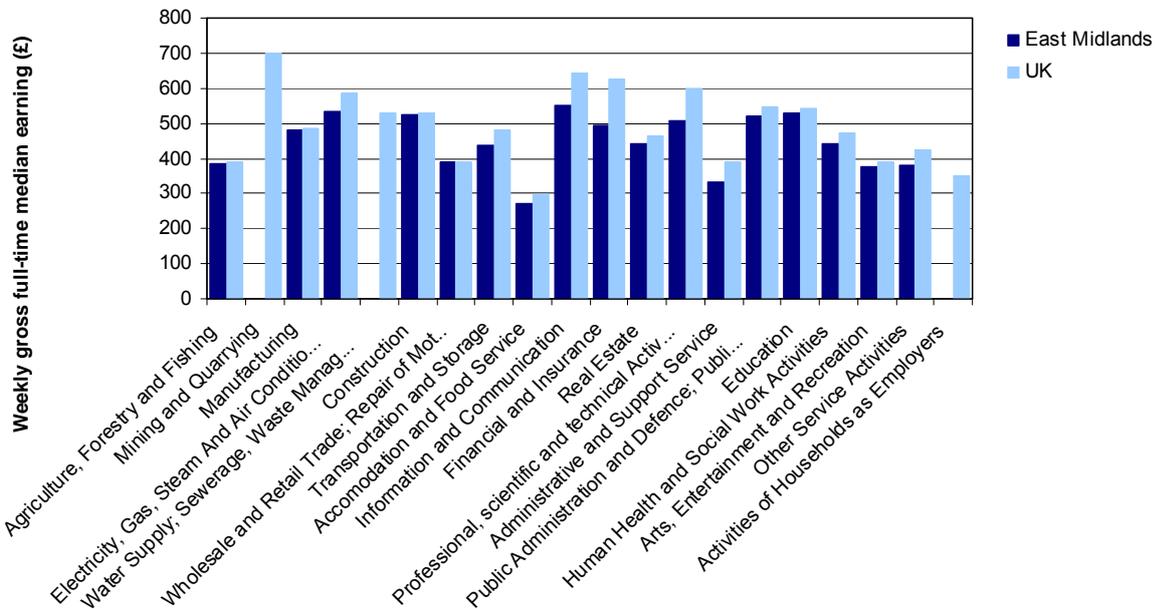
<sup>85</sup> Office for National Statistics, 'The Annual Survey of Hours and Earnings (ASHE) 2009' From Table 3\_1a, Levels, distribution and make-up of earnings and hours paid for employees within industries, occupations and regions. <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=15313> These tables use the SIC 2007 classification.

Earnings are lower in the East Midlands compared to the UK average in almost every industry. Chart 45 illustrates the generally lower earnings by industry in the East Midlands compared to the UK.

Differences in earnings between the East Midlands and the UK tend to be greater in those industries with higher pay. For example, jobs in financial and insurance; professional, scientific and technical activities; information and communication; administrative and support services are clearly associated with significantly higher earnings in the UK than in the East Midlands.

Therefore in 2009 the differences in weekly gross full-time earnings between the East Midlands and the UK were the highest in financial and insurance (21.4%), in professional, scientific and technical activities (15.0%), in administrative and support services (14.9%) and in information and communication (14.6%). The smallest pay differences between the East Midlands and the UK were in arts, entertainment and recreation (2.7%), education (2.4%) and construction (1.2%).

**Chart 45: Weekly pay – Gross (£) – for full-time employee jobs, 2009**



Source: Office for National Statistics, 'The Annual Survey of Hours and Earnings (ASHE) 2009' from Table 5\_1a.

Note: The coefficient of variation (CV) is the ratio of the standard error of an estimate to the estimate, expressed as a percentage. The smaller the CV, the higher the quality of the estimate. The lowest CV is <= 5%. The confidence variation of the estimations for Mining and Quarrying and Activities of Households as Employers are between 5% and 10% for the UK. Data on Activities of Extraterritorial Organisations and Bodies is not available for the East Midlands and is left out due to the relatively large confidence variation of the estimation for the UK. The confidence variation of the estimations for Agriculture, Forestry and Fishing; Electricity, Gas, Steam and Air Conditioning Supply; Accommodation and Food Service Activities; Information and Communication; Financial and Insurance Activities; Real Estate Activities; Professional, Scientific and Technical Activities; Arts, Entertainment and Recreation; Other Service Activities; are between 5% and 10% for the East Midlands. Estimations of Mining and Quarrying is not available. Estimations for Water Supply; Sewerage, Waste Management and Remediation Activities is not shown for the East Midlands due to the relatively large confidence interval. Data on Activities of Households as Employers; Undifferentiated Goods and Services Producing Activities of Households for Own Use are not available for the East Midlands.

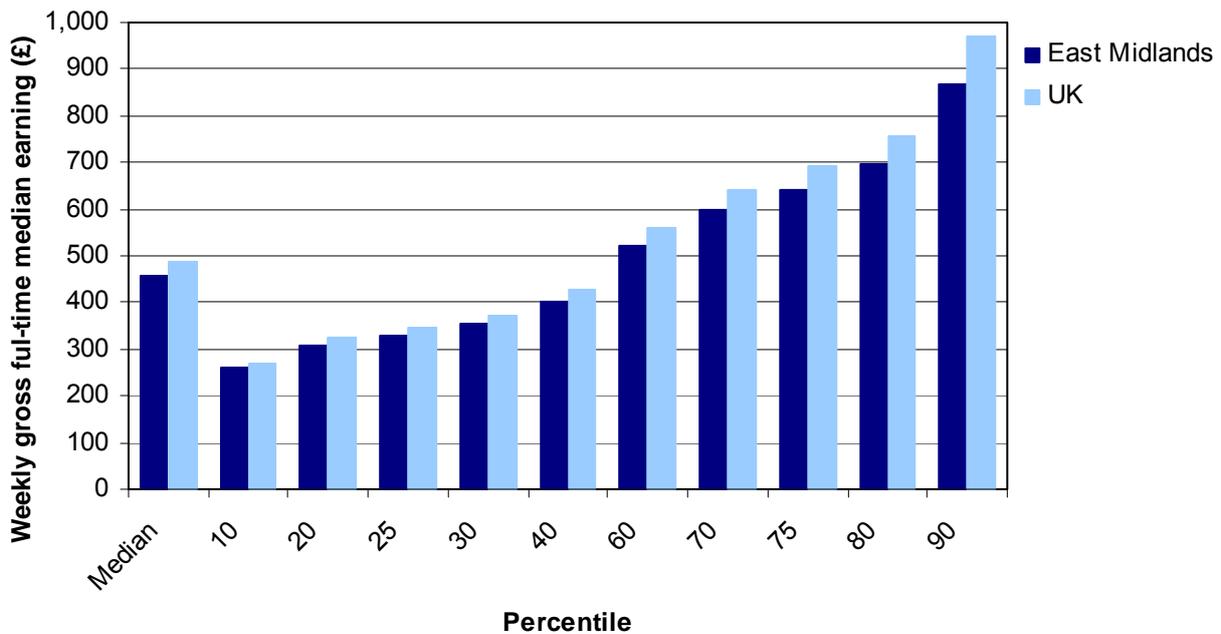
### 4.7.3 Disparities between high and low earning groups

The Annual Survey of Hours and Earnings (ASHE) 2009 provides estimates for earnings in bands from the lowest 10% of earners to the highest 10%<sup>86</sup>. Chart 44 shows that the earnings profile for the region appears more ‘evenly’ distributed than in the UK. This is principally due to the earnings of the more highly paid being relatively depressed compared to the national average.

The top 10% of earners in the UK earn £971.0 a week, whilst the top 10% working in the East Midlands earn £865.8, a difference of £105.2. Earners in the top 10% in the UK earn 198.7% of the UK median, whilst earners in the top 10% in the East Midlands earn 189.6% of the East Midlands median.

The bottom 10% of earners in the UK earns £270.6 a week. This is compared to £259.6 in the East Midlands. Expressed as an index of the corresponding medians, earners in the bottom 10% in the UK earn 55.4% of the UK median, whilst earners in the bottom 10% in the East Midlands earn 56.9% of the East Midlands median.

**Chart 46: Gross weekly workplace based median earnings in UK and East Midlands, 2009**



Source: ONS Crown Copyright, ‘Annual Survey of Hours and Earnings – workplace analysis’ 2009 from NOMIS.

### 4.7.4 Workplace based compared to residence based earnings

The Annual Survey of Hours and Earnings (ASHE) provides separate estimates based on individuals’ place of residence and their workplace. Variation between the two estimates indicates the extent to which the earnings of the residential and working

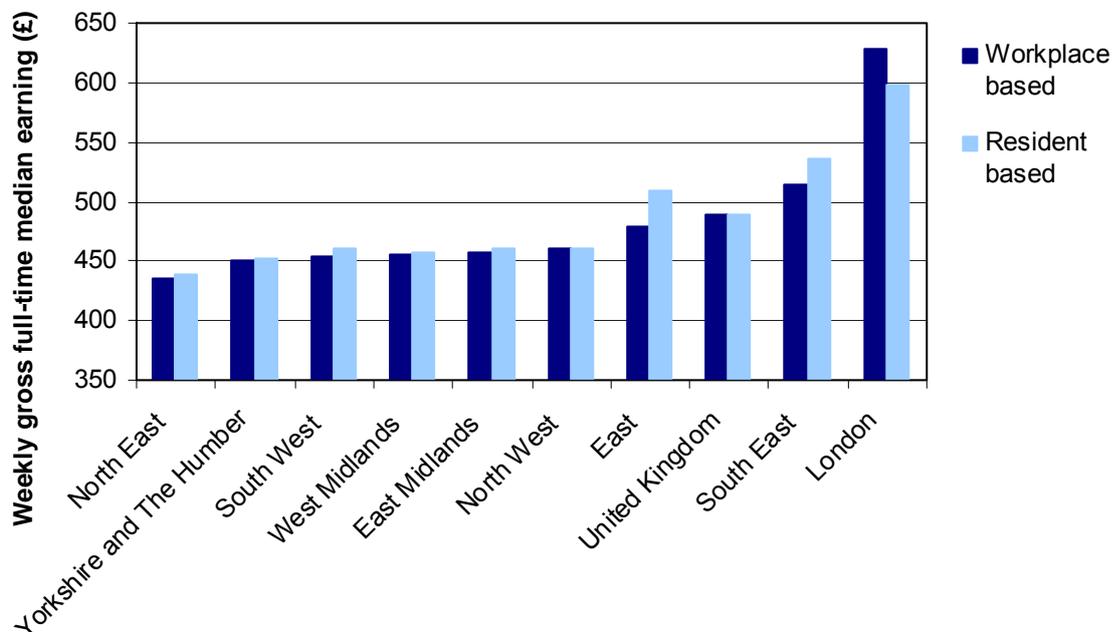
<sup>86</sup> The distribution of earnings by decile (10%, 20%, etc). Earning deciles show the earning charts below which the given proportion (10%, 20%, etc.) of employees fall. For example, the 10% decile will give the earnings chart below which the lowest 10% of earners fall.

populations are different. This allows inferences to be drawn as to the nature of commuting<sup>87</sup>.

In the East Midlands, as in other regions except London, the resident based earnings are higher than the workplace based estimates. This suggests that many higher paid workers commute to work outside the region. The gap between residence and workplace based earnings – as a percentage of workplace based estimates – was 0.9% in the East Midlands, which is the fourth greatest after the East (6.3%), the South East (4.5%) and the South West (1.4%).

Unlike the other English regions, the gap between resident and workplace earnings in London was 4.6% higher for those who work in the capital compared to those who live in the city. This reflects the large numbers of individuals in higher paid jobs who commute to the city from surrounding regions.

**Chart 47: Regional comparison of gross median weekly earnings by place of work and residence, 2009**



Source: ONS Crown Copyright, 'Annual Survey of Hours and Earnings' workplace and residence based analysis 2009, from NOMIS.

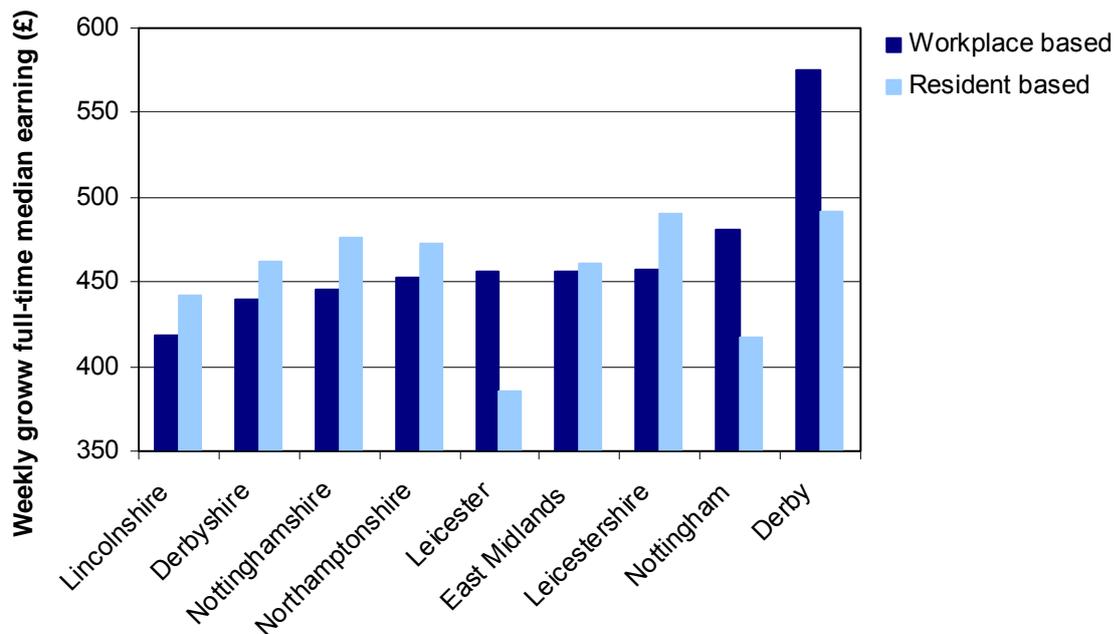
Generally, variations between workplace and residence based earnings are much more pronounced at sub-regional level. The region's major economic centres all have higher workplace than residence based earnings, indicative of in-commuting.

Derby has the highest workplace based earnings in the East Midlands at £574.9 which can be explained by the relatively high proportion of skilled engineering jobs in the city. In contrast, Leicester has the lowest workplace based earnings of all Unitary Authorities in the East Midlands at £456.0 in 2009. This compares to its residence based figure of £385.1. Income deprivation in Leicester is examined in the Deprivation and Economic Inclusion chapter of the Evidence base.

<sup>87</sup> For more information please see the Spatial Economy chapter.

There is much less variation in residence based earnings across the region. The highest residence based earnings were in Leicestershire at £490.0, which was well above the regional average of £460.5. The lowest residence based earnings – excluding Unitary Authorities – were in Lincolnshire where the average weekly median gross salary was £442.0 in 2009.

**Chart 48: Sub-regional gross median weekly earnings by place of work and place of residence, 2009**



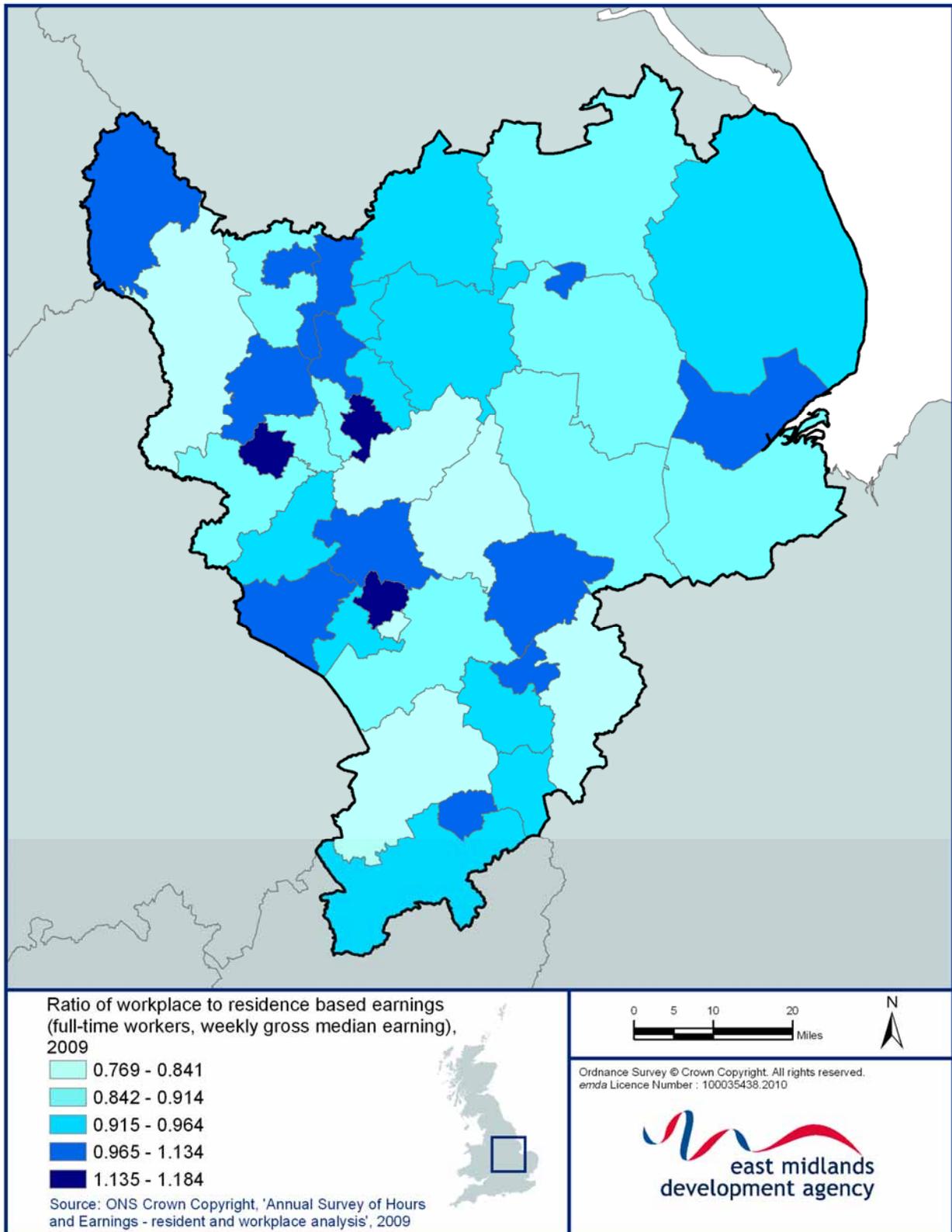
Source: ONS Crown Copyright, 'Annual Survey of Hours and Earnings' workplace and residence based analysis 2009, from NOMIS.

Note: Rutland Unitary Authority is suppressed due to the big confidence interval and the small sample size.

Map 6 presents the median weekly gross workplace based estimates of earnings against residence based estimates as a ratio at LAD level. A value of 1 represents an exact match between the two earnings estimates. A value of greater than 1 represents a higher workplace based estimate relative to residence. A value less than 1 reflects higher residence based earnings relative to workplace. From this we can see that:

- The areas with the highest workplace to residence based earnings ratios are in the three cities of Nottingham, Derby and Leicester, suggesting that a significant proportion of individuals in higher paid jobs commute from elsewhere; and
- The light blue shaded areas indicate those districts where individuals in higher paid jobs commute to work elsewhere. These are principally those areas that border the East of England and the West Midlands such as East Northamptonshire, Daventry and Derbyshire Dales. In addition, residence based earnings are higher than the workplace based estimates in Rushcliffe where those individuals in higher paid jobs commute to work to Nottingham.

**Map 6: Ratio of workplace to resident based earnings (median) 2009**



### **Key Points: Earnings**

- The difference between male and female earnings in the East Midlands is greater than in the UK.
- Due to the recession, there has been a greater increase in weekly median gross full-time earnings between 2007 and 2008 than between 2008 and 2009.
- Across all occupational groups, with three exceptions – sales and customer service occupations, skilled trades and elementary occupations – all other occupations have lower earnings in the East Midlands than in the UK.
- Earnings are lower in the East Midlands compared to the UK average in almost every industry. Differences in earnings between the East Midlands and the UK tend to be greater in those industries with higher pay.
- In 2009 the differences in weekly gross full-time earnings between the East Midlands and the UK were the highest in financial and insurance (21.4%), in professional, scientific and technical activities (15.0%), in administrative and support services (14.9%) and in information and communication (14.6%).
- The average earnings of higher skilled occupations is lower in the region than in the UK.
- The earnings profile for the region appears more 'evenly' distributed than in the UK. This is principally due to the earnings of the better off being relatively depressed compared to the national average.
- The residence based median for the East Midlands was £460.5, higher by £3.9 than the workplace based estimate of £456.6 in 2009. This suggests that many higher paid workers commute to work outside the region.
- Lower overall earnings can be explained by at least two factors. First, the lower levels of employment in the East Midlands in those occupations which tend to be associated with higher pay. Second, the median earnings of the higher level occupations are somewhat lower in the East Midlands than in the UK.

## 4.8 Conclusions

Due to the recession, labour market indicators deteriorated both nationally and regionally from the summer of 2008. However, unemployment in the region remains below the national average, and the employment rate is above the national average. The latest data shows that the unemployment rate in the region was 7.7% in November-January 2010, compared to the UK average of 8.1%. Unemployment has levelled off both nationally and regionally over the last two quarters. Forecasts suggest that unemployment rates may continue to increase in most OECD countries in 2010, but some signs of easing will emerge in 2011 as economies recover.

The East Midlands is the only region out of the five northern and midlands regions to exceed the national average employment rate, though there are pockets of severe employment deprivation in the three cities, coalfields and coastal areas of the region. In the short term there are social and economic imperatives to get people back into work as recovery takes hold. However, future economic growth in the East Midlands will be driven by increases in productivity. This will depend on the skills of the workforce. Improving the quality of employment through increased workforce skills remains a key challenge along with the need to increase employers' demand for skills.

The East Midlands is ranked fourth lowest out of the nine English regions in terms of the proportion of adult population qualified to Level 4 and above. The proportion of the working age population without a Level 2 qualification is the second highest out of the nine English regions. The scale of the upskilling of the East Midlands workforce in recent years has been significant, but the demand for these higher level skills appears to be lagging behind the increased supply. It is still the case that almost two-fifths of employees in the region think that their highest qualification was above that required for the job they do (defined here as 'over-qualification')<sup>88</sup> and this proportion has increased over time in line with the trend for England.

The higher the qualification level, the more employable an individual becomes. However, in the context of a higher regional employment rate compared to the UK, higher qualifications appear to have less impact on employability in the region than nationally. In addition, it appears that those without any formal qualifications are more likely to be employed in the East Midlands than in the UK. Employer demands for low qualifications suggest that in the East Midlands – and this may be more the case in some sub-regions than others – some businesses tend to compete on the basis of price. This is especially challenging in those peripheral areas where the concentration of low-skilled labour may have a stronger negative effect on productivity<sup>89</sup> such as the coastal areas of Lincolnshire.

The occupational composition of the region shows that the proportion of employees in upper tier occupations (specifically professionals and associate professionals) is lower

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<sup>88</sup> Alan Felstead and Francis Green on behalf of *emda*, 'Skills at Work in the East Midlands, 1997 to 2006' 2007.

<sup>89</sup> Gambin Lynn et al, Warwick Institute for Employment Research, University of Warwick, commissioned on behalf of *emda*, 'Exploring the links between skills and Productivity', 2009.

Webber et al, 'Explaining Spatial Variation in Business Performance in Great Britain', *The European Journal of Comparative Economics*, 2007, 4(2): 319-332.

than in the UK, whilst the region has a greater proportion of employment in lower tier occupations (elementary occupations and process, plant and machine operatives). Although upper tier occupations are expected to grow more significantly in the region than in the UK, these are projected to account for a lower share of the regional employment compared to the national average in the next decade.

The earnings profile for the region appears more evenly distributed than in the UK which is principally due to the more depressed earnings of the top deciles. The reasons for this are interrelated covering a range of factors including the different sectoral and industrial composition of the regional economy. Overall lower earnings can be partly explained by at least two factors. First, the lower levels of employment in the East Midlands in those occupations which tend to be associated with higher skills and pay. Second, the median earnings of the higher level occupations are somewhat lower in the East Midlands than in the UK.

Residents in rural districts of the East Midlands tend to perform better in both employment rates and measures of workforce qualifications. Therefore, earnings of residents living in rural districts are also higher compared to their urban counterparts suggesting that many better paid, higher skilled individuals choose to live in rural districts and commute to work elsewhere. In contrast, many local labour markets in rural districts provide comparatively low paid, low skilled employment such as the Lincolnshire coast and the coalfield areas.

Overall, the East Midlands low pay low skills equilibrium remains, even though the region has shown significant improvements in a number of indicators recently and it is not so badly positioned compared to the UK and other regions. The factors that are associated with the low pay low skills equilibrium include those relating to the individual worker, the characteristics of the job and features of the firm. Due to its sectoral and occupational composition, the East Midlands has more employment in the lower end of the occupational scale and less employment in the upper tier occupations. In addition, the financial return of human capital investment as measured by median earnings of higher level occupations seems to be somewhat lower in the East Midlands than in the UK.

There is a danger that the recent economic downturn may put some businesses under pressure to retain low cost, low value-low skills business models<sup>90</sup>. This would further constrain opportunities to move towards high skills and high value added business strategies which ultimately may mean the region does not fully benefit from economic recovery later. Therefore, it is important that employment and skills strategies are joined up with innovation and enterprise policies to achieve sustainable economic growth.

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<sup>90</sup> Kayte Lawton, 'Nice Work If You Can Get It!' Institute for Public Policy Research (IPPR), January 2009. <http://www.ippr.org.uk/members/download.asp?f=%2Fecomm%2Ffiles%2Fnice+work+if+you+can+get+it%2Epdf>

## 5. Deprivation and Economic Inclusion

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## 5.1 Introduction

This section of The East Midlands in 2010 assesses deprivation, labour market participation and economic inclusion in the East Midlands.

Until the recession the UK enjoyed a period of sustained economic growth, high levels of employment and low levels of unemployment in comparison to all of its major competitors. However, the benefits of economic growth have not flowed equally to all groups in society. As a result of this some parts of the UK and the East Midlands suffer from problems of long-term deprivation and poverty.

Data used in this section include the English Indices of Deprivation 2007, labour market data from the Office for National Statistics and administrative data on benefit claimants. A range of survey data were provided by the National Centre for Social Research examining issues around flexible working arrangements, childcare, living standards, spatial mobility and community cohesion.

Section 2 applies an area-based approach to the analysis. A particular area can be characterised as deprived relative to other areas, on the basis of people in the area experiencing the type of deprivation in question<sup>1</sup>. This section highlights that although the East Midlands performs relatively well in terms of health, employment and income deprivation, there are geographical areas where pockets of multiple deprivation are severe. The most deprived areas are concentrated around the three cities of Leicester, Derby, and Nottingham, along with the districts in the coalfields area.

Section 3 focuses on the differences in labour market participation and social inclusion by population groups identified by gender, age, disability and ethnicity. Section 3 confirms the significant differences in levels and types of labour market participation by social groups. Women, those with disabilities and those from ethnic minority groups are less likely than average to participate in the labour market. The section also discusses the occupational and earnings differences by gender which show concentrations of male employment in certain occupations and a greater gender pay gap in the East Midlands compared to the national average.

Section 4 focuses on those in younger age groups, from minority groups and those with special education needs analysing their participation and achievement in education. The analysis shows that those with special education needs, or from certain minority groups, perform significantly worse than other children of the same age. Analysis also shows that education performance in the East Midlands is close to the national average.

Section 5, discusses the phenomena of worklessness. Although the East Midlands performs relatively well in terms of labour market participation, worklessness is

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<sup>1</sup> The concept of Multiple Deprivation emphasises that Lower Layer Super Output Area (LSOA) should be the first geography of every interpretation of the Index of Deprivation 2007. This is because analysis undertaken just at the higher level of geography (for example at local authority level) may cause an analysis which simply overlooks the lower level of deprivation and fails to identify deprived LSOAs in a generally less deprived local authority (Department for Communities and Local Government, The English Indices of Deprivation 2007).

prevalent in certain parts of the region such as Leicester, Nottingham, Derby, the coalfields and coastal areas.

Section 6 discusses poverty in the East Midlands and emphasises that risk of poverty is significantly lower among those families where at least one parent is in employment. Child poverty is concentrated in certain wards in Nottingham, Leicester and Derby. This section also discusses fuel poverty in the East Midlands and highlights that it is a particular issue in East Lindsey.

Section 7 provides an overview of health and health barriers to employability in the East Midlands. Productivity losses due to ill health were estimated to be £802 million in the East Midlands in 2006-2007. In spite of some improvements in the general health of the East Midlands, health inequalities remained an issue. This section also discusses childcare and flexible working arrangements as tools to help to reconcile family and work. Although, there is no significant difference between the East Midlands and England in the proportion of employers which provide assistance with childcare, workless households are generally less satisfied by the childcare provisions. Working parents in the region were more likely to receive help from relatives and friends as the most important childcare arrangement that helped the respondent to work than the national average.

Sections 8 and 9 highlights crime and issues of cohesive communities. Crime is concentrated in certain parts of the region such as Nottinghamshire or Leicestershire. On the whole the East Midlands seems to be a place where people have a strong sense of belonging to their community.

## **5.2 The English Index of Multiple Deprivation 2004-2007**

The Index of Multiple Deprivation 2007 (IMD 2007) was published in December 2007 by the Department for Communities and Local Government (CLG), having been developed by the Social Disadvantage Centre at the Department of Social Policy and Social Work at the University of Oxford. The Index of Multiple Deprivation 2007 (IMD 2007) is a relative, weighted cumulative single measure of deprivation at small area level (Lower Layer Super Output – LSOA<sup>2</sup>) made up of seven domain indices.

The weighting of the seven independent domains (which can be examined separately) are income deprivation (22.5%), employment deprivation (22.5%), health deprivation and disability (13.5%), education and skills (13.5%), barriers to housing and services (9.3%), crime (9.3%) and living environment (9.3%). Data are constructed at LSOA level and the ranks of the LSOAs are then used to construct indices at LAD and County level.

---

<sup>2</sup> The IMD 2007 has been produced on a statistical geography known as Lower Super Output Area (LSOA) that covers about 1,500 people and 750 households. There are 32,482 LSOAs in England. There are 2,732 LSOAs in the East Midlands with an average population size of just over 1,500 (minimum 1,437, maximum 1,652). As the boundaries have been designed to have similar counts of people the actual size of LSOAs varies greatly, as an LSOA in a sparsely populated rural area covers a bigger area than an LSOA in a densely populated urban centre. This is often an issue when mapping and needs to be taken into consideration. (Regional Statisticians in the East Midlands, 'Index of Deprivation 2007').

## 5.2.1 Regional comparison of the summary measure of IMD 2007

Although there is no regional measure of deprivation it is possible to examine the number and percentage of people living in the most deprived areas in England by region. This is shown in Table 1.

**Table 1: Proportion of overall and regional population living in the most deprived 20% of LSOAs in England by region, 2007**

	Number of persons in most deprived areas in England by region (thousand)*	Percentage of regional population living in the most deprived areas in England	Proportion of people living in the most deprived areas in England by region, (%)*
East Midlands	717	16.6	7.2
East of England	345	6.2	3.4
London	2,128	28.5	21.2
North East	858	33.7	8.6
North West	2,170	31.8	21.6
South East	485	5.9	4.8
South West	468	9.2	4.7
West Midlands	1,464	27.4	14.6
Yorkshire and the Humber	1,389	27.2	13.9
England	10,023	20.0**	100.0

Source: Communities and Local Government, 'The English Indices of Deprivation 2007', page 61

Note: \* The most deprived is defined as the lowest 20% of LSOAs in England.

\*\* The 20% is an approximation, the real figure is 19.9%. Because the population of an LSOA is more or less fixed (about 1,500 people), the 20% of LSOAs in England should cover approximately 20% of the population as well. The IMD 2007 identifies concentrations of deprivation and it is important to note that not all deprived people live in deprived areas and conversely, not everyone living in a deprived area is deprived.

In the East Midlands there were 717,000 people living in deprived areas in 2007<sup>3</sup> which accounts for 16.6% of the regional population. The North West has the largest number of people living in deprived areas (2.17 million which accounts for 31.8% of its population), followed by London (2.13 million or 28.5%). The South East, South West and the East of England have between 6% and 9% of their population living in deprived areas in 2007.

A little more than 7% of those who live in the most deprived areas in England are resident in the East Midlands. More than 21% of those who live in the most deprived areas in England are resident in the North West and a similar proportion live in London. There are relatively high concentrations of disadvantage in the West Midlands and Yorkshire and the Humber as 14%-15% of those who live in the most deprived areas in England are resident in each of these regions. In this national context the scale of deprivation in the East Midlands is relatively small.

<sup>3</sup> These people are not deprived per se but live in those areas which are considered as deprived based on an aggregate experience of residents.

Based on the IMD 2007, the five most deprived districts in the East Midlands<sup>4</sup> were Nottingham, Leicester, Mansfield, Bolsover and Corby. These districts were ranked as 12<sup>th</sup>, 23<sup>rd</sup>, 34<sup>th</sup>, 40<sup>th</sup> and 66<sup>th</sup> respectively out of the 354 districts across England. The least deprived Local Authorities in the East Midlands were Blaby, Rushcliffe, Rutland, Harborough and South Northampton ranked 324<sup>th</sup>, 330<sup>th</sup>, 335<sup>th</sup>, 344<sup>th</sup> and 351<sup>st</sup><sup>5</sup> respectively.

Map 1 shows the IMD 2007 in the East Midlands. It shows that deprivation is concentrated in the urban centres, the coalfields, remote rural areas and the Lincolnshire coast:

- The most deprived LSOAs of the East Midlands are concentrated around the three cities of Leicester, Derby, and Nottingham. The former Nottinghamshire and Derbyshire coalfield districts of Mansfield, Ashfield, Bassetlaw, Chesterfield and Bolsover are all areas with a high concentration of LSOAs suffering severe deprivation;
- The least deprived LSOAs can be found around the centre and the south of the region in Melton, South Kesteven, Harborough and South Northamptonshire. However, larger population centres in these areas exhibit significant deprivation such as Northampton or Corby<sup>6</sup>; and
- There is something of a north-south split in the region with districts in the north generally having higher deprivation scores than those in the south.

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<sup>4</sup> Local Authority level analysis should use the 'rank of the ranks'. This is because Local Authorities are ranked based on the deprivation of their LSOAs and due to the different Local Authority sizes the ranking procedure is a two stage process. First, the LSOAs are ranked, and then based on these ranks, the different LAs are ranked (ONS Regional Statisticians in the East Midlands). However, it is worth to note that the change in rank does not necessarily mean the change of the level of deprivation at absolute term.

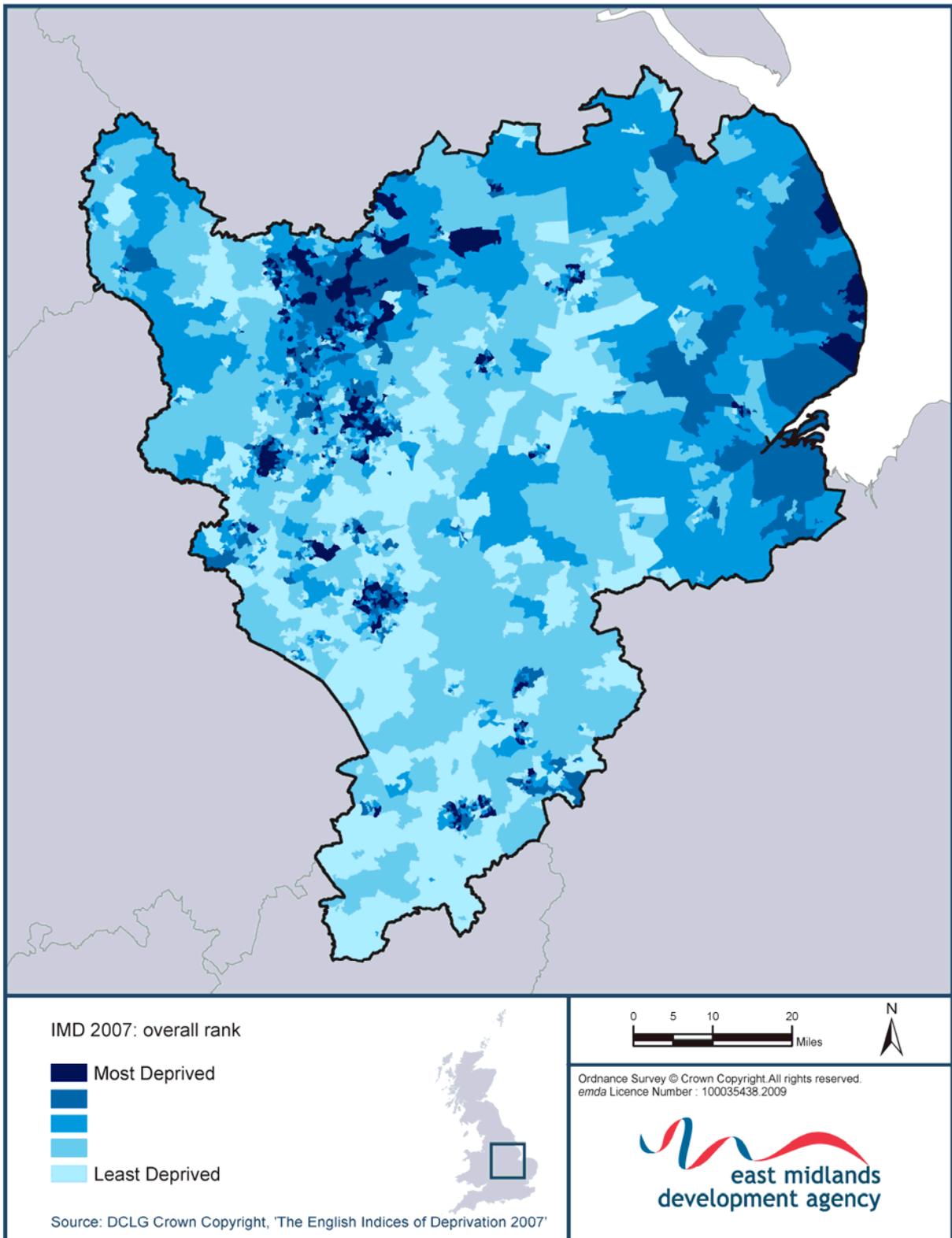
<sup>5</sup> Communities and Local Government, 'The English Indices of Deprivation 2007'.

<http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/>

<sup>6</sup> Communities and Local Government, 'The English Indices of Deprivation 2007'.

<http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/>

Map 1: IMD 2007: Overall rank



### 5.2.2 Comparison of IMD 2004 and 2007

Previous versions of the IMD have not been comparable but the IMD 2007 retains the same methodology, domains and indicators as the IMD 2004 offering a consistent measurement over time.

This sub-section concentrates on the changes of rank of LSOAs by Local Authorities<sup>7</sup> to identify those which have changed their position between 2004 and 2007 relative to other areas in the region.

Chart 1 shows that in 2004, eight Local Authorities in the region were classified as among the most deprived 20% in England. However, in 2007 only five Local Authorities in the region were in this group (Bolsover, Corby, Leicester, Mansfield and Nottingham). The three districts that moved out of this group were Lincoln, Ashfield and Chesterfield.

The number of Local Authorities classified as among the most deprived 20%-40% in England has increased from four to eight. The three Local Authorities above moved upward into this group but Northampton moved downwards to this quintile from the most deprived 40%-60%.

The number of Local Authorities classified as among the most deprived 40%-60% in England has dropped significantly from 12 in 2004 to eight in 2007. In 2007, Amber Valley, Erewash, Gedling, Newark and Sherwood, North East Derbyshire, South Holland, Wellingborough and West Lindsey were classified in this group.

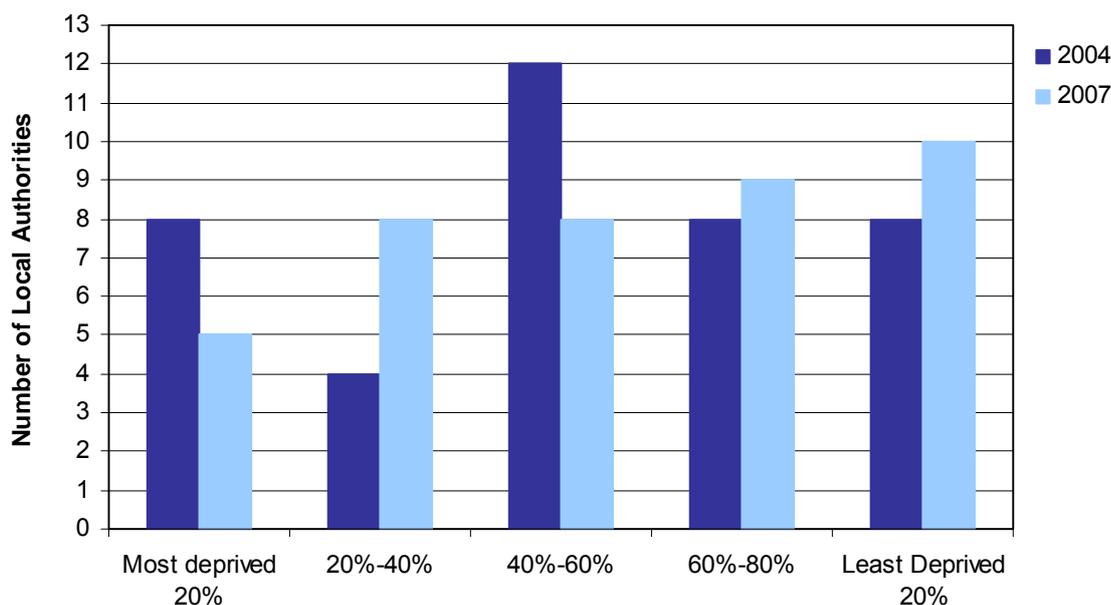
The number of authorities classified as among the most deprived 60%-80% in England has increased from eight to nine. Similarly, the number of East Midlands districts among the least deprived Local Authorities in England increased between 2004 and 2007 from eight to 10. The least deprived Local Authorities in 2007 were Blaby, Daventry, Harborough, Hinckley and Bosworth, Melton, North Kesteven, Oadby and Wigston, Rushcliffe, Rutland and South Northamptonshire.

Despite these changes, the most deprived areas in the East Midlands remain in the former coalfields and coastal districts and in the inner-city areas.

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<sup>7</sup> Although the methodology is the same between 2004 and 2007 no comparison of scores between the years is advisable. The comparison of ranks is, however, acceptable.

**Chart 1: Number of authorities in the East Midlands in each national quintile of the IMD 2004 and 2007 – based on ‘rank of average ranks’ of LSOAs in the authority**



Source: Communities and Local Government, ‘The English Indices of Deprivation 2007’, Local Authority Summaries 2007 and 2004.

Note: The ‘rank of average ranks’ is the preferred measure when comparing LA level information.

The following section discusses three of the seven domains of the Index of Multiple Deprivation 2007: employment, income and health. Research suggests that the strong association between health and income can be partly explained by the association between employment and health status<sup>8</sup>. The generally lower income of those with health problems and disabilities is largely due to their difficulties in participating in the labour market and their relative concentration in less well paid occupations.

### 5.2.3 Income Deprivation 2007

Income deprivation accounts for 22.5% of the score of the overall deprivation index. The purpose of the income deprivation indicator is to capture the proportion of the population experiencing financial difficulties in an area. The domain includes six indicators<sup>9</sup>:

- Adults and children in Income Support households;
- Adults and children in Income Based Job Seekers Allowance households;
- Adults and children in Pension Credit (Guarantee) households;
- Adults and children in Working Families Tax Credit households where there are children in receipt of Child Tax Credit whose equivalised income (excluding housing benefits) is below 60% of median before housing costs;

<sup>8</sup> K Stronks, H van de Mheen, J van den Bos and JP Mackenbach, ‘The interrelationship between income, health and employment status’ International Journal of Epidemiology, Vol 26 Number 3.

<sup>9</sup> Communities and Local Government, ‘The English Indices of Deprivation 2007’.

<http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/>

- Adults and children in Child Tax Credit households (who are not eligible for IS, Income-Based JSA, Pension Credit or Working Tax Credit) whose equivalised income (excluding housing benefits) is below 60% of median before housing costs; and
- Adults and children in households in receipt of National Asylum Support Service (NASS) vouchers.

A little more than 15% of the East Midlands' LSOAs are classified as among the most income deprived 20% of LSOAs in England<sup>10</sup>. However, this overall picture masks significant local differences. For example, almost 51% of LSOAs in Leicester are classified among the most income deprived 20% of LSOAs in England. This proportion was 48% in the case of Nottingham and more than 25% in Chesterfield, Lincoln and Mansfield.

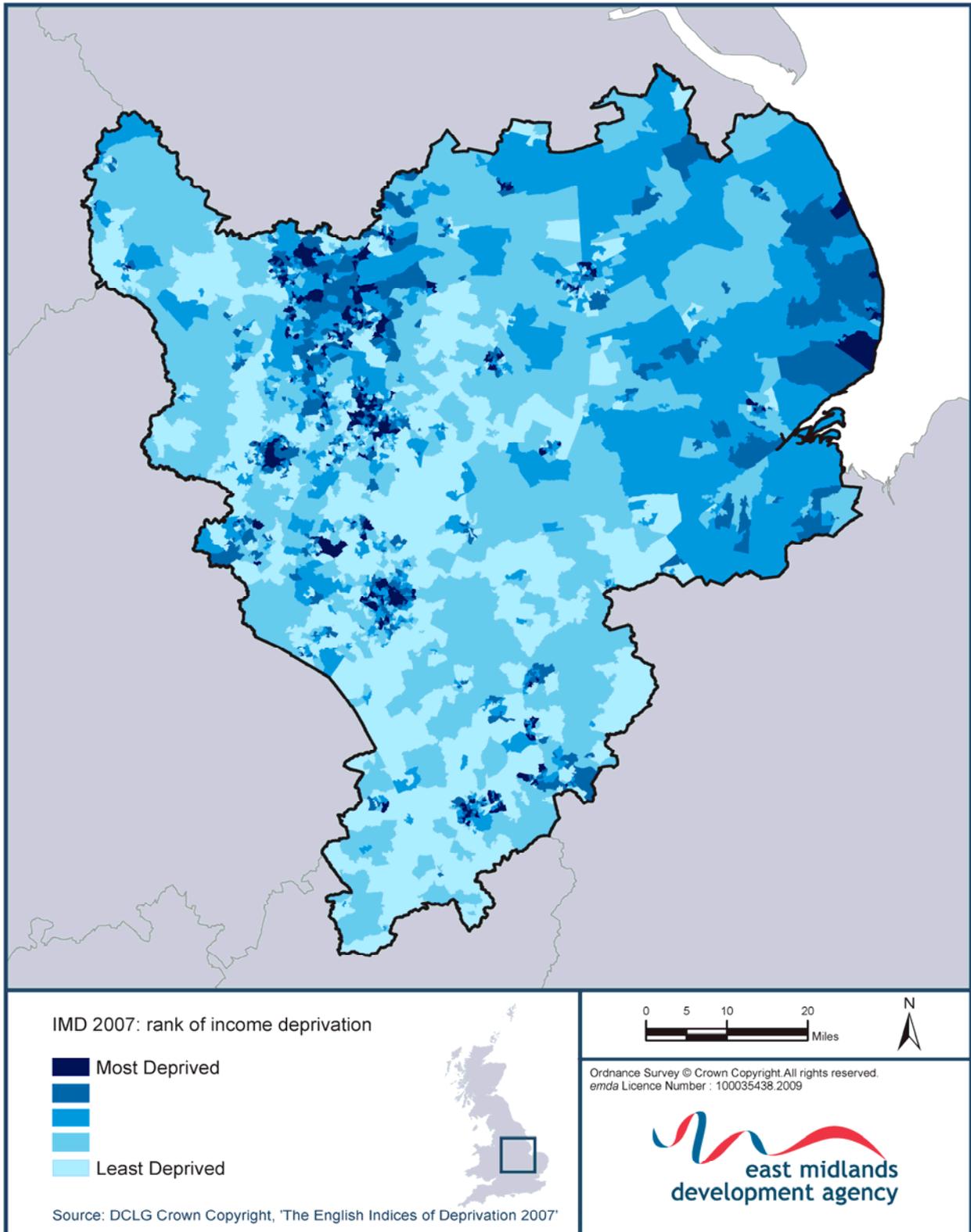
On the other hand, there are a number of Local Authorities which do not have any LSOAs among the most income deprived 20% of LSOAs in England: Blaby, Harborough, Melton, Oadby and Wigston, Rutland, South Holland, Rushcliffe and South Northamptonshire. More than half of the LSOAs of these latter two authorities are classified among the least income deprived 20% of LSOAs in England.

Map 2 shows that there are pockets of income deprivation throughout the East Midlands.

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<sup>10</sup> ONS Regional Statisticians in the East Midlands, 'Index of Deprivation 2007'.

**Map 2: IMD 2007: Rank of Income Deprivation**



#### 5.2.4 Employment deprivation 2007

Employment deprivation accounts for 22.5% of the score of the overall deprivation index. The purpose of the employment deprivation measure is to capture involuntary exclusion of the working-age population from the world of work. The domain includes six indicators:

- Job Seekers Allowance Claimants (both contributory and income based) among women aged 18-59 and men aged 18-64;
- Participants in New Deal for the 18-24s who are not in receipt of JSA;
- Participants in New Deal for 25+ who are not in receipt of JSA;
- Participants in New Deal for Lone Parents aged 18 and over;
- Incapacity Benefit claimants for women aged 18-59 and men aged 18-64; and
- Severe Disablement Allowance claimants for women aged 18-59 and men aged 18-64.

Just over 17% of the East Midlands' LSOAs are among the most employment deprived 20% of LSOAs in England<sup>11</sup>. This reflects the historical labour market trend with a higher regional employment rate compared to the national average. However, this overall picture hides local differences. For example, 53.0% of LSOAs in Mansfield are classified among the most employment deprived 20% of LSOAs in England. This proportion was also high in Bolsover (47.9%), Chesterfield (42.6%), Nottingham (41.5%) and Leicester (40.6%).

On the other hand, more than 62.2% of LSOAs in Daventry are classified among the least employment deprived 20% of LSOAs in England. This proportion is even higher in Rutland (73.9%) and South Northamptonshire (81.3%), indicating the advantageous local labour market conditions in these areas.

Map 3 shows that employment deprivation in the East Midlands is concentrated in North East Derbyshire, in the west of Nottinghamshire, in East Lindsey, and in the three cities (Nottingham, Leicester and Derby), parts of Northampton and Corby. These vulnerable groups appear to be geographically concentrated in the most deprived local authority wards. As a result of the recession the unemployment rates for these areas may be expected to increase more quickly than rises in national unemployment<sup>12</sup>.

When the most deprived areas were cross-checked with accessibility to employment indicators<sup>13</sup>, it was confirmed that those areas with the most severe employment deprivation (coalfields and coastal districts) suffer from a relatively low proportion of the population having access to employment centres<sup>14</sup>:

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<sup>11</sup> ONS Regional Statisticians in the East Midlands, 'Index of Deprivation 2007'.

<sup>12</sup> Department for Work and Pensions, 'Review of evidence on the impact of economic downturn on disadvantaged groups', Working Paper No 68.

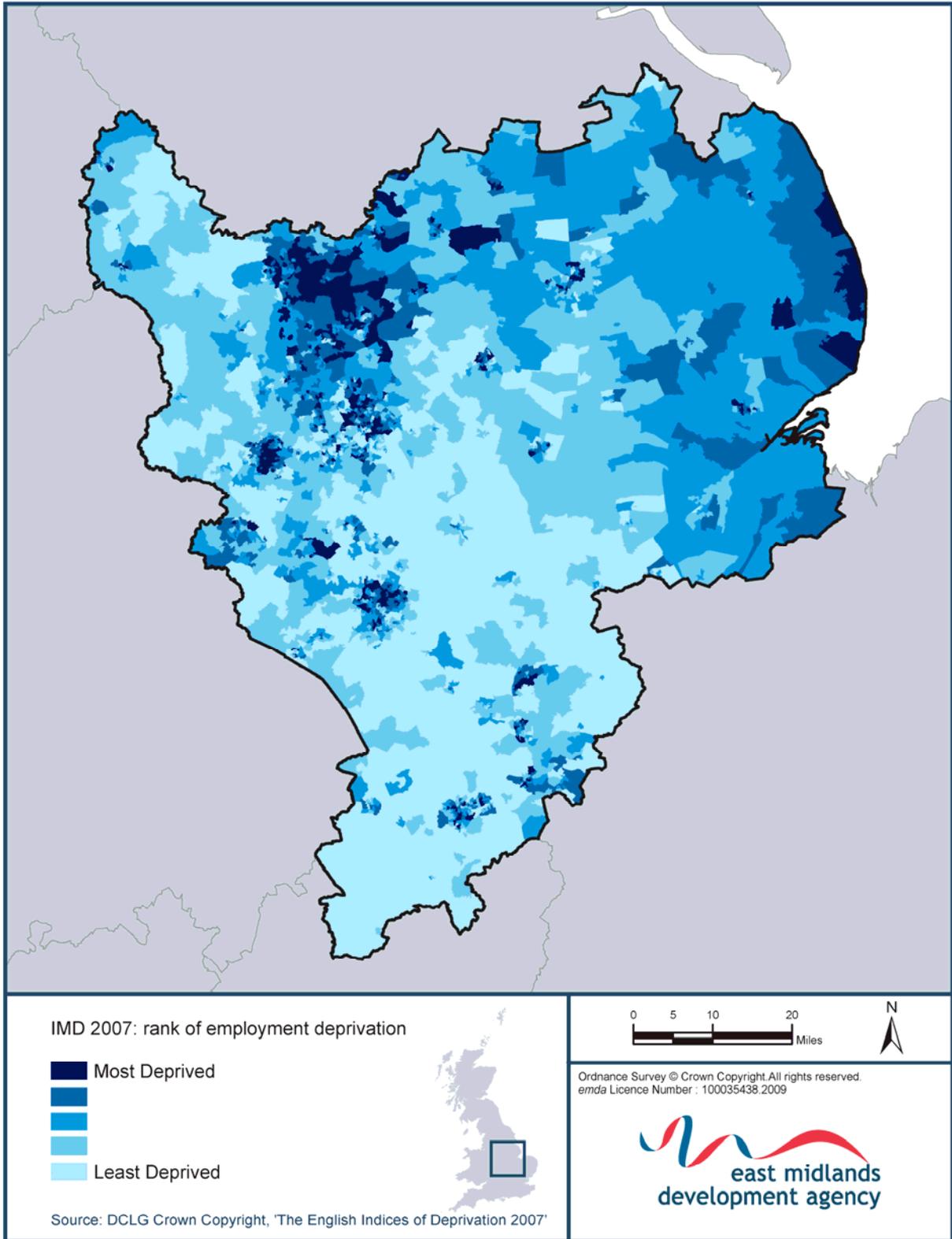
<sup>13</sup> Department for Transport, '2008 Core Accessibility Indicators'.

<http://www.dft.gov.uk/pgr/statistics/datatablespublications/ltp/coreaccessindicators2008>

Number and percentage of people of working age (aged 16 to 74 years) within 20 minutes of a location with more than 500 jobs by a composite of public transport/walking and cycling, and by car. Employment centre is an LSOA with more than 500 jobs. The employment centres were defined using the ABI 2008.

<sup>14</sup> Ibid.

**Map 3: IMD 2007: Rank of Employment Deprivation**



### 5.2.5 Health deprivation 2007

Health deprivation accounts for 13.5% of the score of the overall deprivation index and it includes four indicators<sup>15</sup>:

- Comparative illness and disability ratio;
- Measure of emergency admissions to hospital;
- Measure of adults suffering from mood or anxiety disorders; and
- Years of potential life lost.

A little more than 18% of the East Midlands LSOAs are among the most health deprived 20% of English LSOAs<sup>16</sup>. This average however, varies considerably at Local Authority level. For example, 69.3% of the LSOAs in Nottingham, 57.6% of LSOAs in Mansfield and more than 56% of LSOAs in Bolsover are classified among the most health deprived 20% of English LSOAs. These areas are those where the wider determinants of health such as poverty, poor educational outcomes, unemployment, poor housing, and the problems of disadvantaged neighbourhoods appear to be concentrated as well. In addition, Nottingham, Bolsover, Lincoln, Leicester and Corby are the five Local Authorities in the Spearhead Group<sup>17</sup>.

In contrast, 14 Local Authorities in the East Midlands have no LSOAs listed among the most health deprived 20% of English LSOAs. In addition, in South Northamptonshire and in Rutland more than 85% of LSOAs are classified among the least health deprived 20% of LSOAs in England.

Map 4 shows that there are pockets of health deprivation and disability throughout the East Midlands, but the most deprived areas are found in the north east of Derbyshire, the west of Nottinghamshire, and the east of Lincolnshire, as well as in the three cities.

Improvements in terms of health related indicators require a longer time horizon than changes in most other domains of the Indices of Deprivation such as employment or income domains.

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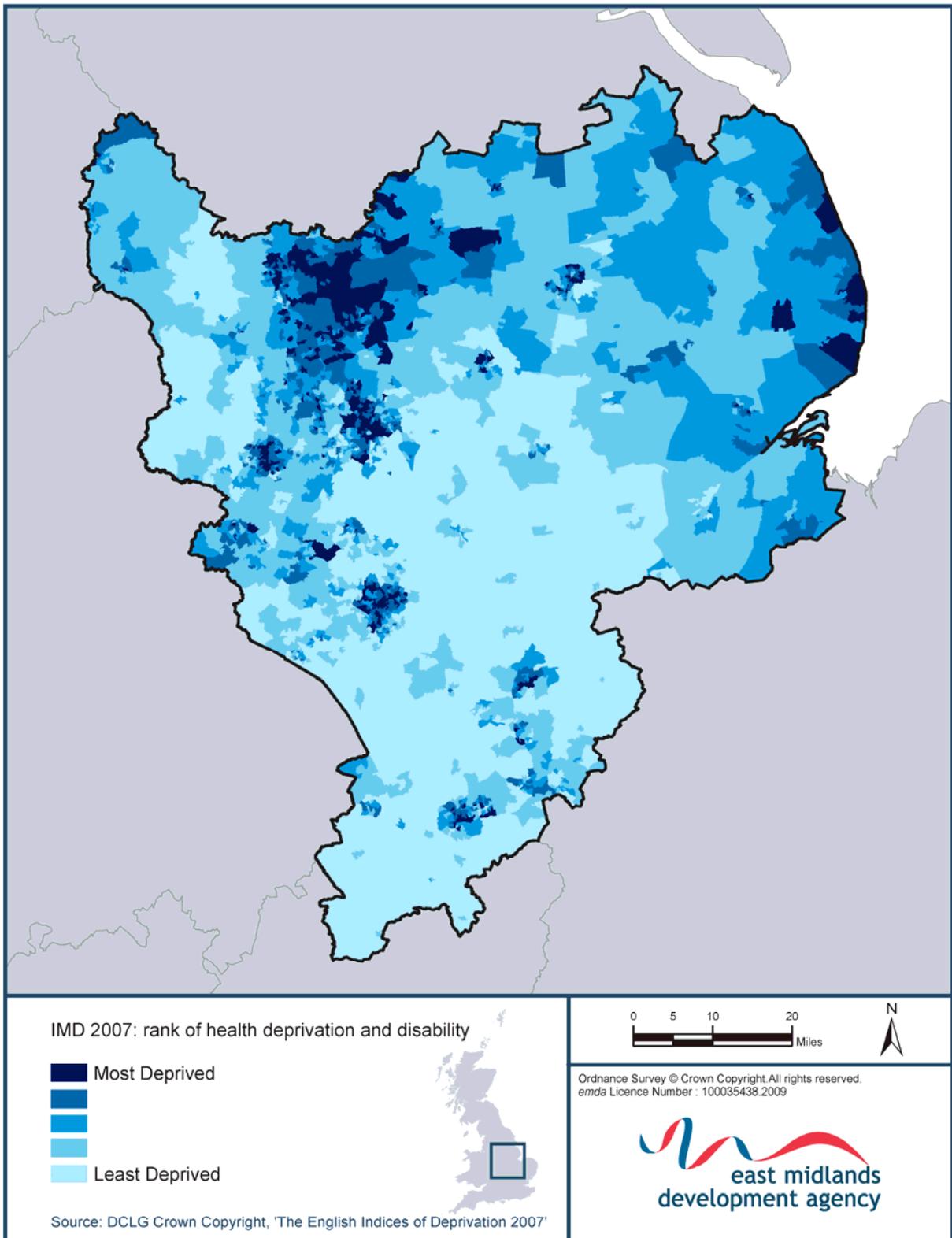
<sup>15</sup> Communities and Local Government, 'The English Indices of Deprivation 2007'.

<http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/>

<sup>16</sup> Jen Beaumont and Andy Botterill: Index of Deprivation 2007, Office for National Statistics: Regional Statisticians in the East Midlands.

<sup>17</sup> Spearhead Group are those which are among the worst quintile in England for at least three of five selected indicators. These indicators are: male and female life expectancy; death rates in people aged less than 75 years for cancer and circulatory disease, and the Index of Multiple Deprivation 2004. For more information see the 'State of health in the East Midlands' sub-section.

Map 4: IMD 2007: Rank of Health Deprivation and Disability



**Key Points: The English Index of Multiple Deprivation 2004-2007**

- In the East Midlands there were 717,000 people living in deprived areas in 2007 which accounts for 16.6% of the regional population.
- A little more than 7% of those who live in the most deprived areas in England are resident in the East Midlands.
- The most deprived LSOAs of the East Midlands are concentrated around the three cities of Leicester, Derby, and Nottingham, along with the districts of Mansfield, Ashfield, Bassetlaw, Chesterfield and Bolsover in the coalfields area and on the coast.
- The least deprived LSOAs can be found around the centre and the south of the region.
- Three East Midlands districts have moved out from the most deprived 20% of districts in England and shifted towards the most deprived 20%-40% in 2007. These are Lincoln, Ashfield and Chesterfield.
- A lower than average proportion of East Midlands' LSOAs can be classified as employment, income or health deprived. However, it needs to be noted that there are significant variations within the region.

### 5.3 Labour market participation in the East Midlands

Labour market participation is one of the fundamental indicators of deprivation in its widest sense. Apart from the direct benefits of being in work, such as financial returns, there are a number of indirect benefits of work in terms of the usage of skills, knowledge and abilities, social life and relationships and increased self esteem. For more details regarding the measurement and definitions of participation, see the Labour Market chapter.

The previous section of this chapter focused on deprived places based on the proportion of the population in a particular area experiencing relative deprivation. This sub-section comments on participation in the labour market by various sub-groups (gender, age, ethnicity and disability). The data by ethnicity is presented in terms of a white/ethnic minority<sup>18</sup> breakdown because the sample size of the Annual Population Survey (APS) is not large enough to allow for a more detailed breakdown.

The recent recession has had a differential impact across the population. Firstly, it has so far impacted more on men in employment than women. In the East Midlands the unemployment rate for men was 2.4 percentage points higher in the period November-January 2010 compared to the same period a year earlier, while female unemployment rate was 0.4 percentage points lower in the period November-January 2010 compared to the same period a year earlier<sup>19</sup>.

Employment rates have decreased for each age group below state pension age during the recession. Employment rates of young people (16-17 year olds and 18-24 year olds) experienced the largest decrease, compared with other age groups. In July 2008-June 2009 the employment rate of 16-17 year olds was 30.2% in the East Midlands and decreased by 8.2 percentage points compared to the same period a year earlier. This is compared to a decrease of working age employment rate of 0.7 percentage points in the East Midlands<sup>20</sup>. In addition, the claimant count unemployment rate increased the most among 18-24 year olds. Between February 2010 and February 2009 the number of 18-24 year old JSA claimants increased more in the East Midlands than in the UK. The number of 18-24 year olds claiming JSA increased by 13.7% in the East Midlands compared to 10.9% in the UK<sup>21</sup>.

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<sup>18</sup> Ethnic identification is a subjective (self-reported by people being asked which group they see themselves as belonging to) and multidimensional phenomenon. Minority ethnic groups are differentiated based on a combination of categories including 'race', skin colour, national and regional origins, and language. Although the content of ethnic monitoring categories has been modified over time, what has remained fixed is the assumption of an 'ethnic majority'; that is white, of British origin, and English-speaking.

(Office for National Statistics, 'Ethnic group statistics – A guide for the collection and classification of ethnic data').

<sup>19</sup> Office for National Statistics, 'Labour market statistics, March 2010: East Midlands'. Table 1, Table 2.

<sup>20</sup> Ibid.

<sup>21</sup> Source: ONS Crown Copyright, 'Claimant count – age and duration' February 2010, from NOMIS.

In addition, as the difference in employment rates between ethnic minorities and the white population is relatively high, it is likely that the recession may increase this gap further as members of ethnic minorities are more vulnerable to unemployment<sup>22</sup>.

### 5.3.1 Economic activity by group

The economic activity rate measures the percentage of the population who are in employment or unemployed. The activity rate is a useful general measure of labour market participation. It is usually expressed as a percentage of the working age population. A comparison of the economic activity of the East Midlands with other regions and the UK can be found in the labour market chapter. A discussion of employment and unemployment by various sub-groups follows in subsequent sections.

The economic activity rate was 80.8% in 2008 in the East Midlands compared to 78.6% in the UK. In addition to the differences within the region by place, there are also considerable differences in economic activity rates between groups in the region.

Chart 2 shows how activity rates in the East Midlands differ by gender, disability and ethnicity. The economic activity rate for women is lower than that for men at 76.6% compared to 84.5%. The economic activity rate for those with a disability<sup>23</sup> is just 44.5%, around half the rate of those without a disability.

In 2008 the economic activity rate of the white working age population was 81.7% in the East Midlands compared to 71.3% for the ethnic minority population, a difference of 10.4 percentage points. However, the activity rate for whites and for ethnic minorities in the East Midlands are above their respective UK averages of 80.0% and 67.9% and relatively more so in the case of ethnic minority groups.

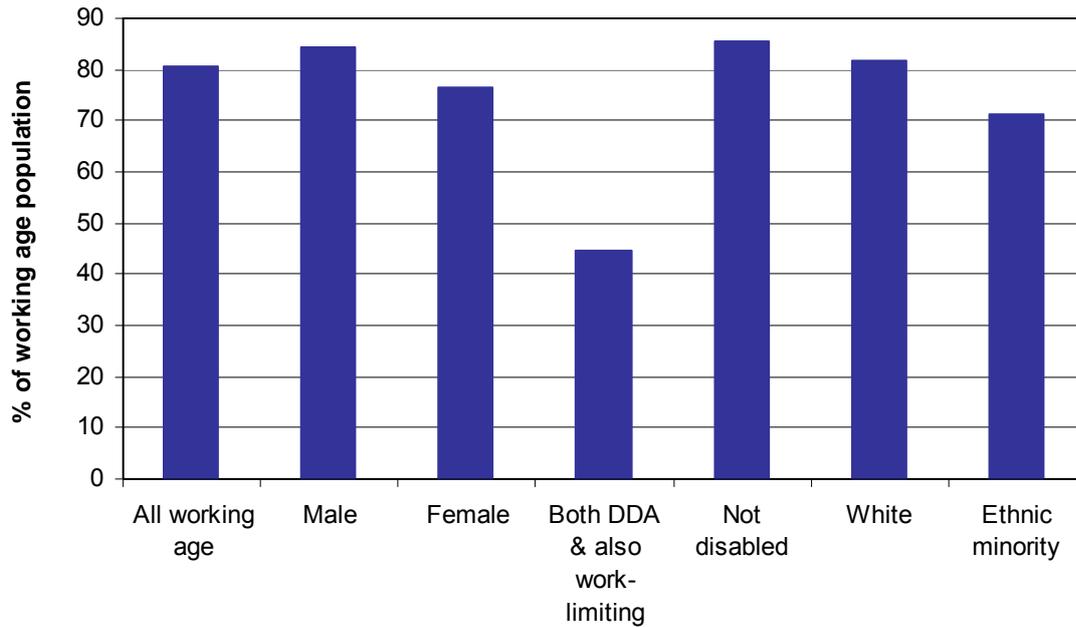
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<sup>22</sup> Department for Work and Pensions, 'Review of evidence on the impact of economic downturn on disadvantaged groups', Working Paper No 68. page 32.

<sup>23</sup> DDA disability is based on the Disability Discrimination Act 1995 amended by the Disability Discrimination Act 2005. The Disability Discrimination Act (DDA) defines a disabled person as someone who has a physical or mental impairment that has a substantial and long-term adverse effect on his or her ability to carry out normal day-to-day activities.

[http://www.direct.gov.uk/en/DisabledPeople/RightsAndObligations/DisabilityRights/DG\\_4001069](http://www.direct.gov.uk/en/DisabledPeople/RightsAndObligations/DisabilityRights/DG_4001069)

**Chart 2: Economic activity rates by group, East Midlands 2008 (%)**



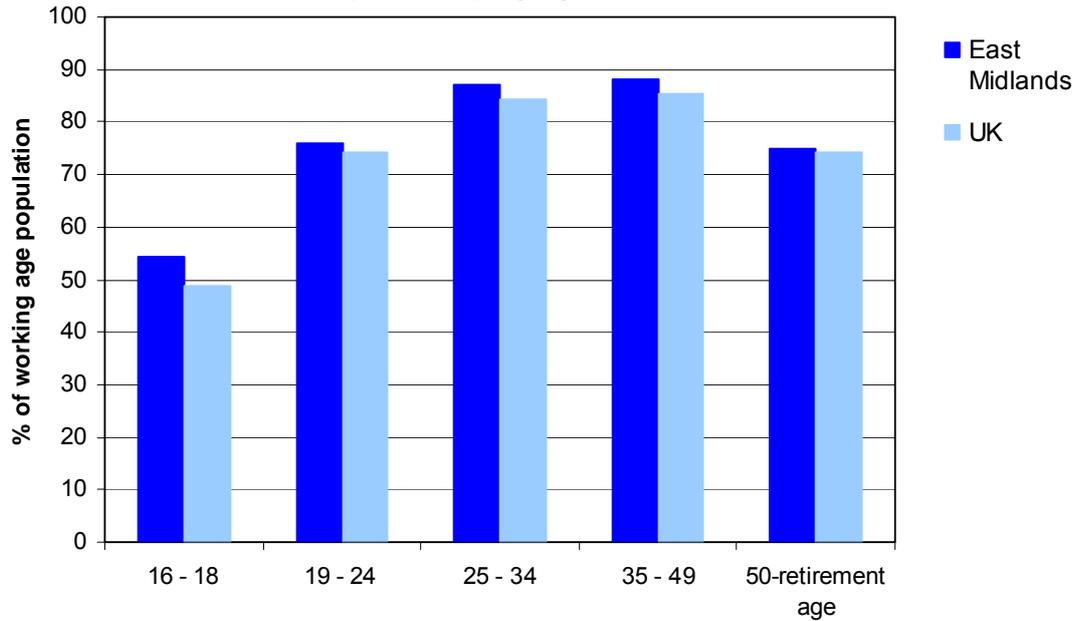
Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.  
Note: Activity rate for ethnicity is calculated as 100 minus percentage of whites/ethnic minorities of working age who are economically inactive from NOMIS.

The economic activity rate varies significantly by age group. In order to provide a relevant picture about the regional labour market in line with the Leitch Review, 16-18 year olds are separated from the 19 year olds and the older population.

The relationship between economic activity and age is largely similar in the East Midlands to the UK – a reverse U shape relationship meaning that as age increases, economic activity also increases before falling in the highest age band.

- The economic activity rate of 16-18 year olds is 5.4 percentage points higher in the East Midlands than in the UK (54.3% and 48.9% respectively).
- The economic activity rate of 19-24 year olds is 1.6 percentage points higher in the East Midlands than in the UK (75.9% and 74.3% respectively).
- The economic activity rate of those aged 50 and retirement age is 1 percentage points higher in the East Midlands than in the UK (75.0% and 74.0% respectively).

**Chart 3: Economic activity rates by age groups, 2008**



Source: Annual Population Survey January-December 2008 Client File, ONS Regional Statistician.

Latest labour market statistics<sup>24</sup> show that for the period of July 2008-June 2009 the activity rate was 80.9% for the working age population in the East Midlands. However, the economic activity rate was lower for younger age groups (16-17 and 18-24 year olds) and due to the recession economic activity rate of 16-17 and 18-24 year olds decreased more than the average for all age groups. The activity rate of 16-17 year olds in the East Midlands decreased by 6.4 percentage points on the year to July 2008-June 2009, compared to the average of 0.6 percentage points increase for the whole working age population. The activity rate of 18-24 year olds in the East Midlands decreased by 1.7 percentage points between July 2007-June 2008 and July 2008-June 2009. This suggests that the recession had a disproportionate impact on the younger age groups.

### 5.3.2 Employment by group

Chart 4 shows how employment rates in the East Midlands differ by gender, disability and ethnicity in 2008. The employment rate for women is considerably lower than that for men at 72.3% compared to 79.2%. The employment rate for those with a disability is 38.6%, which is less than half the rate reported for those without a disability (80.8%)<sup>25</sup>. These figures for the East Midlands are higher than their respective national averages.

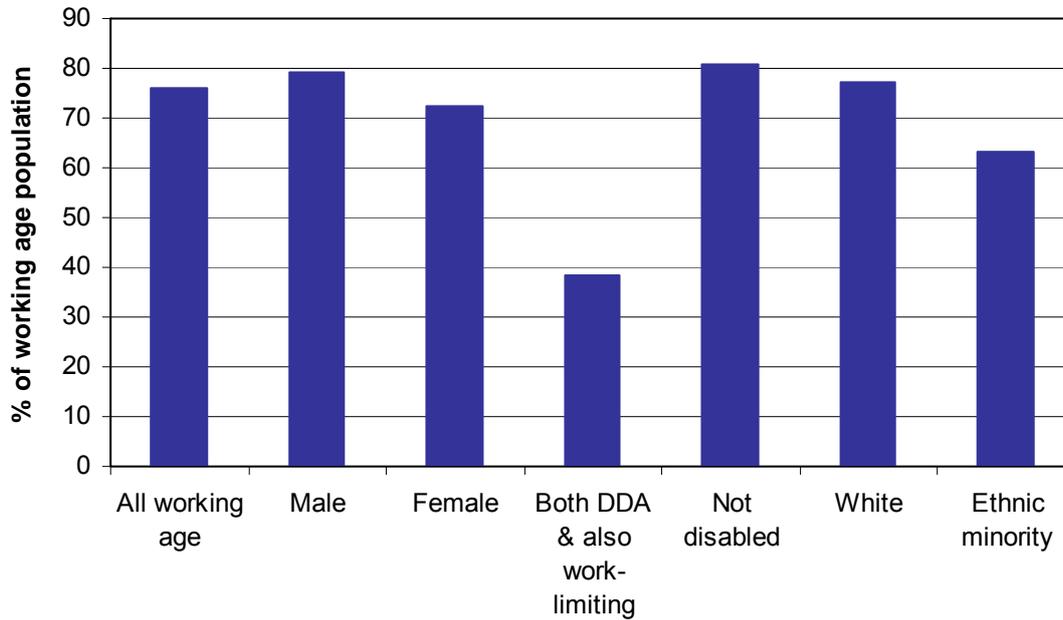
The working age employment rate for ethnic minorities in the East Midlands is 63.4%, significantly below the rate for those who are white (77.2%). However, the employment rate for ethnic minorities and whites are above the national averages of 60.3% and

<sup>24</sup> Office for National Statistics, 'Labour market statistics, March 2010: East Midlands' Table 9. Please note that these age bands are slightly different than those applied earlier in this section.

<sup>25</sup> PSA 16 aims to increase the proportion of socially excluded adults such as care leavers, ex-offenders, adults with mental health issues, adults with moderate to severe learning disabilities, in settled accommodation and employment, education or training.

75.8% respectively. The gap between the employment rates of whites and ethnic minorities is smaller in the East Midlands than in England, at 13.8% compared to 15.5%.

**Chart 4: Employment rate by group, East Midlands 2008 (%)**



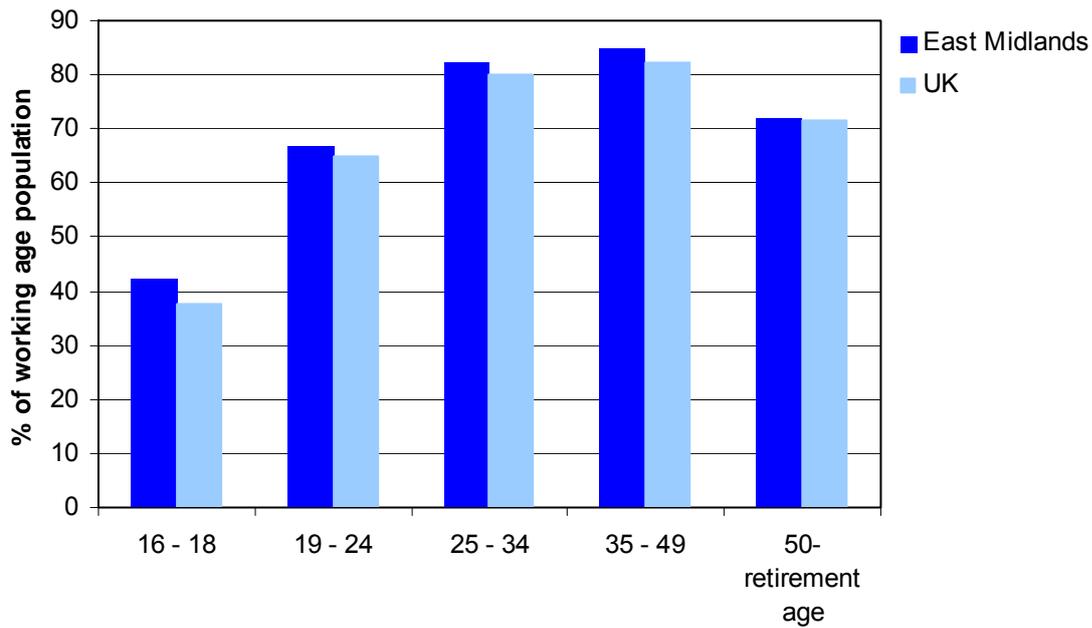
Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.  
 Note: For definition of employment rate see Labour Market chapter.

Employment rates also vary significantly by age group. Chart 5 shows that employment rates in the East Midlands slightly exceed the UK in every age group. The 35-49 age group has the highest employment rate (both regionally and nationally) at 88.1% in the East Midlands compared to 82.1% in the UK.

The lowest employment rates are found among the 16-18 year old age group both regionally and nationally. The employment rate of younger age groups is higher in the East Midlands than in the UK. The employment rate of 16-18 year old was 42.3% in the East Midlands compared to 37.7% in the UK in 2008. This can be linked to the slightly higher proportion of East Midlands employers recruiting young labour market entrants aged 16, 17 and 18 years old as highlighted in the Labour Market chapter.

The employment rate of those of 50-retirement age was 72.1% in the East Midlands, slightly higher than in the UK (71.5%). The employment rate of those over retirement age was 10.6% in the East Midlands, similar to the UK average of 11.5%.

**Chart 5: Employment rate by age group, 2008 (%)**



Source: Annual Population Survey January-December 2008 Client File, ONS Regional Statistician.

Latest labour market statistics<sup>26</sup> show that for the period July 2008-June 2009 the employment rate was 75.2% in the East Midlands. The employment rate was significantly lower among young age groups and decreased the most over the year to July 2008-June 2009. The employment rate of 16-17 year olds was 30.2% in the East Midlands and decreased by 8.2 percentage points on the year to July 2008-June 2009. This is compared to the decrease of working age employment rate of 0.7 percentage points in the East Midlands.

### 5.3.3 Occupation by ethnic group and gender

There are differences between the East Midlands and the UK in the occupational structure of employment. The region has proportionately more jobs at the lower end of the occupational scale and fewer jobs at the upper end of the occupational scale. The Labour Market chapter discusses the current and future prospects for occupational change in the region. This section discusses the main differences of the occupational structure in the East Midlands and the UK by ethnicity and gender. Data is not available for other groups.

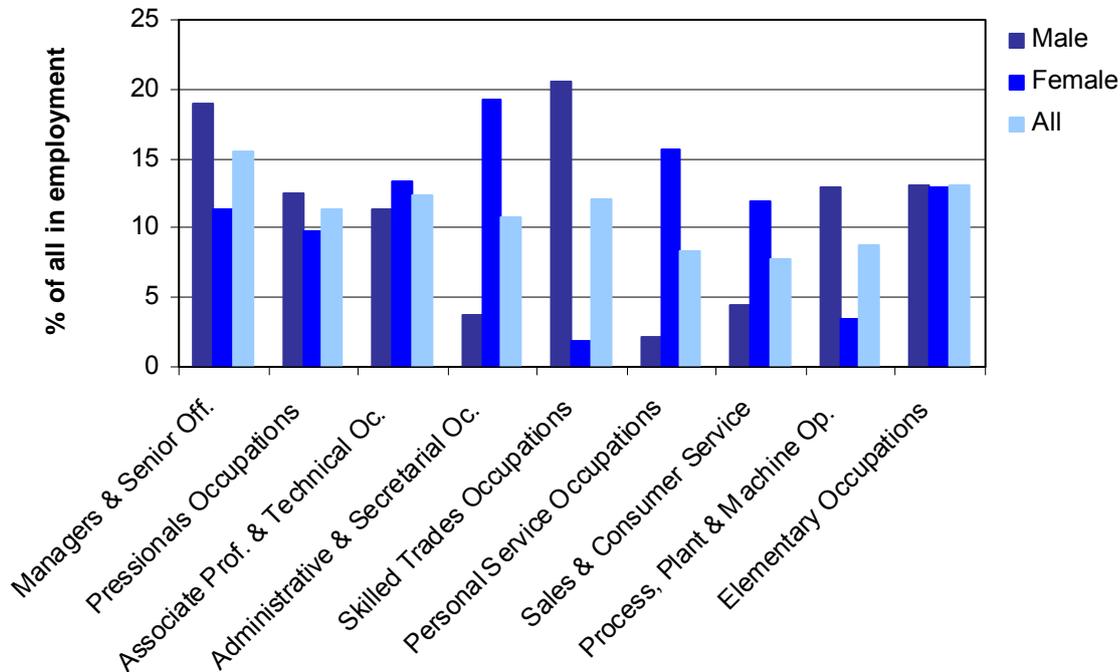
#### Occupation by gender

Chart 6 shows the occupational structure of male and female employees in the East Midlands. Male employees are significantly more likely to be employed in manager and senior official positions (18.9%), skilled trades (20.6%) and process, plant and machine operative positions (13.0%). This is compared to the proportion of female employees

<sup>26</sup> Office for National Statistics, 'Labour market statistics, March 2010: East Midlands' Table 2. Please note that these age bands are slightly different than those applied earlier in this section.

working in these occupations of 11.4%, 1.8% and 3.5% respectively. On the other hand, female employees are significantly more likely to be employed in administrative and secretarial (19.2%), personal services (15.6%) and sales and customer services positions (11.9%). This is compared to the proportion of male employees working in these occupations at 3.7%, 2.2% and 4.4% respectively.

**Chart 6: Occupational structure of male and female employment, East Midlands 2008**



Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

### Occupation by ethnicity

Table 2 shows that there are significant differences between whites and ethnic minorities in the nature of their employment. Generally, ethnic minorities are more likely to be employed in lower skilled and lower paid jobs compared to their white counterparts both in the East Midlands and in the UK. Both in the East Midlands and the UK a somewhat lower proportion of ethnic minorities than whites are employed as managers & senior officials. However, the pattern is reversed among professional occupations where the proportion of ethnic minorities is greater than that of whites at 16.9% compared to 10.9% in the East Midlands and at 15.7% compared to 12.8% in the UK. In the UK, there are significantly fewer ethnic minorities employed in administrative and secretarial occupations and even fewer in skilled trades occupations compared to their white counterparts and this pattern exists in the East Midlands as well. However, the proportion of ethnic minorities employed at the lower end of the occupational scale as process, plant & machine operatives and elementary occupations is significantly higher than for whites in both the East Midlands and in the UK.

**Table 2: Percentage of different ethnic groups in employment by occupations, 2008**

% in employment who are...	UK			East Midlands		
	All	White*	Ethnic minority**	All	White*	Ethnic minority**
Managers and senior officials	15.5	15.9	12.7	15.5	15.9	11.5
Professionals	13.0	12.8	15.7	11.3	10.9	16.9
Associate prof & tech	14.5	14.6	14.2	12.3	12.3	11.9
Administrative and secretarial	11.4	11.6	10.1	10.8	11.0	8.2
Skilled trades	10.9	11.4	6.7	12.0	12.6	5.5
Personal service occupations	8.2	8.1	9.0	8.3	8.3	8.7
Sales and customer service	7.6	7.4	10.1	7.8	7.6	10.8
Process, plant and machine operatives	7.1	7.0	7.7	8.7	8.5	11.1
Elementary occupations	11.4	11.2	13.8	13.1	12.9	15.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.

Note: \* %16+ whites in employment.

\*\* %16+ ethnic minorities in employment.

### 5.3.4 Earnings by gender

Earnings are a function of a number of factors including the nature and type of employment. The Annual Survey of Hours and Earnings (ASHE) provides estimates on earnings from employment<sup>27</sup> by gender. This is analysed in detail for the total working age population in the Labour Market chapter.

The earnings information collected relates to gross pay before tax, National Insurance and other deductions, and excludes payments in kind.

The Government Equalities Office suggests examining the gender pay gap<sup>28</sup> as the percentage difference between the median<sup>29</sup> hourly earnings of men and women, excluding overtime payments.

Workplace based full time median hourly pay, excluding overtime, is 8.3% lower in the East Midlands than in the UK. The gender pay gap is also greater than the national

<sup>27</sup> In ONS published reports, the standard practice for presenting earnings estimates is to use the figure for full-time workers rather than the total workers figure. Full-time workers are defined as those who work more than 30 paid hours per week or those in teaching professions working 25 paid hours or more per week.

In published ONS reports, median earnings rather than the mean will generally be used. The median is the value below which 50% of employees fall. It is preferred over the mean for earnings data as it is influenced less by extreme values and because of the skewed distribution of earnings data.

<sup>28</sup> <http://www.equalities.gov.uk>: The Equal Pay Act 1970 requires equal pay between men and women where they are employed on equal work. The term "equal work" refers to work that has been rated as equivalent under a job evaluation study; or work of equal value. The concept of "equal pay" includes both pay and other terms and conditions of the contract of employment.

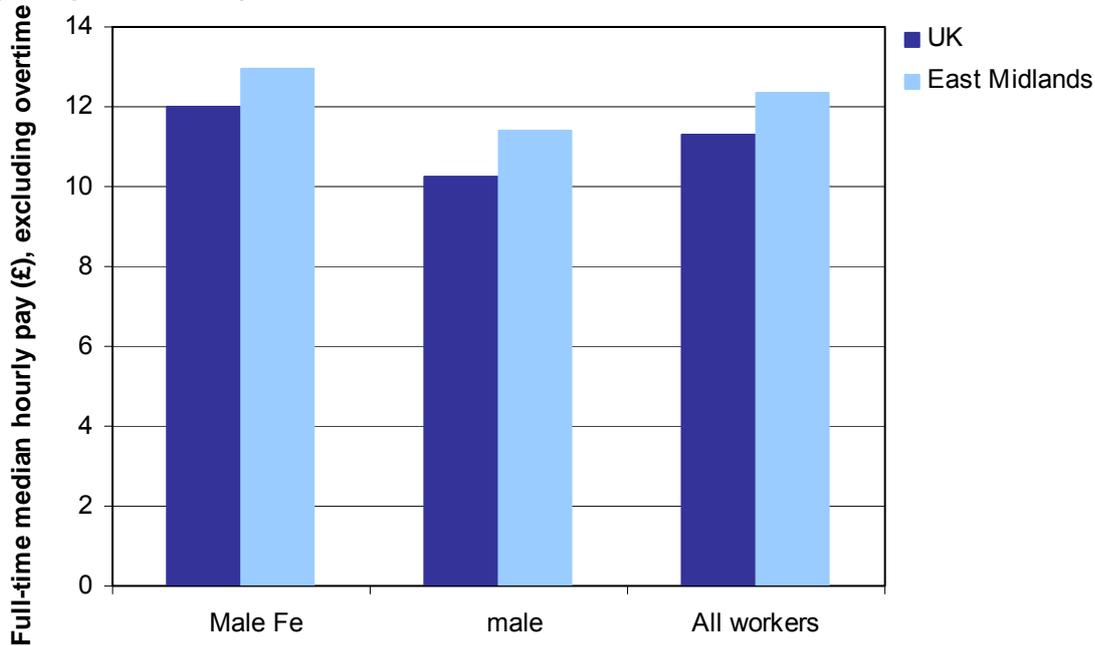
<sup>29</sup> Since October 2004 the Office for National Statistics has recommended measuring the gender pay gap using the median, rather than the mean value.

[http://www.equalities.gov.uk/what\\_we\\_do/women\\_and\\_work/gender\\_pay\\_gap.aspx](http://www.equalities.gov.uk/what_we_do/women_and_work/gender_pay_gap.aspx)

This section applies the same ONS methodology as the Government Equalities Office to calculate the gender pay gap. While the data cited by the Equalities Office have been taken from the Labour Force Survey results for the period March-May 2009, this section uses the calendar year figures for 2009.

average. Male median hourly earnings are 12.2% higher than female earnings for the UK. In the East Midlands this gap is greater at 14.4%.

**Chart 7: Full-time median hourly pay (£), excluding overtime for men and women, 2009 (workplace based)**



Source: ONS Crown Copyright, 'Annual Survey of Hours and Earning', workplace analysis 2009, from NOMIS.

The causes of the gender pay gap are complex. Key factors include differences in educational levels and work experience and occupational segregation<sup>30</sup>.

### 5.3.5 Unemployment by group

The Office for National Statistics measures unemployment based on the International Labour Organisation (ILO) definition<sup>31</sup>. For a detailed definition please see the Labour Market chapter.

Although historically the unemployment rate in the East Midlands has been lower than the national average, and in 2008 was not significantly different from the UK level, significant differences exist by gender, disability, ethnicity and age.

The latest quarterly Labour Force Survey data are not available at regional level by group. However, claimant count statistics show that in February 2010, the claimant count rate in the East Midlands was 4.2%, which accounts for about 115, 400 people. The claimant count rate was 5.8% for men and 2.4% for women<sup>32</sup>.

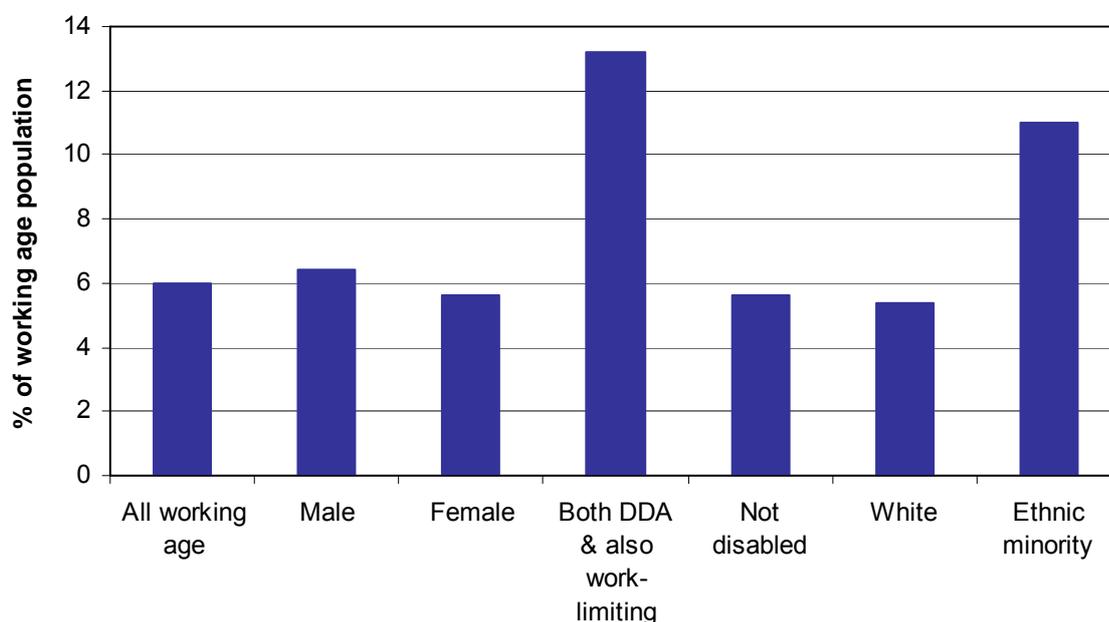
<sup>30</sup> Government Equalities Office, 'Tackling the Gender Pay Gap – Fact Sheet' <http://www.equalities.gov.uk/pdf/GenderPayGap.pdf>

<sup>31</sup> Office for National Statistics, 'How exactly is unemployment measured?' [http://www.statistics.gov.uk/downloads/theme\\_labour/unemployment.pdf](http://www.statistics.gov.uk/downloads/theme_labour/unemployment.pdf)

Figure 10 shows that the unemployment rate varied significantly among different groups in the East Midlands in 2008. The unemployment rate for males was 6.4%, compared to 5.6% for females, which is not a significant difference. The unemployment rate for those with disability was 13.2%, more than twice as high as the unemployment rate for those who do not have a disability (5.6%).

Unemployment rates for ethnic minority groups also show significant differences. This indicator is not comparable to those presented previously because the denominator is not the working age population, but the population who are over 16. The unemployment rate of whites aged 16+ was 5.4% in 2008 in the East Midlands. However, the unemployment rate amongst ethnic minorities was more than twice as high, at 11.0% in the East Midlands. This is the same as the figure for the UK.

**Chart 8: Unemployment rate by group, East Midlands, 2008**



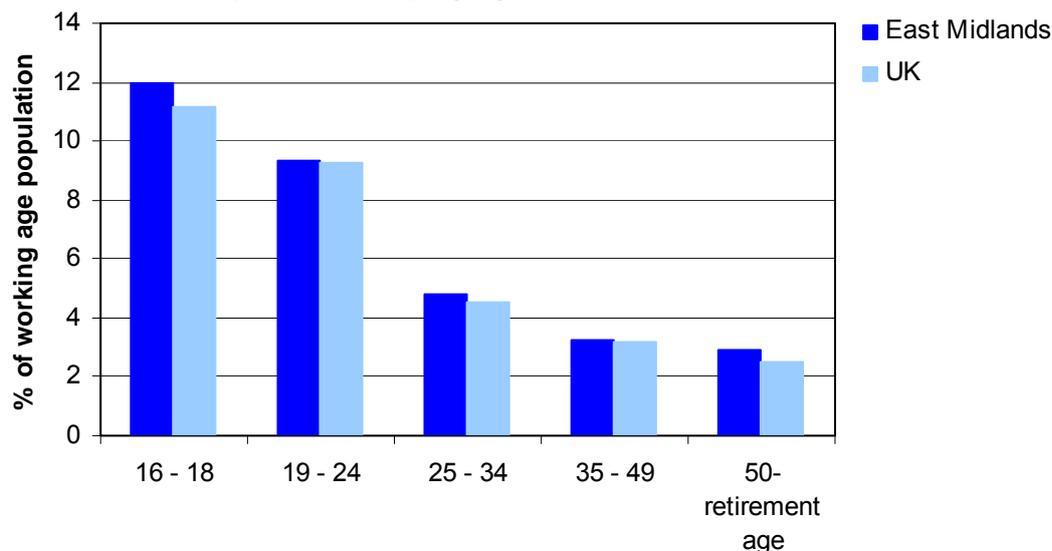
Source: ONS Crown Copyright, 'Annual Population Survey', January-December 2008, from NOMIS.  
 Note: Unemployment rate for ethnicity covers the 16+ population.

Chart 9 shows the unemployment rate by age group. The regional unemployment rate – in line with the national figures – is the highest among 16-18 year olds. In the East Midlands, 12.0% of 16-18 year olds were unemployed in 2008, slightly higher than the UK average of 11.2%.

- The unemployment rate is lower amongst 19-24 year olds compared to 16-18 year olds. In the East Midlands, the unemployment rate for 19-24 year olds is 9.3%, the same as the national average.
- The unemployment rate is the lowest amongst the 50-retirement age group at 2.9% in the East Midlands and 2.5% in the UK.

<sup>32</sup> Office for National Statistics, 'Labour Market Statistics, March 2010: East Midlands'. Table 16.

**Chart 9: Unemployment rate by age group, 2008**



Source: Annual Population Survey, January-December 2008, Client File, ONS Regional Statisticians.

### **Key Points: Labour Market Participation in the East Midlands**

- In the East Midlands the economic activity rate for women is lower than that for men. In addition, the economic activity rate of disabled people is less than half the rate of those without a disability.
- In the East Midlands the economic activity rate of the white working age population was 10.4 percentage points higher than the activity rate of ethnic minorities.
- Both in the East Midlands and in England, as age increases, economic activity also increases before falling in the highest age band (50-retirement age).
- In the East Midlands, the unemployment rate of disabled people is more than twice as high as the unemployment rate for those without a disability.
- The unemployment rate amongst ethnic minorities is more than twice as high as amongst whites in the East Midlands.
- The unemployment rate – in line with the national figures – is the highest among 16-18 year olds.
- Statistics show that employment rate was significantly lower among young age groups. The recession had a disproportionate impact on young people as both activity and employment rates decreased the most among them.
- Male employees are significantly more likely to be employed in manager and senior official positions, skilled trades and process and plant and machine operative positions than female employees. Female employees are significantly more likely to be employed in administrative and secretarial, personal services and sales and customer services positions.
- In the East Midlands and the UK a significantly lower proportion of ethnic minorities than whites are employed as managers and senior officials.
- The gender pay gap in the East Midlands is also greater than the national average.

## 5.4 Participation and education achievement by group

Participation in formal education is essential to develop the skills and competencies that are fundamental for making informed career decisions and for doing a job well. This section discusses participation, educational attainment and achievement of East Midlands pupils by ethnicity and Special Educational Need (SEN).

### 5.4.1 Participation in education and Work Based Learning of 16 and 17 year olds<sup>33</sup>

In 2007, the participation rate in full-time<sup>34</sup> and part-time education, and Work Based Learning (WBL) of 16 and 17 year olds was 80% in the East Midlands. This is 3 percentage points lower than the English average of 83%. However, this overall picture masks significant sub-regional differences. Chart 10 shows that:

- The participation rate was the highest in Leicester at 91%; and
- The participation rate was the lowest in Rutland at 68%.

In 2007, the participation rate of 16 and 17 year olds in full-time education was 68% in the East Midlands, 4 percentage points lower than the national average of 72%. Again, as chart 10 shows there are significant sub-regional disparities:

- The participation rate in full-time education was the highest in Leicester at 83%;
- The participation rate in full-time education was the lowest in Derby at 62%.

“Work Based Learning” is a generic term used to describe vocationally focused learning completed within the workplace. In 2007, the participation rate of 16 and 17 year olds in workplace-based learning was 7% both in the East Midlands and in England. However, as Chart 10 shows there are significant sub-regional differences:

- The participation rate of 16 and 17 year olds in workplace-based learning was the highest in Derby and Nottinghamshire at 9%; and
- The participation rate was the lowest in Rutland at just 2%.

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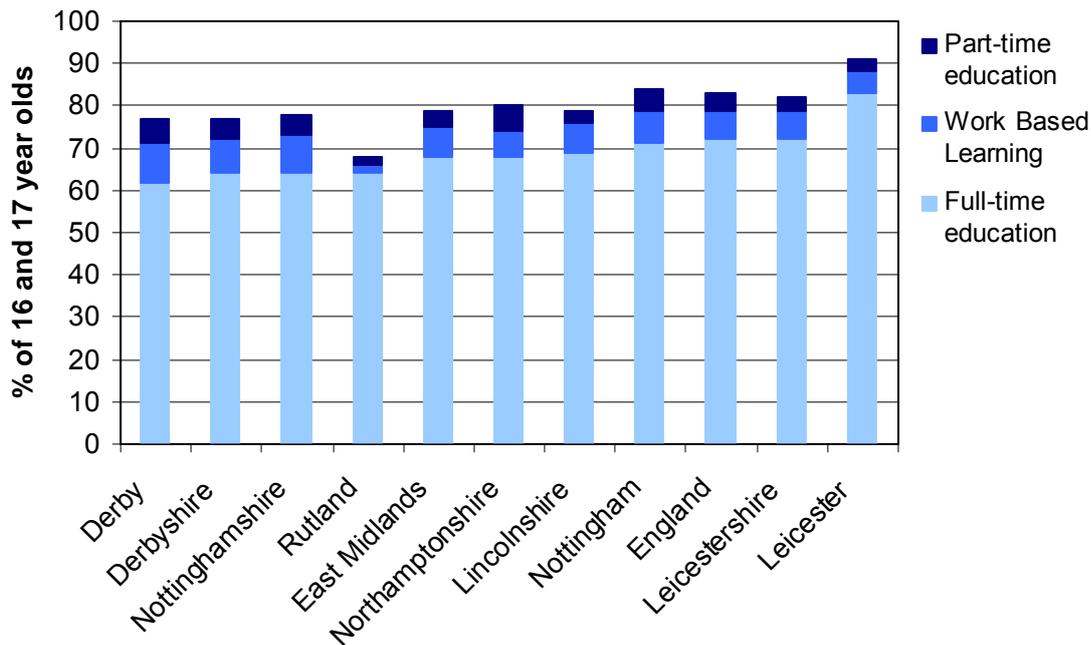
<sup>33</sup> Department for Children, School and Families, ‘Participation in education and work based learning (WBL) of 16 and 17 year olds, Local Authority (LA) Tables’.

<http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000849/index.shtml>

Published, 16 June, 2009.

<sup>34</sup> Full-time education covers maintained schools, independent schools (city technology colleges, academies and pupil referral units), sixth form colleges and Further Education Colleges (general, tertiary and specialist colleges). For both Child Benefit and Child Tax Credit, full-time education means a course where the average time spent during term time is more than 12 hours a week and is not advanced, or linked to employment or any office held. (<http://www.hmrc.gov.uk/manuals/ccmmanual/CCM18030.htm>)

**Chart 10: Participation rate in formal education and Work Based Learning (WBL) of 16 and 17 year olds, 2007**



Source: Department for Children, School and Families, 'Participation in education and work based learning (WBL) of 16 and 17 year olds' <http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000849/index.shtml>

Note: Bars show the total participation rate which is the sum of participation rate of full-time education, part-time education and WBL. Therefore full-time, part-time and WBL categories are mutually exclusive.

#### 5.4.1.1 Pupil absence

Chronic absenteeism of school age children is a problem as it jeopardises their progress at school. Absenteeism occurs for legitimate reasons such as illness or family crisis but the level of unauthorised absenteeism is a concern for policy making.

There are two ways to examine school absenteeism. Firstly, based on the number of half days<sup>35</sup> missed as a percentage of total half days. Secondly, based on the percentage of enrolments, a proxy for pupils that can be classified as persistent absentees. Persistent absentees are defined as pupils having 48 or more half days of absence (authorised and unauthorised) across both examined terms (autumn term 2008 and the spring term 2009).

Between the autumn term in 2008 and the spring term in 2009, the overall absence rate<sup>36</sup> was 5.4% in East Midlands primary schools, 0.1 percentage points lower than the English average of 5.5%. The overall absence rate in the secondary schools was the same in the region and in England at 7.2%. As Chart 11 shows, the proportion of unauthorised absence is largely the same in the region compared to the figures for England as a whole.

<sup>35</sup> Half days are often referred to as 'sessions'.

<sup>36</sup> Department for Children, Schools and Families, 'Pupil absence in schools in England: autumn term 2008 and spring term 2009'. Authorised and unauthorised absence collectively. <http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000882/index.shtml>

Pupil absence tends to be higher in secondary schools<sup>37</sup> compared to primary schools. Between the autumn term in 2008 and the spring term in 2009, the overall absence rate was 7.3% in England and 7.2% in the East Midlands. The authorised absence rate in state funded secondary schools was 5.7% in the East Midlands, 0.1 percentage points lower than the English figure of 5.8%. However, the proportion of absences that were unauthorised was 1.5% in the East Midlands, which is the same as the national figure<sup>38</sup>.

Secondary school absenteeism shows significant sub-regional differences. The overall absence was by far the highest in Nottingham and was the lowest in Rutland.

- The authorised absence rate was highest in Lincolnshire (6.1%) and Nottingham (6.1%), and lowest in Leicester at 5.2%.
- The unauthorised absence rate was the highest in Nottingham at 2.5%.
- The unauthorised absence rate was also relatively high in Leicester at 2.1%. On the other hand, unauthorised absence was the lowest in Lincolnshire (0.9%) and Rutland (0.7%).

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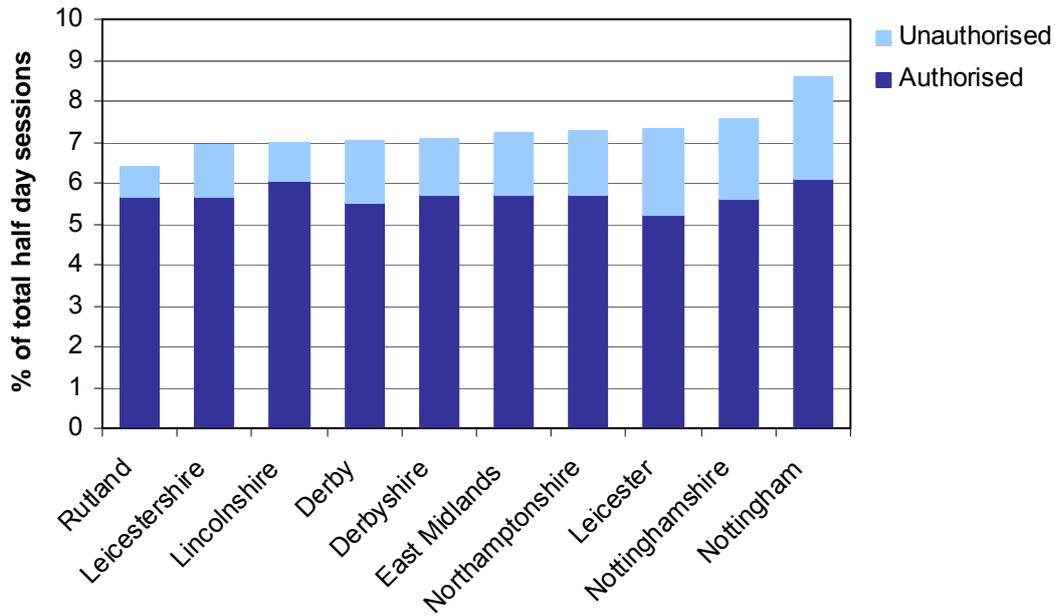
<sup>37</sup> Secondary school students are pupils aged from age 11 to 16, students will enter secondary school for key stages three and four and to start their move towards taking the General Certificate of Secondary Education (GCSEs). Once students completed their GCSEs they have the choice to either move into further education (with a view to higher education) or can leave school and look for work.

[http://uk.internationalstudent.com/study\\_uk/education\\_system/](http://uk.internationalstudent.com/study_uk/education_system/)

<sup>38</sup> Department for Children, Schools and Families, 'Pupil absence in schools in England: autumn term 2008 and spring term 2009'. Authorised and unauthorised absence collectively.

<http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000882/index.shtml>

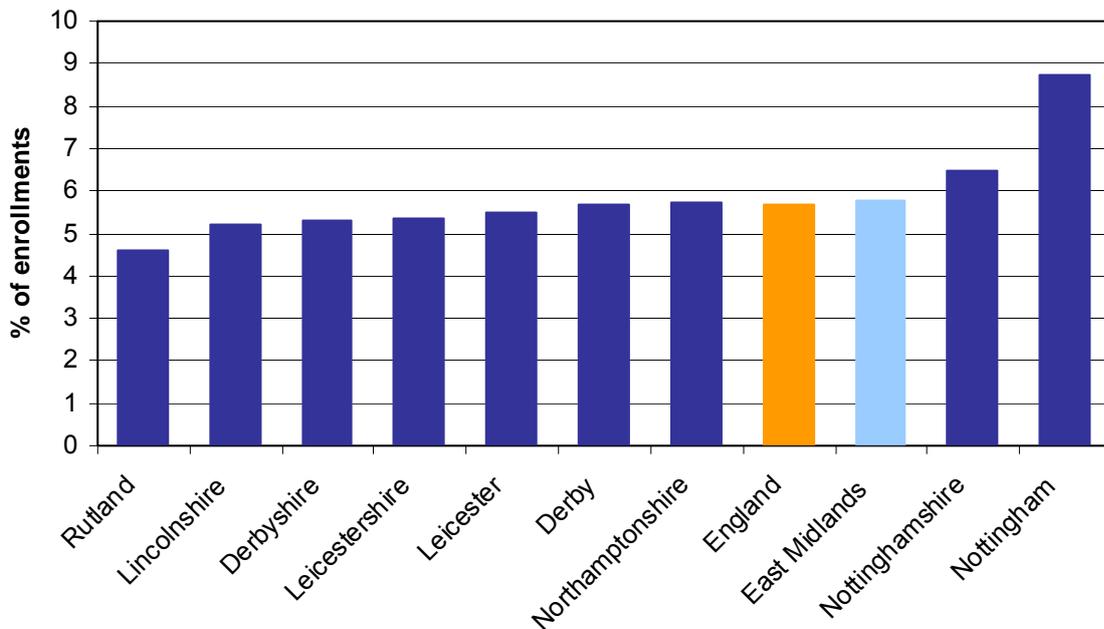
**Chart 11: Percentage of half days missed in state funded secondary schools (autumn term 2008 and spring term 2009)**



Source: Department for Children, Schools and Families, 'Pupil absence in schools in England: autumn term 2008 and spring term 2009'. State funded secondary schools includes middle schools, maintained secondary schools, city technology colleges and academies.

If enrolments are an acceptable proxy for the number of pupils, the proportion of persistent absentees in the East Midlands' secondary schools was 5.8%, 0.1 percentage points higher than the English average of 5.7%. The proportion of persistent absentees was the highest in Nottingham at 8.7%. The lowest percentage of persistent absentees was in Rutland, at just 4.6%.

**Chart 12: Percentage of enrolments which can be classed as persistent absentees\* (autumn term 2008 and spring term 2009)**



Source: Department for Children, Schools and Families, 'Pupil absence in schools in England: autumn term 2008 and spring term 2009'.

Note: Persistent absentees are defined as pupils having 48 or more half days of absence (authorised and unauthorised) across both terms. State funded secondary includes middle schools, maintained secondary schools, city technology colleges and academies.

#### 5.4.2 Young people not in education, employment or training (NEET)

The Education and Skills Act 2008 contains the requirement for all young people to participate in education or training until their 18th birthday in the future. The participation age is being raised in two stages, to 17 from 2013 and to 18 from 2015. However, there are young people who are currently not participating in education, employment or training (NEET) between the ages of 16 and 18. This is a missed opportunity both for the individual and society.

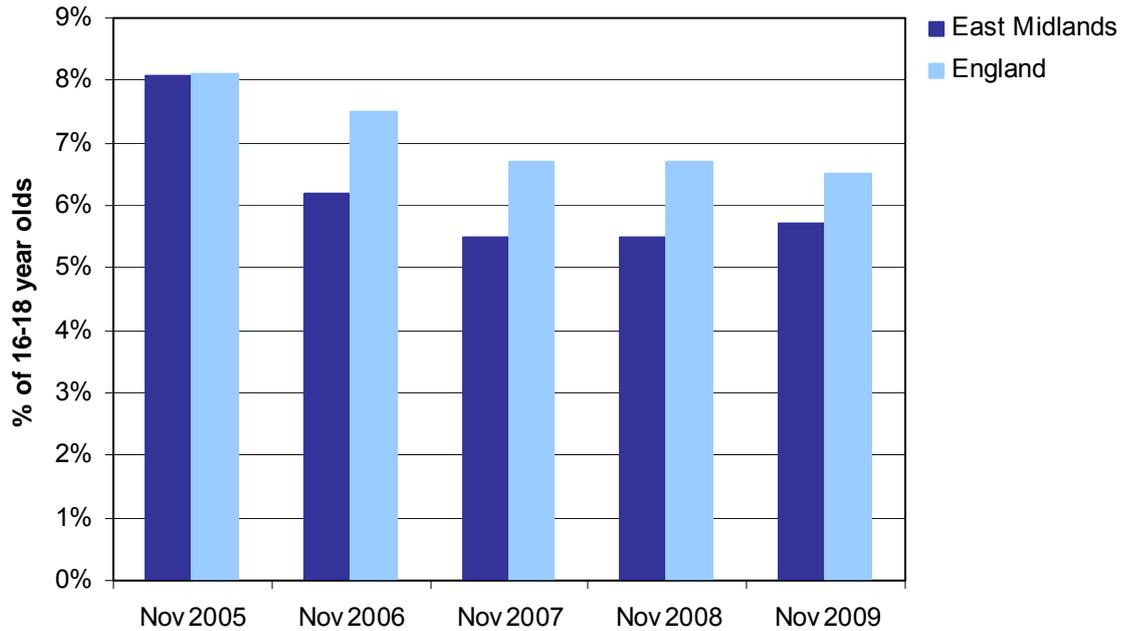
Chart 13 shows a comparison of the proportion of 16-18 year olds not in education, employment or training (NEET) for the period November 2005 to November 2009. Between 2005 and 2008, there has been a general decrease in the proportion of 16-18 year olds who are NEET in the East Midlands and in England. However, due to the recession, the proportion of those young people not in education, employment or training slightly increased in the East Midlands by November 2009.

In the East Midlands 5.7% of 16-18 year olds were NEET compared to the English average of 6.5% in November 2009<sup>39</sup>. Due to the recession, the proportion of young people who were NEET has increased by 0.2 percentage points between November 2008 and November 2009 in the East Midlands. This is compared to a decrease of 0.2 percentage points in England as a whole.

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<sup>39</sup> Data used by this chapter are Connexion data received from the Learning and Skills Council (LSC) (November data each year) for the 16-18 year olds. The statistics published in The Poverty Site are for 16-19 year olds, and based on Labour Force Survey averages for 2006 and 2008. Based on the Poverty Site, in 2008, in the East Midlands 12% of 16-19 year olds were NEET in 2006-2008, which is the same as the UK average of 12%. <http://www.poverty.org.uk/32/index.shtml>

**Chart 13: Proportion of 16 -18 year olds who are NEET including PDOs (adjusted)**

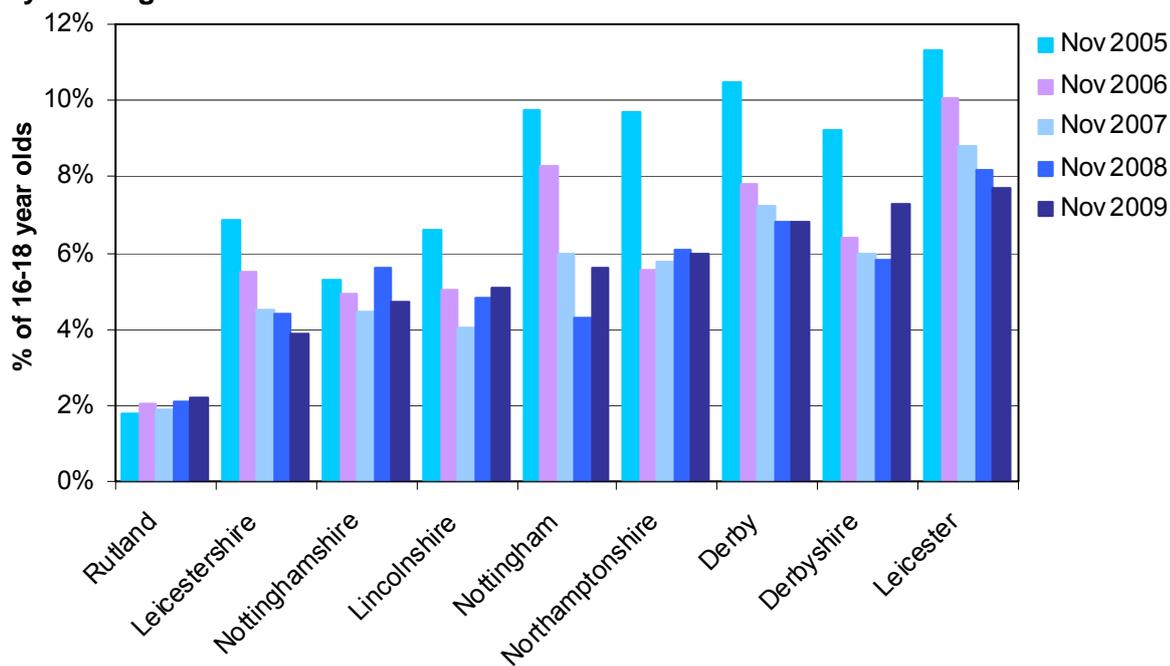


Source: Connexions, provided by regional LSC office. Data refer to the November data each year.  
 Note: The NEET cohort includes those young people undertaking Personal and Social Development Opportunities (PDO) and excludes those in custody, applying for asylum and refugees. Those young people accessing post-16 education are counted within the area of the education provider and not of their residence.

Chart 14 shows that in November 2009 the proportion of 16-18 year olds who were NEET was highest in the cities. In Leicester, 7.7% of 16-18 year olds were not in education or training, compared to 6.8% in Derby and 5.6% in Nottingham. In Rutland, only 2.2% of 16-18 year olds were NEET.

Between November 2008 and November 2009 the proportion of 16-18 year olds who were NEET increased the most in Derbyshire and Nottingham, by 1.5 and 1.3 percentage points respectively. Some decreases were recorded in Nottinghamshire (-0.9 percentage points), Leicester and Leicestershire.

**Chart 14: Proportion of 16 -18 year olds who are NEET including PDOs (adjusted) by sub-region**



Source: Connexions, provided by regional LSC office.

Note: The NEET cohort includes those young people undertaking Personal and Social Development Opportunities (PDO) and excludes those in custody, applying for asylum and refugees. Those young people accessing post-16 education are counted within the area of the education provider and not of their residence.

The Regional 14-19 Strategic Analysis 2008-2010 produced by the regional Learning and Skills Council emphasises that there is a higher proportion of learners with learning difficulties and/or disabilities within the NEET population than the total 16-18 cohort. Within this group those with emotional and behavioural difficulties were represented twice as frequently as they were in the 16-18 population as a whole<sup>40</sup>.

### 5.4.3 Achievement by ethnicity

The Department for Children, School and Families (DCSF) publishes data on pupil achievement by ethnic group (identified as White, Mixed, Asian, Black and Chinese). At least five GCSEs at grades A\*-C is equivalent to the Level 2 qualification, which is considered as the basic platform for employability and progression by the Government<sup>41</sup>.

Provisional achievement data shows that in 2009 there were some significant differences in achievement by pupils from different ethnic groups. Educational attainment success of pupils of Mixed and Black ethnic minority groups are lower than

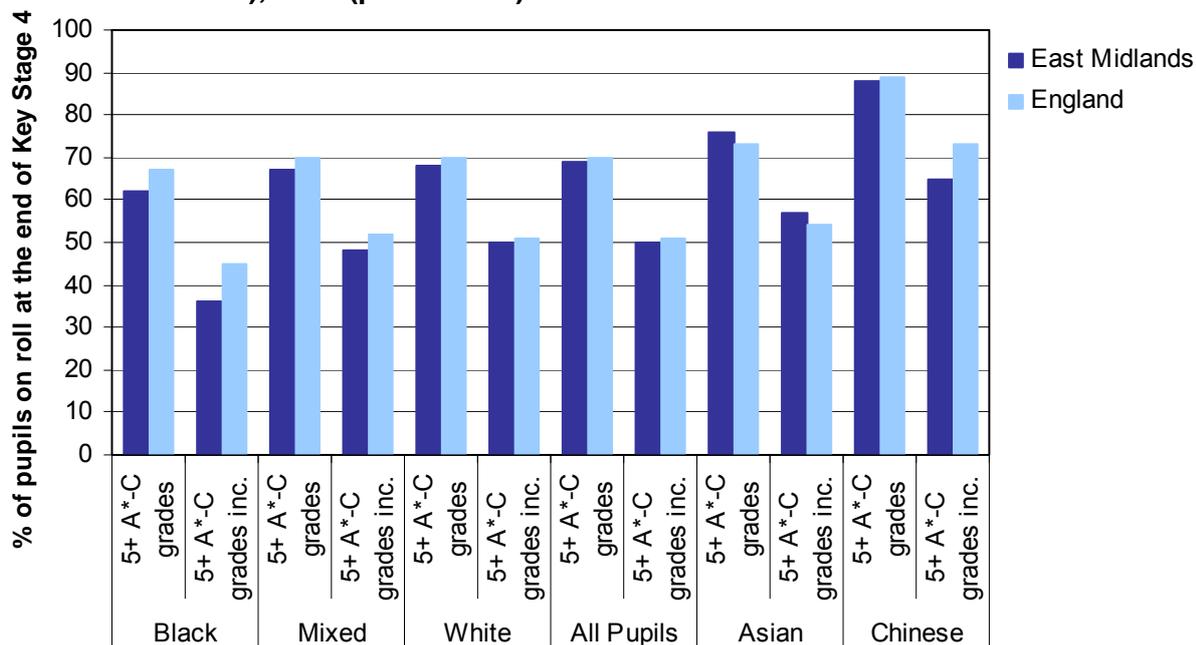
<sup>40</sup> Learning and Skills Council, 'Regional 14-19 Strategic Analysis 2008/2010', August 2008.

<sup>41</sup> Department for Children, Schools and Families (DCSF), 'Level 2 National Vocational Qualification: The Characteristics of those who obtain them, and their impact on Employment and Earnings Growth – Brief'. <http://publications.dcsf.gov.uk/default.aspx?PageFunction=productdetails&PageMode=publications&ProductId=RB821&>

average. In contrast, pupils from Chinese and Asian ethnic groups perform better than the average:

- The proportion of pupils from Black ethnic groups gaining five or more A\*-C GCSEs was 62% in the East Midlands compared to 67% in England. The attainment gap between pupils from Black ethnic groups and all pupils was 7 percentage points in the East Midlands compared to 3 percentage points in England.
- The proportion of students from Mixed ethnic groups gaining five or more A\*-C GCSEs was 67% in the East Midlands, 3 percentage points lower than the national average of 70%. This achievement rate of pupils from Mixed groups was 2 percentage points lower than the average for all pupils in the East Midlands.
- The proportion of pupils from White ethnic groups gaining five or more A\*-C GCSEs was 68% in the East Midlands, 2 percentage points lower than the national average of 70%. This achievement rate of pupils from White groups was largely similar to the average for all pupils both in the East Midlands and in England.
- The proportion of students from Asian and Chinese ethnic groups gaining five or more A\*-C GCSEs was 76% and 88% in the East Midlands. Pupils from Asian and Chinese ethnic groups perform significantly better than the average for all pupils both in the East Midlands and in England.

**Chart 15: Achievements at GCSE by ethnicity at the end of Key Stage 4, (pupils aged between 14 and 16), 2009 (provisional)**



Source: Department for Children, School and Families, 'GCSE Attainment by Pupil Characteristics in England 2008/09', <http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000900/index.shtml>

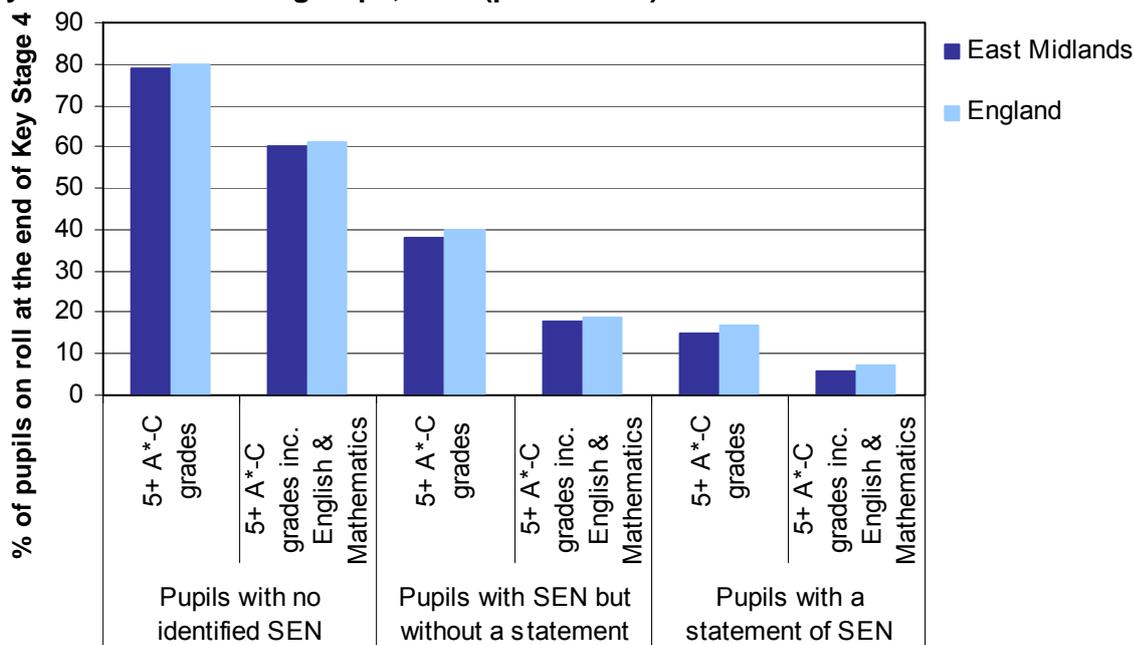
Note: Schools include academies and CTCs, primary, secondary and maintained special schools. Excludes non maintained special schools, independent schools and pupil referral units. Data refer to the pupils at the end of Key Stage 4 in the 2008-2009 academic year, 14-16 year olds.

#### 5.4.4 Achievement by Special Educational Need (SEN)

The Education Act 1996 defines children with Special Educational Need (SEN) as children who have a considerably greater difficulty in learning than others the same age. It includes children who cannot use the educational facilities which other children of a similar age use because of their disability<sup>42</sup>. Attainment is significantly lower among this group.

In 2009 there were 1,550 pupils with a statement of SEN and additional 10,370 pupils with SEN but without a statement in the East Midlands<sup>43</sup>. The proportion of non SEN pupils at the end of Key Stage 4 achieving five or more A\*-C GCSEs was 79% in the East Midlands and 80% in England. However, only 15% of pupils with SEN gained five or more A\*-C GCSEs in the region, 2 percentage points lower than the national figure of 17%. The gap between the achievement of pupils with no SEN and pupils with statement of SEN stood at 64 percentage points in the East Midlands and at 63 percentage points in England in 2009.

**Chart 16: Percentage of pupils on roll at the end of Key Stage 4 achieving 5+ A\*-C GCSEs by SEN and non-SEN groups, 2009 (provisional)**



Source: Department for Children, School and Families, 'GCSE Attainment by Pupil Characteristics in England 2008/09', <http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000900/index.shtml>

Note: SEN without a statement comprised of pupils at School Action and School Action Plus. Schools include academies and CTCs, primary, secondary and maintained special schools. Excludes non maintained special schools, independent schools and pupil referral units. Data refer to the pupils at the end of Key Stage 4 in the 2008-2009 academic year; 14-16 year olds.

<sup>42</sup> Penny Roper, 'Special Education Need – England' <http://www.cafamily.org.uk/pdfs/educatio.pdf>

<sup>43</sup> Department for Children, School and Families: 'GCSE Attainment by Pupil Characteristics, in England 2008/09'. <http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000900/index.shtml>

At sub-regional level the following points can be made<sup>44</sup>:

- In 2009 the proportion of pupils at the end of Key Stage 4 with a statement of SEN gaining five or more A\*-C GCSEs is highest in Leicestershire (19%) and in Lincolnshire (18%); and
- The proportion of pupils at the end of Key Stage 4 with a statement of SEN gaining five or more A\*-C GCSEs was lowest in Rutland (7%) and in Derby (10%).

#### **Key Points: Participation and educational attainment by group**

- The overall participation rate in education and workplace-based learning of 16 and 17 year olds in the East Midlands is lower than the English average.
- The overall absence rates in both primary and secondary schools were slightly lower in the East Midlands than in England.
- The proportion of persistent absentees in the East Midlands is slightly higher than the English average.
- In the East Midlands 5.7% of 16-18 year olds were NEET compared to the English average of 6.5% in November 2009. Due to the recession, the proportion of young people who were NEET has increased by 0.2 percentage points between November 2008 and November 2009 in the East Midlands.
- Between November 2008 and November 2009 the proportion of 16-18 year olds who were NEET increased the most in Derbyshire and Nottingham, by 1.5 and 1.3 percentage points respectively.
- Although the overall achievement of pupils aged 14 and 16 is largely similar in the East Midlands to the English average, performance of students from ethnic minority background is weaker in the East Midlands than in England, except pupils with an Asian background.

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<sup>44</sup> Source: Department for Children, School and Families, 'GCSE Attainment by Pupil Characteristics in England 2008/09', <http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000900/index.shtml>

## 5.5 Worklessness

Worklessness is a diverse phenomenon. Work commissioned by the Department for Work and Pensions<sup>45</sup> defines worklessness as “detachment from the formal labour market in particular areas, and among particular groups. Workless individuals include individuals who are unemployed and claiming unemployment benefits, individuals who are economically inactive and eligible for inactive benefits (who may or may not be claiming them), and individuals who are working exclusively in the informal economy (who may or may not be also claiming benefits)”. As a result of the recession, worklessness is expected to increase.

The simple way to quantify the level of worklessness is by adding up the figures for the unemployed and the economically inactive. At national and regional level the LFS data can be used, but Local Authority District level LFS data is not robust enough to provide a reliable assessment. In addition, this concept can skew the figure as large numbers of students and retired people are included.

Beatty et al, Fothergill, Gore and Powell established the term ‘real-unemployment’<sup>46</sup>. They argue that ‘real’ unemployment should be defined as all those who might reasonably be expected to have been in work in a fully-employed economy. This counts the claimant unemployed, the additional ILO unemployed and the hidden unemployed among incapacity benefit claimants<sup>47</sup>. Table 3 shows the regional variations in real unemployment in January 2007.

Table 3 shows that before the recession while the claimant count was relatively low in all regions and there was little variation between regions the level of real unemployment was more variable. For example, the gap between the South East and the North East (the lowest and highest in both measures) is 5 percentage points compared to 1.9 percentage points for the claimant count. However, due to the recession the claimant count rate has increased in every region. Latest statistics for February 2010<sup>48</sup> show that claimant count rate was the highest in the West Midlands (5.6%) and the North East (5.6%). The claimant count rate was 4.2% in the East Midlands in February 2010. This is compared to the UK average of 4.4%.

There were around 98,000 males and 88,000 females in the East Midlands who could be described as unemployed, but who are not included in the unemployment statistics. The real unemployment rate in the East Midlands was estimated to be 7% in January 2007, with little difference between male and female rates. This is just below the average of 7.2% for the Great Britain. Given the changes in the labour market since 2007, the real unemployment rate is now likely to be significantly higher.

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<sup>45</sup> Ritchie, H, Casebourne, J, and Rick, J, ‘Understanding workless people and communities: A Literature Review’. London HMSO, 2005. Page 2.

<sup>46</sup> Beatty, C, Fothergill, S, Gore, T and Powell, R, ‘The Real Level of Unemployment, 2007’. Sheffield, CRESR.

<sup>47</sup> The “hidden unemployed among IB claimants” is calculated as the deviation between the “benchmark IB claimant rate” and the actual IB claimant rate in each district. The benchmark is the proportion of men and women claiming IB in fully employed parts of South East England.

<sup>48</sup> ONS Crown Copyright Reserved, ‘Claimant count with rates and proportions’ via NOMIS.

**Table 3: Unemployment by region, January 2007**

	% of working age population	
	Claimant count	Real unemployment
North East	3.5	9.6
North West	2.9	8.9
West Midlands	3.4	8.1
London	3.2	7.9
Yorkshire and the Humber	2.9	7.4
East Midlands	2.4	7.0
East	2.0	5.2
South West	1.7	5.2
South East	1.6	4.6
Great Britain	2.6	7.2

Source: Beatty, C, Fothergill, S, Gore, T and Powell, R, 'The Real Level of Unemployment 2007'. Page 25, Table 5.

At local level, the real unemployment rate in the East Midlands was the highest in the cities, former coalfields area and Lincolnshire coast. In January 2007, the real unemployment rate was estimated to be the highest in Bolsover (11.3%), Mansfield (11.2%), Chesterfield (10.4%), Leicester (10.4%), Nottingham (10.3%) and East Lindsey (9.5%). The real unemployment rate was the lowest in Rutland and Harborough at 2.8% and 3.0% respectively<sup>49</sup>.

Another possible way to identify worklessness is by the proportion of the working age population claiming out-of-work benefits<sup>50</sup>. 'Key out-of-work benefits' covers:

- Those jobseekers who claim Jobseeker's Allowance;
- Those who claim Employment and Support Allowance (ESA) and Incapacity Benefit or Severe Disablement Allowance;
- Those lone parents on Income Support; and
- Others on income-related benefits such as other Income Support (including IS Disability Premium) or Pension Credit.

Large numbers of benefit claimants are an indicator of low levels of income and low levels of economic activity. The following calculations are based on the Working Age Client Group Datasets (WACGD) accessed from NOMIS in which each claimant appears only once, even though some claim more than one benefit<sup>51</sup>. The total number, and the proportion of working age people who are claiming one or more out-of-work benefits is used as a proxy for worklessness.

<sup>49</sup> Beatty, C, Fothergill, S, Gore, T and Powell, R, 'The Real Level of Unemployment 2007'. Sheffield, CRESR.

<http://www.shu.ac.uk/research/cresr/downloads/The%20Real%20Level%20of%20Unemployment%202007-.pdf>

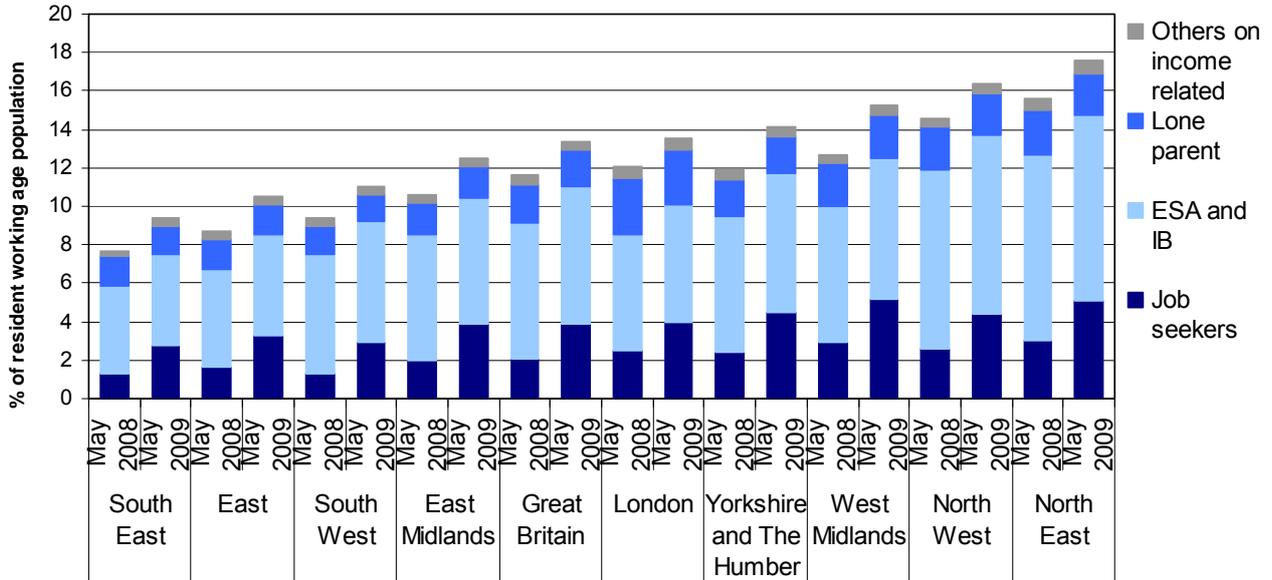
<sup>50</sup> Communities and Local Government, 'National Indicators for Local Authorities and Local Authority Partnerships: Handbook of definitions – Draft for Consultation' National Indicators 152,

<http://www.communities.gov.uk/publications/localgovernment/nationalindicatorsupdate>

<sup>51</sup> The Client Group Data Sets are advised for information on the total number of people claiming benefits and the combination of benefits claimed. These data sets provide benefit claimant data as a proportion of working age population. However, the Individual Benefit Data Sets provide a number of people claiming a particular benefit. Unlike the Client Group Data Set, a person claiming multiple benefits will be counted separately in each applicable benefit data sets. Hence, the two types of datasets provide a picture of benefit claimants from slightly different perspectives (NOMIS).

Chart 17 shows a snapshot of the proportion of people claiming out-of-work benefits in May 2008 and May 2009. Given changes in economic performance since the summer of 2008, the proportion of the population claiming key out-of-work benefits has increased significantly. This overall increase was mainly due to the rising number of people claiming Jobseekers' Allowance between May 2008 and May 2009.

**Chart 17: Proportion of resident working age population claiming one or more out-of-work benefits, May 2008 and May 2009**



Source: ONS Crown Copyright, 'Benefit Claimants – working age client group', from NOMIS.  
 Note: Residence-based proportions express the number of claimants resident in an area as a percentage of the working age population resident in that area. Working age is defined as 16-64 for males and 16-59 for females.

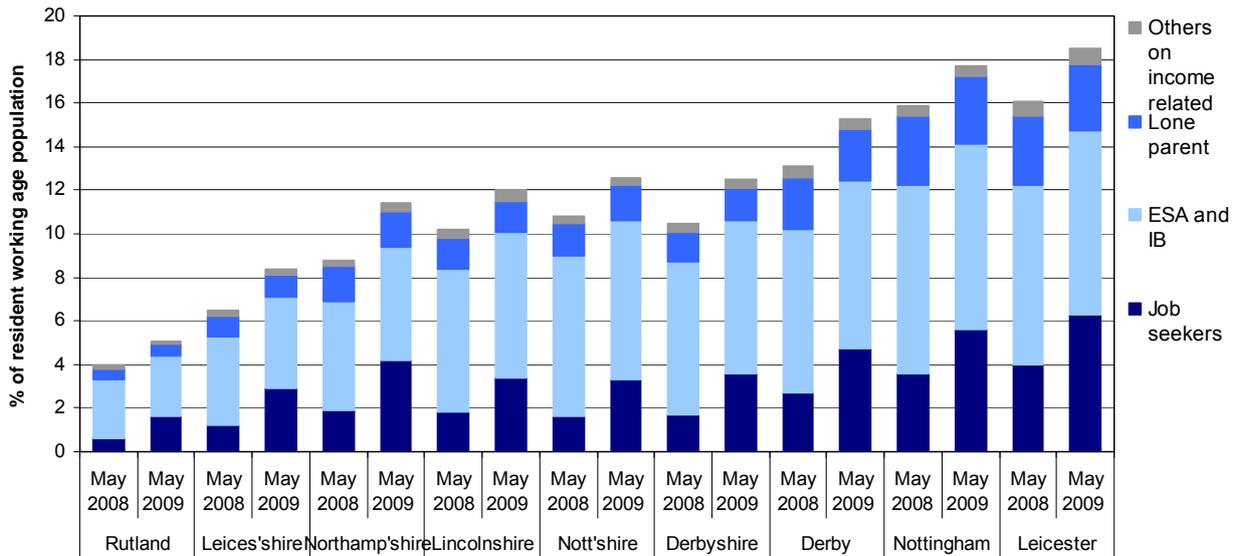
In May 2009, the proportion of the working age population claiming one or more out-of-work benefits was 12.6% in the East Midlands, which is equivalent to 345,000 individuals. This is below the average of 13.4% for Great Britain. In other regions this proportion ranges from 9.4% in the South East to 17.7% in the North East.

In the East Midlands the percentage of working age claimants increased by 2.0 percentage points from May 2008 to May 2009. This was the fourth highest increase after the West Midlands (2.4 percentage points), North East (2.1 percentage points) and the Yorkshire and the Humber (2.2 percentage points). The lowest increase is in London where the percentage of out-of-work benefits claimants increased by 1.4 percentage points during the reference period.

Chart 18 shows that in May 2009, within the East Midlands, the proportion of out-of-work benefit claimants is the highest in Leicester and Nottingham at 18.5% and 17.7% respectively. Among the East Midlands Unitary Authorities, Rutland has the lowest proportion of out-of-work benefit claimants at 5.1% followed by Leicestershire (8.4%).

Between May 2008 and May 2009, the proportion of out-of-work benefit claimants increased the most in Northamptonshire and Leicester by 2.5 percentage points and 2.4 percentage points respectively. This is compared to the regional average of 2 percentage points. The proportion of out-of-work benefit claimants increased the least in Rutland by 1.1 percentage points. In Derbyshire the proportion of those claiming out-of-work benefits increased by 2 percentage points over the same period. In Derby, Nottingham and Leicester the increases were 2.3, 1.8 and 2.4 percentage points respectively.

**Chart 18: Proportion of resident working age population claiming one or more out-of-work benefits, May 2008 and May 2009**



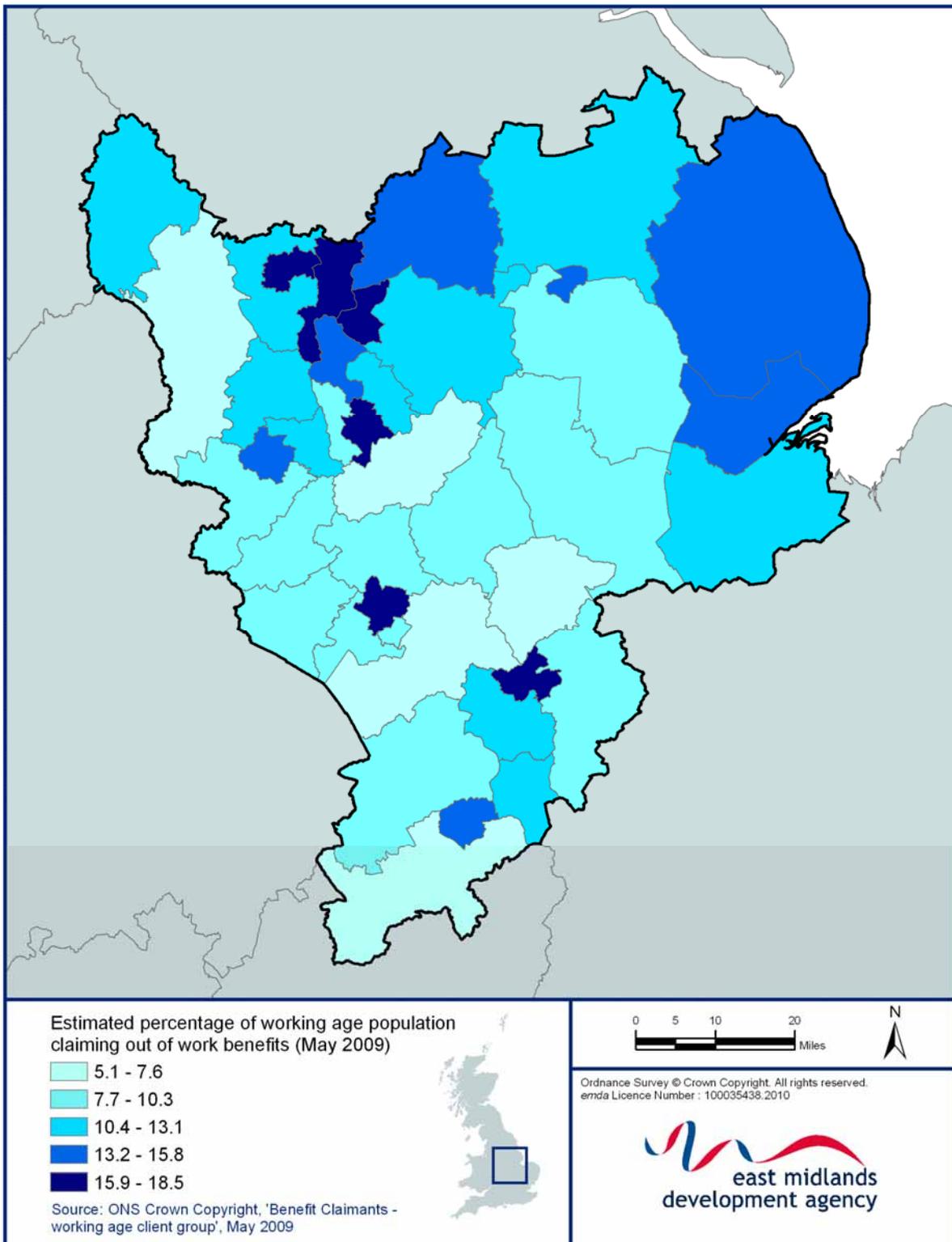
Source: ONS Crown Copyright, 'Benefit Claimants – working age client group', from NOMIS.

Map 5 shows that the proportion of the working age population claiming out-of-work benefits is relatively high not only in cities such as Leicester (18.5%) and Nottingham (17.7%), but also in Local Authority districts in the coalfields such as Corby (18.0%), Mansfield (17.6%) and Bolsover (17.3%). Apart from Rutland (5.1%), Local Authorities with the lowest proportions are South Northamptonshire (5.6%) and Harborough (6.5%).

The geographical concentrations of worklessness occur in the former coalfields where the contraction of the coal industry (de-industrialisation) left behind a unique combination of joblessness, physical isolation and health problems.

Spatial mismatches may occur as individuals are unable to access employment in other areas of their own local labour market because of childcare responsibilities or a lack of public transport. This may be the case in the Lincolnshire coastal area. The economic upturn in such areas could be expected to see slower improvement, potentially increasing spatial disparities within the region.

**Map 5: Proportion of resident working age population claiming out-of-work benefits, May 2009**



The following sub-sections examine levels of benefit dependency in more detail, focusing on three benefits: Jobseeker's Allowance claimants, Employment and Support Allowance and other incapacity benefits and lone parents on Income Support. Other income related benefit claimants are not discussed because of their relatively small proportion and uncertain composition.

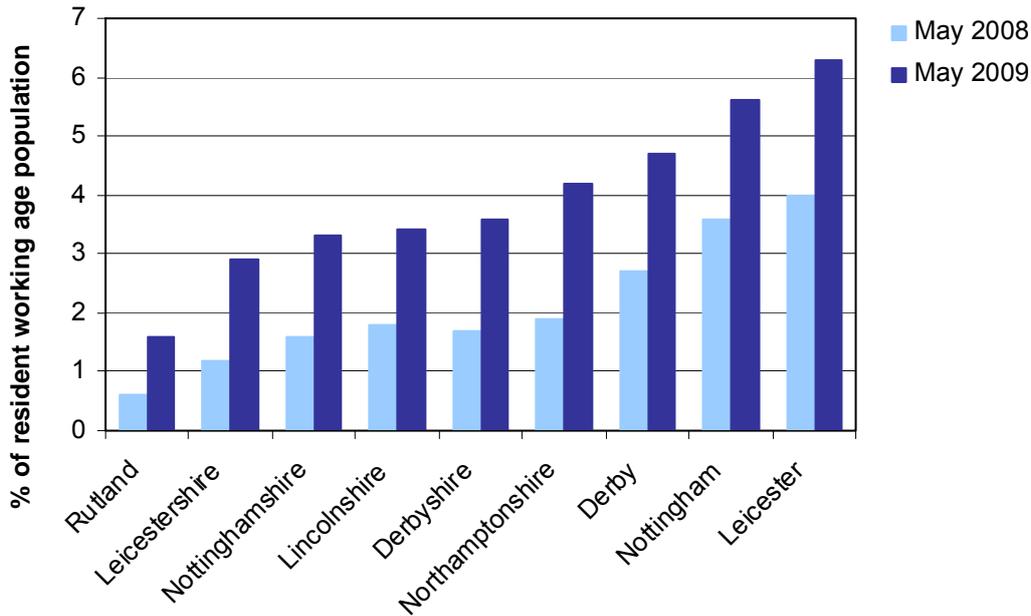
### **5.5.1 Jobseeker's Allowance**

Jobseekers receive Jobseeker's Allowance (JSA), which is payable to people under pensionable age who are available for, and actively seeking work.

In the East Midlands 3.9% of the resident working age population was claiming Jobseeker's Allowance in May 2009, equivalent to 106,600 people. This is the same as the average of 3.9% for Great Britain.

The proportion of JSA claimants has increased in every region in England between May 2008 and May 2009. In the East Midlands, the proportion of JSA claimants increased by 1.9 percentage points, from 2.0% to 3.9%. This percentage change compares to the Great Britain increase of 1.8 percentage points. The proportion of the population claiming JSA was the highest in the in the West Midlands and the North East at 5.2% and 5.1% respectively in May 2009. The JSA claimant rate was the lowest in the South East and the South West at 2.8% and 2.9% respectively. In percentage terms, between May 2008 and May 2009 the JSA claimant rate increased the most in those regions which have been the hardest hit by the recession; the West Midlands, the North East, and Yorkshire and the Humber, by 2.3, 2.1 and 2.1 percentage points respectively. In London and in the South East, the JSA claimant rate increased by only 1.5 percentage points over the period.

**Chart 19: Proportion of resident working age population claiming Jobseeker’s Allowance, East Midlands**



Source: ONS Crown Copyright, ‘Benefit Claimants – working age client group’, from NOMIS.

Note: Statistical group analysis for job seekers. Because of the hierarchical arrangement of benefits, those who are classified as jobseekers may claim other benefits as well such as other income related benefits etc.

The aim of the Statistical Group typology is to present each person by the main reasons why they are claiming benefit. Each client is classified just once as benefits are arranged hierarchically and claimants are assigned to the top most benefit which they receive. Residence-based proportions express the number of claimants resident in an area as a percentage of the working age population resident in that area. Working age is defined as 16-64 for males and 16-59 for females.

Sub-regional analysis shows that the proportion of resident working age population claiming Jobseeker’s Allowance increased in every sub-region between May 2008 and May 2009. In May 2009 the proportion of the resident working age population claiming JSA was highest in Leicester and Nottingham at 6.3% and 5.6% respectively. In Rutland only 1.6% of the population claimed JSA.

Local analysis shows that in May 2009, Rutland, Derbyshire Dales and Rushcliffe had the lowest rate of the working age residents claiming JSA (1.6%, 1.9% and 2.1% respectively). Apart from Leicester, other Local Authorities with a relatively high proportion of JSA claimants are Corby, Nottingham, Northampton and Lincoln at 6.3%, 5.6%, 5.0% and 5.0% respectively. In addition to the region’s key urban centres, the former coalfields also experience relatively high proportion of JSA claimants, in particular; Chesterfield (4.5%) and Bolsover (4.3 %) and Mansfield (4.1%).

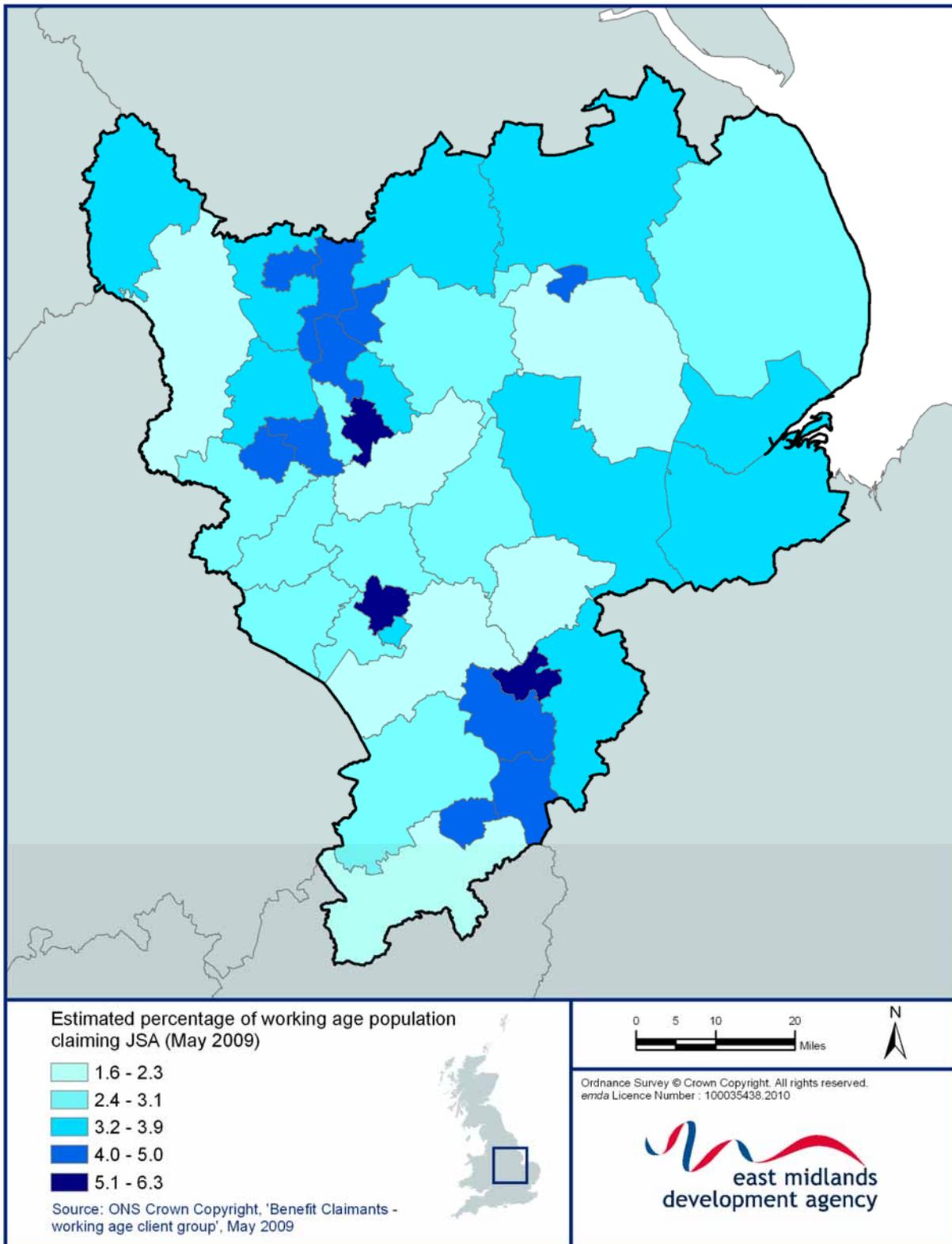
The proportion of JSA claimants increased the most in Northamptonshire and in Leicester by 2.3 percentage points between May 2008 and May 2009. The proportion of JSA claimants increased by 2.0 percentage points in Derby and in Nottingham. Between May 2008 and May 2009 the JSA claimant rate increased by only 1.0 percentage point in Rutland.

Latest labour market statistics show<sup>52</sup> that between February 2009 and February 2010 the number of people claiming JSA has increased from 104,700 to 115,400 in the East Midlands. Between February 2009 and February 2010, the claimant count rate increased by 0.4 percentage points in the East Midlands, which is slightly lower than the UK average of 0.5 percentage points. The claimant count rate increased the most in Leicester (1.0 percentage points), Nottingham (0.8 percentage points) and Northampton (0.6 percentage points) over the period. The claimant count rate in February 2010 was above the regional average in the three cities, Corby, Lincoln, Northampton, Erewash, Chesterfield, Bolsover, Ashfield, Mansfield and Wellingborough.

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<sup>52</sup> Office for National Statistics, 'Labour Market Statistics March 2010' and 'Labour Market Statistics March 2010: East Midlands'.

**Map 6: Proportion of resident working age population claiming JSA (%), May 2009**



## 5.5.2 Employment and Support Allowance<sup>53</sup> and incapacity benefits<sup>54</sup> claimants

As part of welfare reform, Incapacity Benefit and Income Support paid on incapacity grounds from October 2008 have been replaced by Employment and Support Allowance (ESA). Existing incapacity benefits claimants will, for the time being, continue to receive their current benefits. In the longer term though – between 2009 and 2013 – those claiming under the old Incapacity Benefit will also be progressively transferred to the new regime. The changes were designed to both reduce on-flows to the benefit, as well as increase off-flows. Central to Employment and Support Allowance is a new test, the Work Capability Assessment, which assesses what an individual can do – rather than what they can't do. The assessment looks at people's physical and mental ability, including conditions such as learning disabilities and other similar conditions. Following this assessment most individuals will be given support and employment advice to enable them to return to work where possible<sup>55</sup>.

The proportion<sup>56</sup> of ESA and incapacity benefits claimants (i.e. Incapacity Benefit<sup>57</sup> or Severe Disablements Allowance<sup>58</sup>) in the East Midlands was 6.5%, which accounts for about 179,500 individuals. This proportion was below the average of 7.1% for Great Britain in May 2009. The proportion of claimants was highest in the North East and the North West at 9.6% and 9.3% respectively.

Between May 2008 and May 2009 the proportion of ESA and incapacity benefits claimants has levelled off in most English regions. In the East Midlands the proportion of ESA and incapacity benefits claimants remained the same at 6.5%. This is compared to the slight increase of 0.1 percentage points in Great Britain, from 7.0% to 7.1% over the same period.

Chart 20 shows the sub-regional differences in the proportion of ESA and incapacity benefit claimants in the East Midlands. The proportion of ESA and incapacity benefit claimants was relatively high in the cities and low in Rutland in May 2009. However, this picture masks significant local disparities.

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<sup>53</sup> Employment and Support Allowance (ESA) was introduced from 27<sup>th</sup> October 2008, and gradually replaces Incapacity Benefit and Income Support paid because of an illness or disability, for new customers only.

<sup>54</sup> Incapacity benefits include Incapacity Benefit and Severe Disablements Allowance. See definitions later in the section.

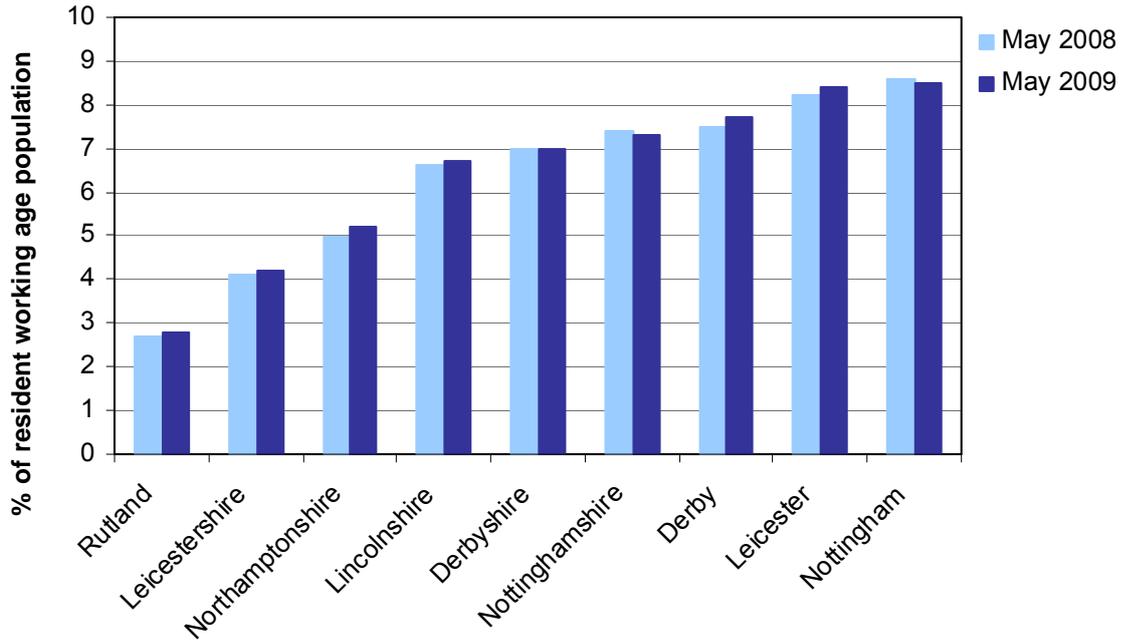
<sup>55</sup> Department for Work and Pension, <http://www.dwp.gov.uk/policy/welfare-reform/employment-and-support/>

<sup>56</sup> Residence-based proportions express the number of claimants resident in an area as a percentage of the working age population resident in that area. Working age is defined as 16-64 for males and 16-59 for females.

<sup>57</sup> Incapacity Benefits of existing customers is paid to people who have been incapable of work because of sickness or disability for at least four days in a row and who have paid sufficient contributions throughout their working lives. From October 2008 it is replaced by the Employment and Support Allowance (ONS Crown Copyright, 'Benefit Claimants – working age client group', from NOMIS).

<sup>58</sup> Severe Disablement Allowance (SDA) was paid to those unable to work for 28 weeks in a row or more because of illness or disability. Since April 2001 it has not been possible to make a new claim for Severe Disablement Allowance (ONS Crown Copyright, 'Benefit Claimants - working age client group', from NOMIS).

**Chart 20: Proportion of resident working age population claiming Employment and Support Allowance (ESA) and Incapacity Benefits (IB/SDA), East Midlands**



Source: ONS Crown Copyright, 'Benefit Claimants – working age client group', from NOMIS.  
 Note: Statistical group analysis for ESA and incapacity benefits claimants.

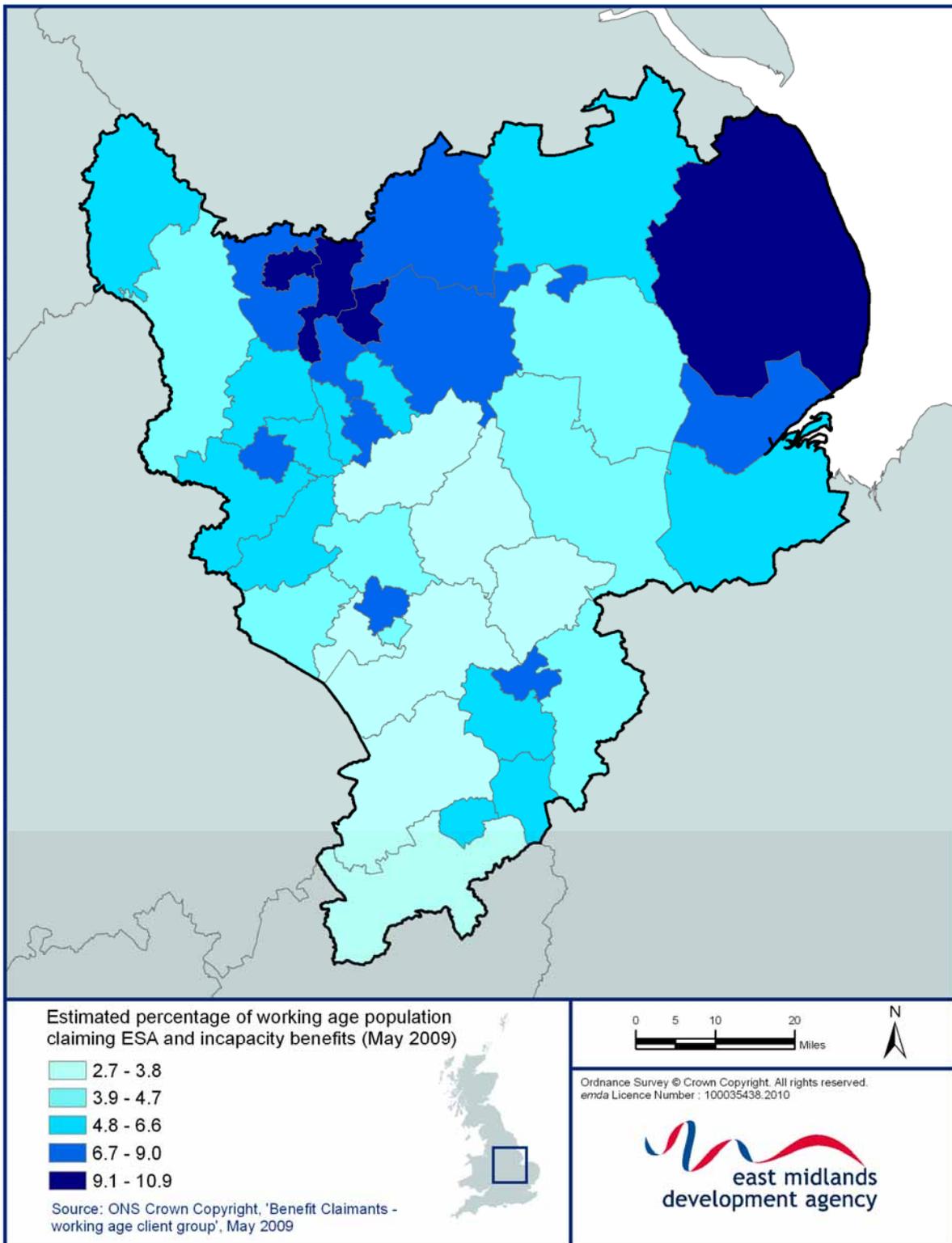
The proportion of Incapacity Benefit claimants has been historically high in the coalfields and the coastal areas of the East Midlands. This type of inactivity continues to be an issue as in May 2009 the highest proportion of the resident working age population claiming ESA and Incapacity Benefits was in Mansfield (10.9%), Bolsover (10.6%), Chesterfield (9.7%) and in East Lindsey (9.6%). This proportion was the lowest in South Northamptonshire (2.7%) and in Rutland (2.8%).

Between May 2008 and May 2009, the proportion of ESA and Incapacity Benefits claimants increased the most in Corby (0.5 percentage points), Northampton (0.3 percentage points) and Kettering (0.3 percentage points). In Derby, Leicester, East Lindsey and Lincoln, the proportion of ESA and Incapacity Benefit claimants increased by 0.2 percentage points respectively. This is compared to the unchanged regional proportions over the same period.

The short analysis above shows that ESA and Incapacity Benefits claimants are concentrated in the coalfields, the coastal areas and partly in some urban districts where the structural inefficiencies of the local labour market can be described by for example the low skills base of the workforce (for example hard to fill and skills shortage vacancies tend to be concentrated in Lincolnshire)<sup>59</sup> and/or the lack of suitable job opportunities.

<sup>59</sup> See the relevant sections of the Labour Market chapter about sub-regional variations in the qualification of the workforce.

**Map 7: Proportion of resident working age population claiming ESA and Incapacity Benefits (%), May 2009**



### 5.5.3 Lone parents on Income Support

Lone parents aged 16 to 59 years old who are responsible for a child under 12 years, work less than 16 hours a week are not in full-time study, do not get Jobseeker's Allowance, do not have savings, have low income and live in Great Britain, can claim Income Support (IS)<sup>60</sup>. However, from 2010, most lone parents with a youngest child aged 7 or over will no longer be entitled to Income Support only on the grounds of being a lone parent. Instead, those able to take up paid employment may claim Jobseeker's Allowance and those with a disability or health condition may claim Employment and Support Allowance<sup>61</sup>.

The proportion of those working age residents who are lone parents on IS in the East Midlands was 1.7%, which accounts for about 46,700 individuals. The proportion of lone parents on IS in the East Midlands is below the average of 1.9% for Great Britain in May 2009. The proportion of claimants was highest in London at 2.8%. In May 2009 the proportion of those working age residents who are lone parents on IS was the lowest in the South West and the South East at 1.4% and 1.5% respectively. Between May 2008 and May 2009 the proportion of those working age residents who are lone parents on IS levelled off or decreased slightly in every region.

The proportion of those working age residents who are lone parents on IS varies significantly within the East Midlands. In May 2009 the proportion of the resident working age population claiming Income Support for lone parents was the highest in Nottingham and Leicester, at 3.1% each.

Chart 21 also shows that between May 2008 and May 2009 there was a slight decrease in the proportion of those working age residents who are lone parents on IS in most sub-regions within the East Midlands.

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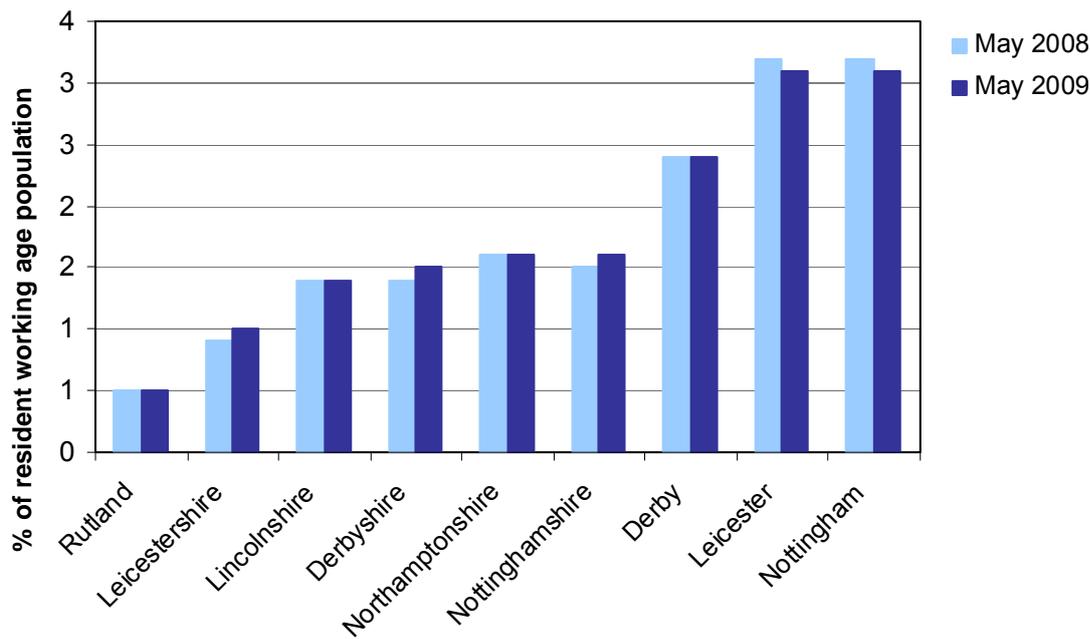
<sup>60</sup> JobCentre Plus,

[http://www.jobcentreplus.gov.uk/JCP/Customers/WorkingAgeBenefits/Dev\\_015271.xml.html](http://www.jobcentreplus.gov.uk/JCP/Customers/WorkingAgeBenefits/Dev_015271.xml.html)

<sup>61</sup> Department for Work and Pension, 'Changes to benefits for lone parents'

<http://www.dwp.gov.uk/adviser/updates/changes-to-benefits-for-lone/>

**Chart 21: Proportion of resident working age population claiming Income Support for Lone Parents, East Midlands**



Source: ONS Crown Copyright, 'Benefit Claimants – working age client group', from NOMIS.  
 Note: Statistical group analysis for lone parents.

### Key Points: Worklessness

- The 'real unemployment rate' in the East Midlands was estimated to be 7% in January 2007, with little difference between male and female rates. This was close to the average of 7.2% for the Great Britain.
- The proportion of the working age population claiming one or more key out-of-work benefits in May 2009 was 12.6% in the East Midlands, which is equivalent to 345,900 individuals. This is below the average of 13.4% for Great Britain.
- Due to the recession, the proportion of the population claiming key out-of-work benefits has increased significantly. This overall increase was mainly due to the rising number of people claiming Jobseekers' Allowance between May 2008 and May 2009.
- Within the East Midlands the proportion of working age resident population claiming out-of-work benefits is the highest in Leicester and Nottingham.
- As a result of recession, the claimant count rate in the East Midlands has increased since the summer of 2008. However, in the last 11 months it has levelled off at around 4.0%.
- Historically there has been a relatively high proportion of incapacity benefit claimants in the coalfields and the coastal areas in the East Midlands. This type of inactivity still appears to be an issue as the highest proportion of ESA and incapacity benefits claimants within the East Midlands were in Mansfield, Bolsover and East Lindsey.
- The highest proportion of lone parents on Income Support was in Nottingham and Leicester.

## 5.6 Poverty in the East Midlands

The most widely used definition of income poverty sets a poverty threshold at 60% of the net disposable<sup>62</sup> equivalised<sup>63</sup> median household income. People who live under this threshold are considered to be income poor.

One of the reasons why people may fall into poverty is because they lose their jobs and are trapped in “worklessness”. Although getting into work helps people to move out of income poverty, Palmer et al state that the answer is nowhere near as simple as “work is the route out of poverty”<sup>64</sup>. The more persistent the poverty, the more challenging it is to escape from it. Finding a way to break the ‘cycle of poverty’ is crucial as poverty hinders economic development and detracts from an individual’s quality of life.

Based on the Household Below Average Income 2006/07 (HBAI) report, 20% of East Midlands residents live in households below 60% of median income Before Housing Costs. This is 3 percentage points higher than the English average. Only the North East has a greater proportion of individuals in poverty than the East Midlands at 21%<sup>65</sup>.

At family level in 2006, the proportion of families with children in income poverty was 24% in the East Midlands. In England, the proportion of families with children in poverty was 22%. However, this 2 percentage points difference is not significant. The proportion of families with children in poverty increased from 20% to 24% in the East Midlands between 2003 and 2006. In England, the proportion of families with children in poverty increased by 2 percentage points from 20% to 22% over the same period<sup>66</sup>.

Chart 22 shows that family work status has a clear relationship with income poverty so that moving into work is a crucial factor in escaping poverty. The proportion of families (couples with children) where neither parents work for at least 16 hours per week, in

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<sup>62</sup> Disposable income is the income after the deduction of Income Tax and National Insurance Contributions from employment and self-employment, investments and savings, private and occupational pensions, Social Security benefits and Tax Credits.

<sup>63</sup> Because a family of several people needs a higher income than a single person to enjoy a similar standard of living, household income is adjusted, or equivalised. Equivalence scales take a couple with no children as a reference point. The incomes of larger households are adjusted downwards and the incomes of smaller households adjusted upwards relative to this benchmark.

[http://www.dwp.gov.uk/asd/hbai/hbai2007/pdf\\_files/full\\_hbai08.pdf](http://www.dwp.gov.uk/asd/hbai/hbai2007/pdf_files/full_hbai08.pdf)

<sup>64</sup> Guy Palmer, Tom MacInnes and Peter Kenway, ‘Monitoring Poverty and Social Exclusion 2008’ Joseph Rowntree Foundation, New Policy Institute, 2008, page 18.

<http://www.jrf.org.uk/sites/files/jrf/2315-society-poverty-exclusion.pdf>

<sup>65</sup> Office for National Statistics, ‘Household Below Average Income, an analysis of the income distribution 1994/95 – 2006/07’ (HBAI), Table 3.6.

[http://www.dwp.gov.uk/asd/hbai/hbai2007/pdf\\_files/full\\_hbai08.pdf](http://www.dwp.gov.uk/asd/hbai/hbai2007/pdf_files/full_hbai08.pdf)

Data refer to a three-year average.

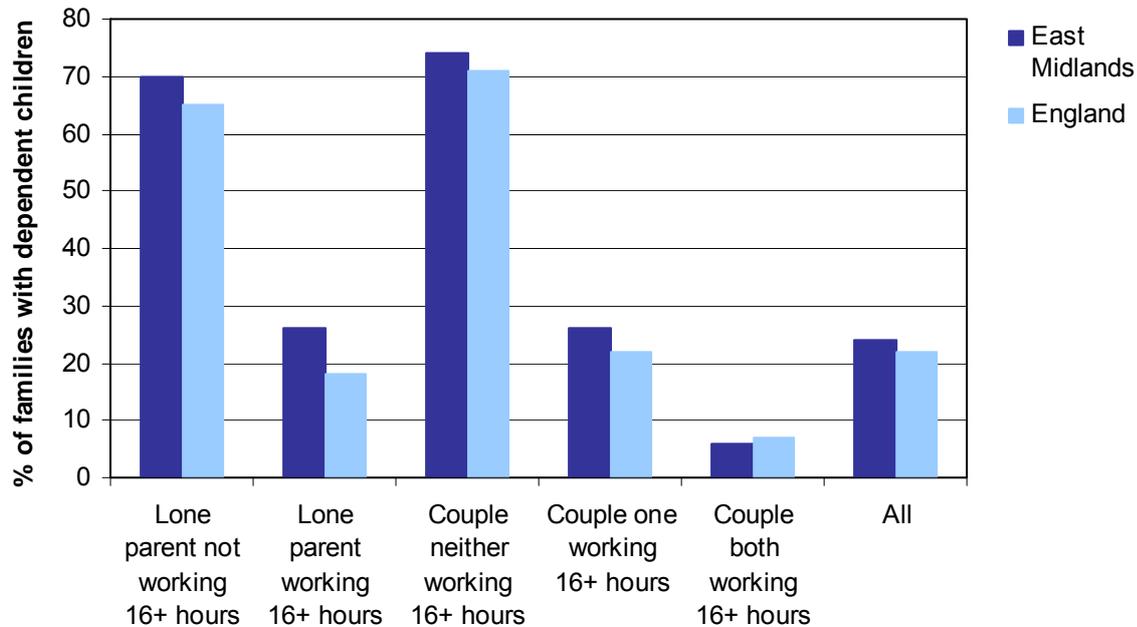
<sup>66</sup> National Centre for Social Research commissioned by *emda*, ‘Secondary Analysis of Regional Data in National Surveys’, 2009.

These proportions are published data for children at risk of income poverty from Household Below Average Income 2003-2004 and 2006-2007 (Table 4.6

[http://www.dwp.gov.uk/asd/hbai/hbai2007/pdf\\_files/full\\_hbai08.pdf](http://www.dwp.gov.uk/asd/hbai/hbai2007/pdf_files/full_hbai08.pdf)) and were applied to families with children from Families and Children Study 2003 and 2006 (FACS). This is the closest possible match can be achieved by using publicly available data, as HBAI does not publish poverty levels at household or family level.

income poverty was 74% in the East Midlands compared to 24% for all families with children. The corresponding figure for lone parents was 70% in the East Midlands and 65% for England. The proportion of lone parents who worked for at least 16 hours per week in poverty was 26% in the East Midlands compared to 18% in England in 2006. There were few (6%) dual-earning couple families in income poverty both in the East Midlands and in England (7%)<sup>67</sup>.

**Chart 22: Risk of income poverty (before housing costs – BHC) by family work status, 2006 (% of families with children)**



Source: National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009. Families and Children Study 2006 (FACS).

Base: Families with dependent children.

Note: Dependent children is defined as any resident child aged 16 years or under, or aged 17 or 18 and in full-time education. 16+ hours is considered as someone in full-time work. The figure for 'couple neither working 16+ hours' for the East Midlands needs to be treated with caution because it is based on fewer than 50 actual cases.

### 5.6.1 Child poverty

Growing up in poverty can damage physical, cognitive, social and emotional development, preventing children from reaching their full potential in adult life. Child poverty has effects well beyond the individual as poor children in these circumstances tend to have lower educational attainment, and lower skills and productivity which may limit wider economic competitiveness<sup>68</sup>.

Child poverty is defined as the proportion of dependent children who live in households whose equivalised income<sup>69</sup> is below 60% of the contemporary national median. In the

<sup>67</sup> Ibid.

<sup>68</sup> HM Treasury, 'Ending child poverty: everybody's business' March 2008.

[http://www.hm-treasury.gov.uk/bud\\_bud08\\_child.htm](http://www.hm-treasury.gov.uk/bud_bud08_child.htm)

<sup>69</sup> The equivalisation of income is the process by which total income is adjusted for family size (number of family members) and composition (number of parents and number and age of children). Barnes, Lyon

East Midlands the proportion of children living in poverty was 24% in 2006-2007, compared to 22% in England.

Worklessness among parents is the key determinant of child poverty. However, there is a growing concern about 'in work poverty'. The Institute for Public Policy Research (IPPR) suggests moving into work does not necessarily mean moving out of poverty, especially for families with children<sup>70</sup>. Calculations using the Families and Children Study 2006 (FACS) show that in 2006, 51% of children in poverty lived in working households (i.e. lone parent who worked, couples where one or both of them worked) in the East Midlands, compared to 53% in England<sup>71</sup>. The corresponding figures for the East Midlands and England were 30% and 40% in 2003. The Government has set a target to end child poverty by 2020, which is a challenging target for both the East Midlands and UK as a whole.

Chart 23 shows that 24% of children were living in income poverty in the East Midlands compared to 22% in England in 2006<sup>72</sup>. In addition, 67% of children living in families where neither parents work for at least 16 hours per week were in income poverty in the East Midlands. This compares to 65% in England. The proportion of children in poverty living in families with a lone parent who did not work was 61% in the East Midlands and 58% for England<sup>73</sup>. The difference is not significant.

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and Millar, 'Employment transitions and the changes in economic circumstances of families with children: Evidence from the Families and Children Study (FACS)'. DWP Research Report No 506.

<sup>70</sup> Kayte Lawton, 'Nice Work If You Can Get It!' Institute for Public Policy Research (IPPR), January 2009. <http://www.ippr.org.uk/members/download.asp?f=%2Fecomm%2Ffiles%2Fnice+work+if+you+can+get+it%2Epdf>

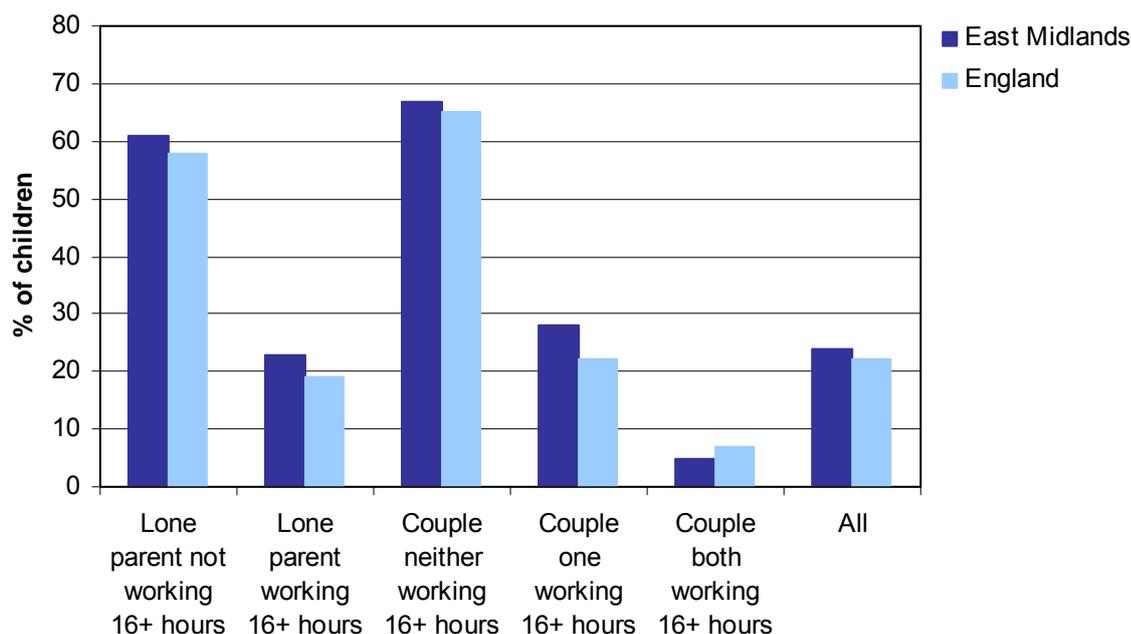
<sup>71</sup> Families and Children Study 2006 (FACS) data provided by National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009. Working households are: Lone parent working 16+ hours, couple: one working 16+ hours and couple both working 16+ hours.

<sup>72</sup> Ibid.

These proportions are published data for children at risk of income poverty from Household Below Average Income 2006-2007 (HBAI) and were applied to families with children from FACS.

<sup>73</sup> Ibid.

**Chart 23: Proportion of children in income poverty (before housing costs – BHC) by family work status, 2006 (%children)**



Source: National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009. Families and Children Study 2006 (FACS).

Base: Families with dependent children.

Note: Dependent children is defined as any resident child aged 16 years or under, or aged 17 or 18 and in full-time education. 16+ hours is considered as someone in full-time work.

Child poverty data at local level are available by using the proportion of children who live in households where out-of-work benefits are received<sup>74</sup>. However it is important to note that this indicator is not directly comparable to the proportion of children living in low income households as discussed above. Children living in households receiving key out-of-work benefits do not include all children living in poverty, as not all families living in poverty are out of work and not all out of work families claim benefit. Still, this data provides a good indicator of high levels of poverty in a certain area. The spatial pattern shows that in certain wards of Nottingham, Leicester and Derby the proportion of children living in households where out-of-work benefits are received was twice the national average both in 2005 and in 2007. In addition, Bolsover, Boston, Bassetlaw, Erewash and Mansfield also showed a persistently high concentration of child poverty<sup>75</sup>.

<sup>74</sup> Out-of-work benefits were identified as Jobseeker's Allowance, Incapacity Benefit or Severe Disablement Allowance, Income Support and Pension Credit. This definition is largely comparable with the 'worklessness' concept measured by the key-out-of-benefit definition discussed earlier in this section. However, it is important to note that earlier the analysis was undertaken at individual level and in this case the unit of analysis is the household with dependant children.

IEM, GOEM and EMRA, 'Child Poverty in the East Midlands: Identifying what works' Page 11  
[http://www.intelligenceeastmidlands.org.uk/index2.php?option=com\\_docman&task=doc\\_view&gid=411&Itemid=99999999](http://www.intelligenceeastmidlands.org.uk/index2.php?option=com_docman&task=doc_view&gid=411&Itemid=99999999)

<sup>75</sup> IEM, GOEM and EMRA, 'Child Poverty in the East Midlands: Identifying what works' Page 14, Table 3, based on administrative data from DWP 2007. Page 38.

[http://www.intelligenceeastmidlands.org.uk/index2.php?option=com\\_docman&task=doc\\_view&gid=411&Itemid=99999999](http://www.intelligenceeastmidlands.org.uk/index2.php?option=com_docman&task=doc_view&gid=411&Itemid=99999999)

## 5.6.2 Fuel poverty

A warm home during the winter is a basic need. In extreme cases fuel poverty leads to winter deaths, which were estimated to be almost 24,000 for the winter of 2006-2007 in England and Wales<sup>76</sup>.

A household is said to be in fuel poverty if it needs to spend more than 10% of its income on fuel to maintain a satisfactory heating regime (usually 21 degrees for the main living area, and 18 degrees for other occupied rooms)<sup>77</sup>.

Volatile energy prices are a cost over which individuals have little control. The increase in fuel poverty since 2004 has largely been caused by price rises over that period. Although, for some households the price rise has been partially offset by rising incomes and improvements in the energy efficiency of their homes, the overall effect of price rise since 2004 has outweighed the impact of increasing income and energy efficiency<sup>78</sup>. However, energy efficiency programmes will help to reduce the cost of energy bills and tackle fuel poverty.

Rising energy prices have made the challenge of tackling fuel poverty more difficult. The number of households in fuel poverty is estimated to have increased from 1.2 million in 2004 to 2.8 million in 2007 in England. Projections suggest there are likely to be around 3.6 million fuel poor households in England in 2008 and up to a further million in 2009. However, it worth noting that the energy price reduction of early 2009 will have an impact on fuel poverty which will be observed in 2010, due to the way fuel poverty is calculated<sup>79</sup>.

In 2007 about 14.8% of East Midlands households lived in fuel poverty, which is equivalent to 272,000 households. Fuel poverty is most prevalent in the North East where 18.6% of households were classified as being in fuel poverty. In absolute terms, the highest number of households in fuel poverty was in the North West at 472,000 households. The proportion of households in fuel poverty was the lowest in London and in the South East at 10.0% and 9.5%<sup>80</sup>.

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<sup>76</sup> Department of Energy and Climate Change 'Annual Report on fuel poverty statistics 2009'.

[http://www.decc.gov.uk/en/content/cms/statistics/fuelpov\\_stats/fuelpov\\_stats.aspx](http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/fuelpov_stats.aspx)

<sup>77</sup> Ibid.

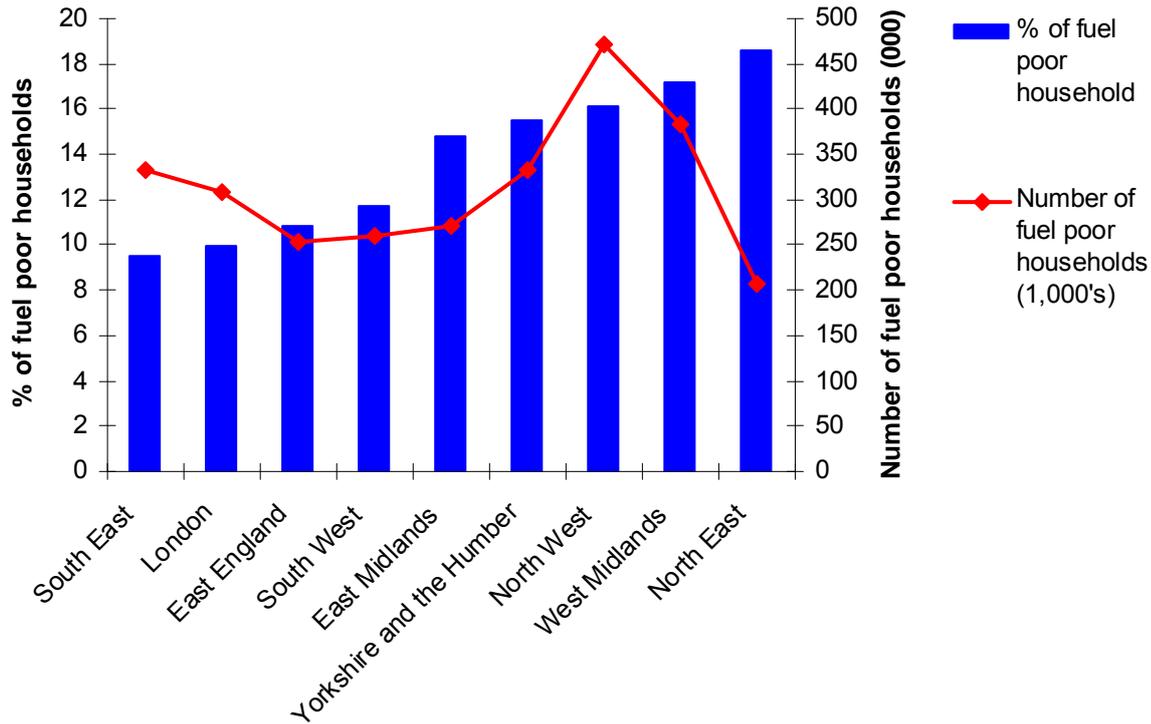
<sup>78</sup> Ibid.

<sup>79</sup> Ibid.

<sup>80</sup> Department of Energy and Climate Change, 'Fuel Poverty 2007 – Detailed tables. Annex to the Annual Report on Fuel Poverty Statistics 2009.

[http://www.decc.gov.uk/en/content/cms/statistics/fuelpov\\_stats/fuelpov\\_stats.aspx](http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/fuelpov_stats.aspx)

**Chart 24: Proportion of households living in fuel poverty by region, 2007**



Source: Department of Energy and Climate Change, 'Fuel Poverty 2007 – detailed tables. Annex to the Annual Report on Fuel Poverty Statistics 2009.

[http://www.decc.gov.uk/en/content/cms/statistics/fuelpov\\_stats/fuelpov\\_stats.aspx](http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/fuelpov_stats.aspx)

Table 39.

At national level, the following household types are much more likely to be in fuel poverty<sup>81</sup>:

- Low income households (1<sup>st</sup> and 2<sup>nd</sup> income deciles);
- Households in Means Tested Benefits or Tax Credits;
- Unemployed or inactive households based on the primary working status of the household reference person;
- Households in village hamlets and isolated dwellings; and
- Dwellings ranked as less than 20 and between 20 and 30 out of 100 in the Standard Assessment Procedure (SAP) which measures energy efficiency of homes<sup>82</sup>.

DECC developed a model for fuel poverty rates at sub-regional level. This model provides fuel poverty data for the whole of the housing stock including private and social rented sectors. These local authority level estimates are calculated for 2006<sup>83</sup>. Data

<sup>81</sup> Ibid.

<sup>82</sup> Measurement of the energy efficiency of homes is based on the Standard Assessment Procedure (SAP) energy rating of dwellings, which takes into account factors such as size of the house, its insulation, ventilation system and the efficiency of heating and hot water systems. SAP ratings are expressed on a scale of 1 to 100 the higher the number, the better the rating.

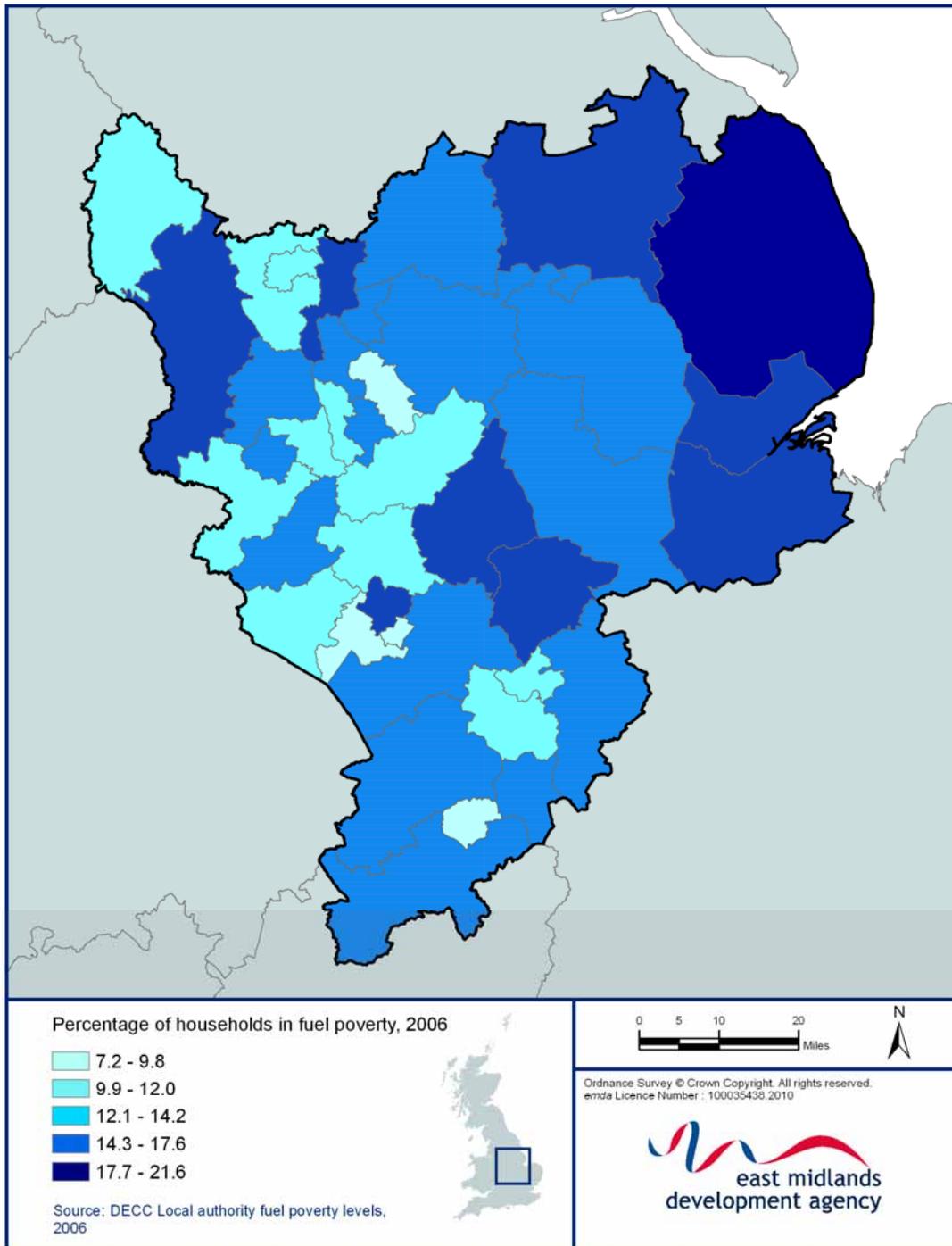
The Poverty Site/Energy Efficient Homes: <http://www.poverty.org.uk/79/index.shtml>

<sup>83</sup> Department of Energy and Climate Change, 'Local authority fuel poverty levels, 2006'.

[http://www.decc.gov.uk/en/content/cms/statistics/fuelpov\\_stats/regional/regional.aspx](http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/regional/regional.aspx)

suggests that the prevalence of fuel poverty is the highest in East Lindsey where 21.6% of homes were fuel poor in 2006. The level of fuel poverty is relatively high in Derbyshire Dales, Boston, West Lindsey and South Holland as well. In Blaby, Gedling and Northampton only 7.2%, 9.7% and 9.8% of homes respectively were fuel poor in the East Midlands in 2006.

**Map 8: Proportion of households estimated to be in fuel poverty (private and social rented), 2006<sup>84</sup>**



<sup>84</sup> Department of Energy and Climate Change (DECC) published Local Authority level data for fuel poverty for 2006. This model combined the BRE Housing Stock Models for the private sector with a fuel poverty model for the social rented sector and identified fuel poverty for the whole of the housing stock. For more information see: BRE, DECC, '2006 Fuel Poverty Models'. [http://www.decc.gov.uk/en/content/cms/statistics/fuelpov\\_stats/regional/regional.aspx](http://www.decc.gov.uk/en/content/cms/statistics/fuelpov_stats/regional/regional.aspx)

### **Key Points: Poverty in the East Midlands**

- In 2006-2007 one fifth of East Midlands' residents lived in poverty, 3 percentage points higher than the English average.
- Family work status has a clear relationship with income poverty, confirming that moving into work is a crucial factor in movement out of poverty.
- Between 2003 and 2006 the proportion of all families with children in income poverty increased from 20% to 24% in the East Midlands. In England, the proportion of families with children in poverty increased by 2 percentage points from 20% to 22%.
- Within the East Midlands child poverty is concentrated in Nottingham and Leicester and in some wards in Derby. In addition, Bolsover, Boston, Bassetlaw, Erewash and Mansfield also have significant concentration of child poverty.
- In 2007 14.8% of East Midlands' households lived in fuel poverty, which is higher than the average of England (13.2%).
- Local data suggests that fuel poverty is most prevalent in East Lindsey. The level of fuel poverty is relatively high in Derbyshire Dales, Boston, West Lindsey and South Holland as well.

## 5.7 Barriers to labour market participation and economic inclusion

As the previous section highlighted, worklessness is most prominent in groups with multiple disadvantage, where people face more than one barrier to participating in the labour market. Worklessness has a negative impact on well-being which can act as a barrier to re-employment<sup>85</sup>. Therefore, it is crucial to tackle barriers to participation and detachment from the labour market in particular areas and particular groups.

This section discusses some of the barriers to economic inclusion which make individuals less likely to participate in the labour market such as health status, childcare, flexible working arrangements and transportation.

### 5.7.1 Health and health barriers to employability

The health status of the regional workforce has a significant impact on the productivity of the economy. Productivity losses due to ill health were estimated to be £802 million<sup>86</sup> in the East Midlands in 2006-2007. Research suggests that work is generally good for the health of both those in employment and those who might be able to return to the labour market despite health issues. The relationship between work and health is a reciprocal one as healthy individuals are more likely to seek, obtain and remain in employment whilst work can have a valuable social role and beneficial consequences for health<sup>87</sup>. As a consequence, the healthier the workforce the greater its productivity.

Improving the general health of the regional population and tackling health inequalities has been reflected in the Government Public Health White Paper Choosing Health-Making Healthy Choices Easier (Department of Health, 2004) and through national and local Public Service Agreement (PSA) targets, and Local Area Agreement (LAA) targets.

#### 5.7.1.1 The state of health in the East Midlands

The following section will summarise the state of health of the East Midlands workforce. Regarding self-reported health problems in the East Midlands, the following main points can be made:

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<sup>85</sup> Ritchie, H, Casebourne, J, and Rick, J, 'Understanding workless people and communities: A Literature Review'. London: HMSO, 2005.  
Centre for Local Economic Strategies, 'Making it work: Analysing different ways of tackling worklessness', March 2009.

<sup>86</sup> Vanessa Beck et al, University of Leicester, commissioned by *emda*, 'Economics of Health'.  
[http://www.intelligenceeastmidlands.org.uk/index.php?option=com\\_research&task=showReportA&hidema\\_inmenu=1&id=2174&title=health&Itemid=29](http://www.intelligenceeastmidlands.org.uk/index.php?option=com_research&task=showReportA&hidema_inmenu=1&id=2174&title=health&Itemid=29)

<sup>87</sup> Vanessa Beck et al commissioned by *emda*, 'The Economics of Health', 2008.

- Up to 42.2% of individuals of working age in the East Midlands report health problems, of which 22.7% suffer from a limiting longstanding illness and 19.4% report a non-limiting longstanding illness<sup>88</sup>;
- Of those who report a health problem, more than half (54.1%) state that it limits the activities they can undertake. Health problems affect the amount of work that can be undertaken by 43.9% of individuals and the type of work of 51.7% of individuals<sup>89</sup>; and
- The main reported health problems in the region were heart, blood pressure and circulation, chest and breathing, and back and neck problems<sup>90</sup>.

The East Midlands Health Profile 2009 published by the East Midlands Public Health Observatory (EMPHO) summarises a number of health indicators such as life expectancy at birth, premature mortality rate from different causes, obesity prevalence, cigarette smoking, teenage pregnancy rate and suicide<sup>91</sup>:

### **Life expectancy and causes of death**

Life expectancy is a useful statistic that summarises the current health status of a population. Life expectancy is significantly different by gender. In the East Midlands, life expectancy at birth for males is 77.6 years, which is largely the same as the average for England at 77.7. Life expectancy is 81.6 years for females in the East Midlands, slightly below the national level of 81.8 years.<sup>92</sup>

From 1995-1997 life expectancy has increased in the East Midlands, mirroring the national trend in England.

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<sup>88</sup> Ibid. Data are based on Labour Force Survey October 2006 – September 2007 (working age population only).

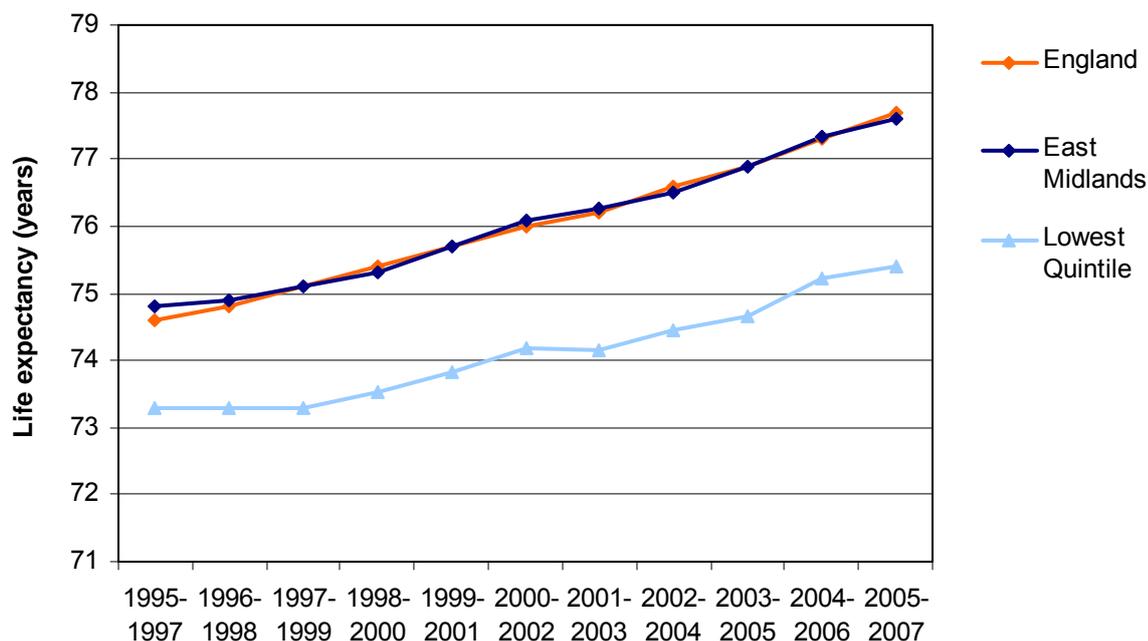
<sup>89</sup> Ibid.

<sup>90</sup> Ibid.

<sup>91</sup> East Midlands Public Health Observatory, 'Health trends within the East Midlands' 2009 update. <http://www.empho.org.uk/viewResource.aspx?id=11541>

<sup>92</sup> Ibid.

**Chart 25: Male life expectancy at birth for England, the East Midlands and the East Midlands lowest quintile, 1995-1997 to 2005-2007**



Source: East Midlands Public Health Observatory, 'Health trends within the East Midlands': 2009 update.

In 2005-2007, the eight Local Authorities in the worst quintile for male life expectancy were Corby, Nottingham, Leicester, Mansfield, Ashfield, Boston, Bolsover, and Lincoln. This list contains all five East Midlands Local Authorities in the Spearhead Group<sup>93</sup>.

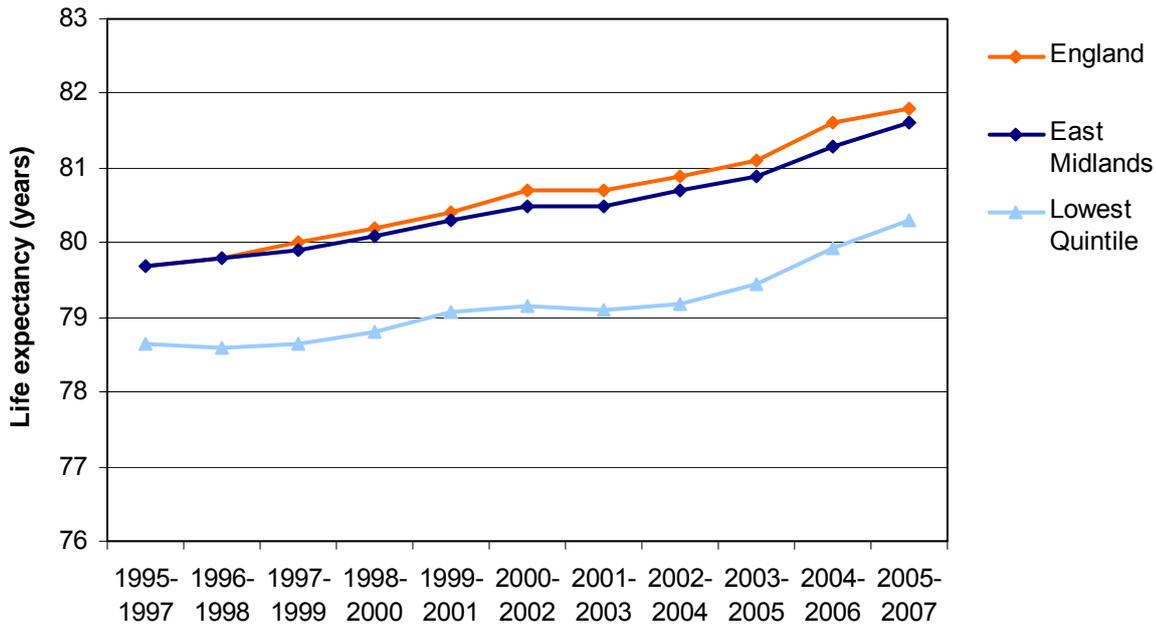
In terms of male life expectancy, the absolute gap between the quintile of eight Local Authorities with the lowest life expectancy and the East Midlands population increased from 1.5 years to 2.2 years between 1995-1997 and 2005-2007.

<sup>93</sup> The Spearhead Group is made up of 70 Local Authorities and 88 Primary Care Trusts, based upon the Local Authority areas that are in the bottom fifth nationally for three or more of the following five indicators:

- Male life expectancy at birth
  - Female life expectancy at birth
  - Cancer mortality rate in under 75s
  - Cardiovascular disease mortality rate in under 75s
  - Index of Multiple Deprivation 2004 (Local Authority Summary), average score. The five East Midlands Local Authorities in the Spearhead Group are Nottingham, Bolsover, Lincoln, Leicester and Corby.
- Department of Health, 'Tackling health inequalities: the Spearhead Group of Local Authorities and Primary Care Trusts'

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4101455](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4101455)

**Chart 26: Female life expectancy at birth for England, the East Midlands and the East Midlands lowest quintile, 1995-1997 to 2005-2007**



Source: East Midlands Public Health Observatory, 'Health trends within the East Midlands: 2009 update.'

For females the gap between the lowest quintile of Local Authorities in the East Midlands and the East Midlands population as a whole, has increased slightly over the period, from 1.1 years in 1995-1997 to 1.3 years in 2005-2007. In 2005-2007, the eight Local Authorities in the lowest quintile for female life expectancy were Leicester, Nottingham, Corby, Lincoln, Mansfield, Ashfield, Bolsover and West Lindsey. This list contains four out of the five East Midlands Local Authorities in the Spearhead Group.

### Obesity and people diagnosed with diabetes

Obesity and diet significantly affect life expectancy and are important risk factors for coronary heart disease, some cancers and other conditions such as diabetes.

The reasons for obesity include genetic predisposition, environmental factors and socio-economic influences. Changing diet may have an immediate effect on obesity. Extrapolating from national surveys to identify trends and variations in diet in the East Midlands, it seems likely that<sup>94</sup>:

- The average proportion of dietary energy derived from saturated fats has been decreasing but remains higher than recommended<sup>95</sup>;
- The average intake of non-milk extrinsic (i.e. added) sugar and salt are also higher than recommended;

<sup>94</sup> East Midlands Public Health Observatory, 'Trends and variation in diet in the East Midlands', 2005. [http://www.empho.org.uk/Download/Public/8299/1/trends\\_variations\\_diet.pdf](http://www.empho.org.uk/Download/Public/8299/1/trends_variations_diet.pdf)

<sup>95</sup> No more than 35% of daily energy intake should come from fat and no more than 11% from saturated fat. The energy requirements for an average woman and man are 2,000 and 2,500 kcals per day respectively. [http://www.thefatpanel.org.uk/what\\_types.html](http://www.thefatpanel.org.uk/what_types.html).

- The average intake of fruit and vegetables and dietary fibre are lower than recommended, although the consumption of fruit is increasing;
- On average, less well-off households consume fewer fruit and vegetables, salads, wholemeal bread, whole grain and high-fibre cereals, and oily fish, and consume more white bread, full-fat milk, table sugar, and processed meat products. As a result, the average percentage of energy derived from total and saturated fats is typically higher in these households;
- The recommended amount of fruit and vegetables per day is five portions<sup>96</sup> according to the Department of Health. The age-standardised proportions of men and women in the East Midlands consuming five or more portions of fruit and vegetables were 27% in each case. These figures were not statistically significantly different from national proportions (24% males; 28% females)<sup>97</sup>; and
- Model based estimates of the proportion of people consuming at least five portions of fruit and vegetables by Local Authorities in the East Midlands show that adequate fruit and vegetable consumption was highest in Rushcliffe, Rutland and Derbyshire Dales and lowest in Ashfield, Bolsover and Corby<sup>98</sup>.

Regarding the prevalence of obesity<sup>99</sup> in the East Midlands the following main points can be made:

- The prevalence of obesity among males was slightly higher in the East Midlands (25.7%) than the average for England<sup>100</sup> (23.8%) in 2006. The prevalence of obesity among females was also slightly higher in the East Midlands than in England at 25.9% and 24.4% respectively. Between 1998 and 2006 obesity prevalence among males has increased by 9.1 percentage points in the East Midlands compared to a 6.7 percentage point increase in England. The prevalence of obesity among females has remained the same in the East Midlands while it increased by 3.4 percentage points in England between 1998 and 2006.
- Obesity is more prevalent in lower social classes. Some 28% of women in the lowest social class are obese, double the prevalence of obesity among the highest social class (14%)<sup>101</sup>; and

<sup>96</sup> For the definition of one portion see: [http://www.salt.gov.uk/healthy\\_eating.html](http://www.salt.gov.uk/healthy_eating.html)

<sup>97</sup> East Midlands Public Health Observatory, 'Trends and variation in diet in the East Midlands' [http://www.empho.org.uk/Download/Public/8299/1/trends\\_variations\\_diet.pdf](http://www.empho.org.uk/Download/Public/8299/1/trends_variations_diet.pdf)

<sup>98</sup> The National Health Service (NHS) Information Centre [www.ic.nhs.uk](http://www.ic.nhs.uk)

<sup>99</sup> Standardised percent from Health Survey for England (HSE) data 1998-2006. Observed prevalence of obesity is defined by Body Mass Index (BMI)>30.

<sup>100</sup> East Midlands Public Health Observatory, 'Health trends within the East Midlands' 2009 update. <http://www.empho.org.uk/viewResource.aspx?id=11541>

<sup>101</sup> Department of Health, 'Tackling Health Inequalities: 2002 Cross-Cutting Review'. [www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4098280](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4098280)  
Social Classes used by the report are: Class 1: Professionals; Class 2: Managerial; Class 3NM: Non-manual skilled; Class 3M: Manual skilled; Class 4: Partly skilled; Class 5: Unskilled.

- The prevalence of obesity amongst children aged 2 to 15 years has increased, both in the East Midlands and in England between 1996 and 2005. Data for 2006 are similar to those for 2005, but more data is required before a stabilising trend can be confirmed. In 1996, 14% of boys and 13% of girls were obese in the East Midlands compared to 12% of boys and girls in England. In 2006, 18% of boys and 17% of girls were obese in the East Midlands compared to 17% for boys and 15% of girls in England<sup>102</sup>.

Physical activity is one of the means by which obesity can be prevented and a healthier lifestyle could be developed. Active People Survey results<sup>103</sup> highlighted that in 2008, about 21.5% of adults participated in sport or active recreation at moderate intensity, for at least 30 minutes on 3 or more days a week in England<sup>104</sup>. In terms of the East Midlands, in every county, about 21-22% of the population participated in some kind of sport or active recreation activities which is largely in line with the national trend.

## Smoking

Smoking<sup>105</sup> is the main avoidable risk factor for coronary heart disease and cancer, and is responsible for over 7,000 deaths in the East Midlands each year<sup>106</sup>. In the East Midlands figures show that:

- Between 1996 and 2007, the prevalence of smoking decreased gradually in both men and women in England and the regional<sup>107</sup> trend appears to be mirroring the gradual decline seen nationally. Smoking prevalence among males reached its peak in 2003 when 31% reported that they smoked. This decreased to 22% by 2007. Smoking prevalence among females peaked in 2004 when 28% cited that they smoked. This proportion decreased to 17% by 2007; and
- Smoking prevalence rates for people in manual occupations have been higher than those for non-manual groups in England. Smoking prevalence data broken down by socio-economic group is not routinely available for the East Midlands. In 2006 the prevalence of smoking among those in manual occupations was 28% compared to 17% for those with non-manual jobs, a difference of 11 percentage points. In 2007, smoking prevalence rate was 25% for those in manual occupations and 16% for those in non-manual occupations, a difference of 9 percentage points<sup>108</sup>.

<sup>102</sup> Ibid.

<sup>103</sup> Active People Survey results are based on the latest 12 month rolling period, April 2008 to April 2009 and cover population 16 and over.

<sup>104</sup> Sport England, [http://www.sportengland.org/research/active\\_people\\_survey/national\\_indicator\\_8.aspx](http://www.sportengland.org/research/active_people_survey/national_indicator_8.aspx)

<sup>105</sup> Ibid. The General Household Survey 2006 smoking questions that determine prevalence are:

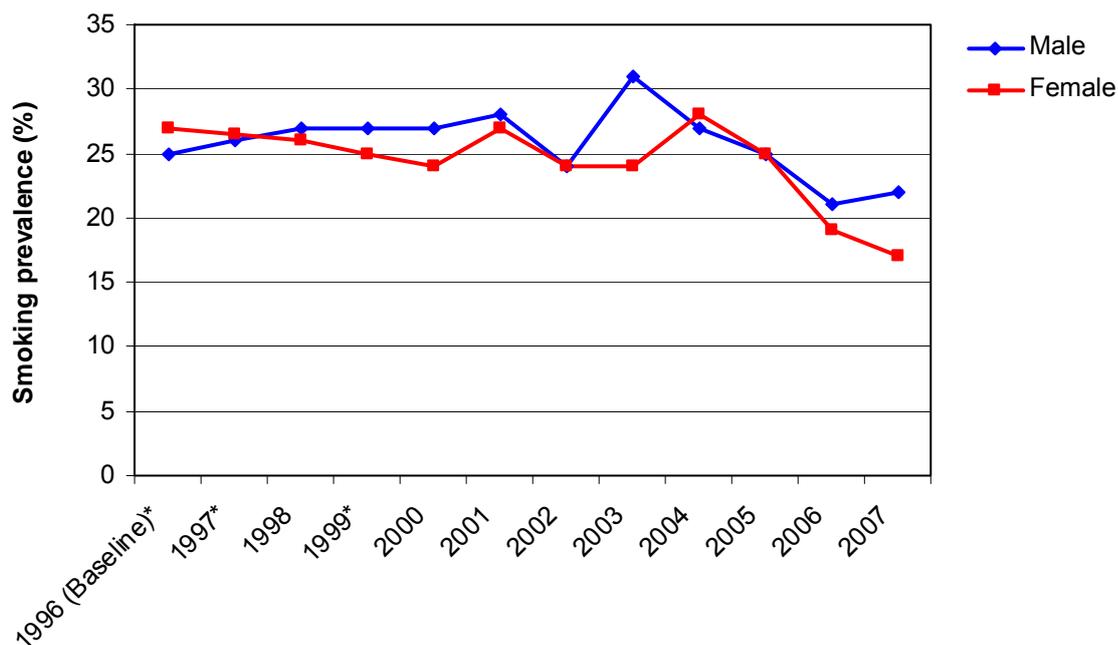
- Have you ever smoked a cigarette, a cigar or a pipe (Yes/no)
- If yes, do you smoke cigarettes at all nowadays (Yes/no)

<sup>106</sup> Report of the Regional Director of Public Health for the East Midlands. 'East Midlands: The health of the region 2007'. [www.emphasisnetwork.org.uk/publications/rdphrpt2007/rdphreport2007.pdf](http://www.emphasisnetwork.org.uk/publications/rdphrpt2007/rdphreport2007.pdf)

<sup>107</sup> Because of relatively small sample sizes, smoking prevalence data for the East Midlands is subject to more random variation and trends need to be interpreted carefully.

<sup>108</sup> East Midlands Public Health Observatory, 'Health trends within the East Midlands' 2009 update.

**Chart 27: Male and female smoking prevalence in the East Midlands, 1996-2007**



Source: East Midlands Public Health Observatory, 'Health trends within the East Midlands: 2009 update.'

Smoking during pregnancy increases the risk of a wide range of adverse outcomes, including death from Sudden Infant Death Syndrome and infections in infancy. It is also a contributing factor to low birth weight<sup>109</sup>. In 2007, the proportion of pregnant women who smoke was 18.3%, significantly higher than the English average at 16.1% in 2006-2007<sup>110</sup>.

### 5.7.1.2 Health related benefits

There are three benefits which can be claimed based on health related issues or care responsibilities. These are Disability Living Allowance (DLA), Attendance Allowance (AA) and Carer's Allowance (CA).

#### **Disabled individuals claiming for Attendance Allowance and Disability Living Allowance**

Disability Living Allowance (DLA) is a tax-free benefit for children and adults under 65 who need help with personal care or have walking difficulties because of a physical or mental disability. To qualify for DLA, the need for help must exist for three months, and should be likely to continue for at least another six months<sup>111</sup>.

<sup>109</sup> Department of Health, 'Tackling Health Inequalities: 2002 Cross-Cutting Review' [www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4098280](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4098280)

<sup>110</sup> East Midlands Public Health Observatory, 'East Midlands Health Profile 2008,' 2008.

<sup>111</sup> Directgov, Disability Living Allowance (DLA) <http://www.direct.gov.uk/en/DisabledPeople/FinancialSupport/DisabilityLivingAllowance/index.htm>

Attendance Allowance (AA) is a tax-free benefit for people aged 65 or over who need help with personal care because they are physically or mentally disabled. About 1% of the working age population in the East Midlands was claiming for Attendance Allowance and Disability Living Allowance in May 2009. This proportion is similar to the average of Great Britain.

Local analysis shows that in May 2009 the lowest proportion of working age residents claiming for Attendance Allowance and Disability Living Allowance was in South Northamptonshire at 0.7%. The highest proportion was in Chesterfield and Bolsover at 1.6%. The coalfields and parts of the Lincolnshire coastal area also had an above average proportion of working age residents claiming Attendance Allowance and Disability Living Allowance.

### **Carer's Allowance**

Carer's Allowance is a taxable benefit to help people who look after someone who is disabled<sup>112</sup>.

In May 2009 about 1.1% of the working age population in the East Midlands was claiming for Carer's Allowance. This proportion is the same as the average for Great Britain.

Local analysis shows that in May 2009 the lowest proportion of working age residents claiming Carer's Allowance was in Harborough, Rutland and South Northamptonshire at 0.6%. The highest proportion was in East Lindsey and Bolsover (2.0%). There was a relatively high proportion of working age residents claiming for Carer's Allowance in the coalfields, such as Mansfield and Chesterfield at 1.8% and 1.6% respectively.

#### **5.7.1.3 Health barriers to employability**

Many people with mental or physical health problems face barriers in joining the labour market, and the unemployment rate for disabled people is double that for non-disabled people.<sup>113</sup> Being out of work has been shown to have a significant adverse effect on both physical and mental health through isolation, changing health-related behaviour, disruption to future work career and trapping people on lower incomes than they could have through work<sup>114</sup>. The following summarises the main barriers to labour market participation experienced by people with mental or physical health problems.

Barriers to labour market participation for those with health problems include issues related to the individual and to the employer. Individual related barriers are direct health issues, stigmatisation and discrimination at the workplace, training and retraining issues, financial considerations and access to transportation. Employer related barriers

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<sup>112</sup> Directgov, Carer's Allowance

<http://www.direct.gov.uk/en/CaringForSomeone/MoneyMatters/CarersAllowance/index.htm>

<sup>113</sup> Disabled people are those who are both DDA and work limiting disabled. Annual Population Survey January-December 2008.

<sup>114</sup> Department for Work and Pensions, 'Pathways to Work: Helping people into employment' 2002 [www.dwp.gov.uk/consultations/consult/2002/pathways/pathways.pdf](http://www.dwp.gov.uk/consultations/consult/2002/pathways/pathways.pdf)

include the physical modifications and/or managerial adjustment of workplace practices, and the lack of knowledge of relevant legislation.

## Direct health issues

In response to a Department for Work and Pensions (DWP) survey of the perceived obstacles to getting a job faced by a sample of incapacity benefit recipients,<sup>115</sup> almost 60% mentioned that their health problems were a barrier.

## Discrimination

A common barrier preventing people with ill health from joining or returning to the labour market is the attitude of others towards them. Stigma and discrimination are major obstacles to the integration of people with health problems (especially mental health issues) into the workplace, and the experience of discrimination can affect a person's self confidence leading them to doubt their ability to work. Even if people with mental health issues do find work, they are often denied opportunities for training, promotion or transfer, and are more likely to be underemployed, employed in low status or poorly paid jobs, or employed in roles which are not commensurate with their skills or level of education.<sup>116</sup>

The Disability Discrimination Act (DDA) 1995<sup>117</sup> aims to reduce discrimination experienced by disabled people. In recent years, a range of strategies have been introduced to help disabled people find and retain employment. In addition, there are a number of labour market policy measures, targeted at disabled people, including the Pathways to Work Scheme, the Supported Employment Programme, and the New Deal for Disabled People.<sup>118</sup>

## Workplace adjustments

Some people with health problems need special equipment or physical modifications to the workplace to perform their job.

Analysis of the 2004 Workplace Employment Relations Survey (WERS)<sup>119</sup> suggests that the proportion of employers who had carried out a formal assessment of workplace accessibility for disabled employees or job applicants was not significantly lower in the East Midlands (36%) than in England as a whole (45%). The proportions of East Midlands establishments in the manufacturing, utilities, production and construction sector (7%) and establishment age 10 to 24 years (23%) that had carried out such

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<sup>115</sup> Department for Work and Pensions, 'Pathways to Work: Helping people into employment' 2002. Page 14, Figure 5. These estimations exclude the 10% of benefit recipients who thought they would never get back to work.

<sup>116</sup> Royal College of Psychiatrists, 'Mental health and work' 2008

<http://www.workingforhealth.gov.uk/documents/mental-health-and-work.pdf>

<sup>117</sup> This legislation was revised in 2005.

<sup>118</sup> Goldstone C, Department for Work and Pensions, 'Barriers to employment for disabled people'. In-house report 95, 2002. [http://research.dwp.gov.uk/asd/asd5/report\\_abstracts/ih\\_abstracts/iha\\_095.asp](http://research.dwp.gov.uk/asd/asd5/report_abstracts/ih_abstracts/iha_095.asp)

<sup>119</sup> National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009. 2004 Workplace Employment Relations Survey (WERS). Manager interviews examine equal opportunity policies relating to recruitment, selection, promotion and relative pay rates.

assessments was significantly smaller than the corresponding figures for England (29% and 44% respectively)<sup>120</sup>.

However, besides simple adjustments to the physical workplace, workplace practices may also need to be adjusted. Flexible working options, such as special leave, phased returns to work, reduced hours and home-working would enable many people suffering ill-health to return to work.<sup>121</sup>

Some employers find it difficult to balance the individual's desire for confidentiality and discretion with providing adjustments that would be obvious to others in the workplace. Encouraging other members of staff to be understanding and tolerant of such 'special' treatment can also be a challenge for managers.<sup>122</sup>

### **Training / retraining**

Many recipients of incapacity benefit perceive that there is a lack of local job opportunities or that it is difficult for them to find suitable work.<sup>123</sup> People with mental or physical health problems may have been out of work for a while because of their condition. This affects their confidence in their skills and ability to work, and employers may need to provide on the job support and training in order for these individuals to return to work. Line managers and human resources staff may also need training to allow them to interact more effectively with people with health problems.<sup>124</sup>

### **Financial considerations**

Incapacity benefit has become a barrier to work for many claimants who fear that taking steps towards employment will place their benefits at risk.<sup>125</sup> The Government replaced incapacity benefits for new claimants with the 'Employment and Support Allowance, which focuses on what people can do rather than on what they cannot.'<sup>126</sup> Another financial consideration for the individual returning to work is the direct costs of working, for example clothing and transport costs.

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<sup>120</sup> National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009.

<sup>121</sup> Black C, 'Dame Carol Black's Review of the health of Britain's working age population, Summary of evidence submitted' 2008 <http://www.workingforhealth.gov.uk/documents/summary-of-the-evidence.pdf>

<sup>122</sup> Sainsbury R, Irvine A, Aston J, et al. Department for Work and Pensions, 'Mental health and employment', Research Report No 513. 2008. <http://research.dwp.gov.uk/asd/asd5/rports2007-2008/rrep513.pdf>

<sup>123</sup> Department for Work and Pensions 'Pathways to Work: Helping people into employment' 2002. [www.dwp.gov.uk/consultations/consult/2002/pathways/pathways.pdf](http://www.dwp.gov.uk/consultations/consult/2002/pathways/pathways.pdf)

<sup>124</sup> Black C 'Summary of evidence submitted' 2008 <http://www.workingforhealth.gov.uk/documents/summary-of-the-evidence.pdf>

<sup>125</sup> Institute for Public Policy Research 'The reform of incapacity benefit' 2004 <http://www.ippr.org/research/teams/project.asp?id=982>

<sup>126</sup> Department for Work and Pensions 'Realising potential: A vision for personalised conditionality and support' 2008 <http://www.dwp.gov.uk/policy/welfare-reform/legislation-and-key-documents/realising-potential/>

## Transport

It is also essential to provide transport options for disabled people. People with disabilities may not be able to drive and some may be unable to use public transport, making it difficult and / or expensive for them to get to work. Therefore, access to public transport is crucial to disabled people and their carers to participate fully in everyday life.

## Lack of knowledge of relevant legislation

In 2002, the Department for Work and Pensions commissioned a study among employers to identify and examine the barriers to employment which are perceived to be faced by disabled people. Many employers did not realise which disabilities were covered by the DDA legislation, and knowledge about the Act's employment provisions was found to be low.<sup>127</sup> More rigorous application of the DDA may change employer attitudes to ill health and help to tackle prejudice. Health and safety regulations also need to be more rigorously enforced.<sup>128</sup>

### 5.7.2 Access to childcare and flexible working

Access to childcare services and flexible working arrangements are the main instruments by which barriers to employment for parents can be reduced. In 2004 in the East Midlands there was a significantly lower proportion of non-working parents stating specific child-related reasons<sup>129</sup> for not working compared to England. By 2007 the proportion of parents mentioning child related reasons for not working was similar in the East Midlands and in England<sup>130</sup>:

- In the East Midlands 10% of non-working parents reported that they could not find free or cheap childcare which would make working worthwhile. This proportion was 12% in England which is not significantly different;
- In the East Midlands 6% of non-working parents reported that they could not find childcare for the hours or days when they would need to go out to work. This proportion was 5% in England which is not significantly different; and
- In the East Midlands 8% of non-working parents reported that the reason for not working is that they could not afford good quality childcare. This proportion was the same in England.

## Childcare

The childcare situation in the East Midlands compared with England is explored from two angles. Firstly, employer provision of childcare facilities and assistance with childcare for employees is analysed using the Work-Life Balance Employer Survey

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<sup>127</sup> Goldstone C, Department for Work and Pensions, 'Barriers to employment for disabled people'. In-house report 95.2002. <http://www.dwp.gov.uk/asd/asd5/IH95.pdf>

<sup>128</sup> Black C, 'Dame Carol Black's Review of the health of Britain's working age population, Summary of evidence submitted'. <http://www.workingforhealth.gov.uk/documents/summary-of-the-evidence.pdf>

<sup>129</sup> Childcare and Early Years Survey of Parents 2007. These specific reasons are quality, affordability, reliability and availability of childcare.

<sup>130</sup> National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009. Data are from Childcare and Early Years Survey of Parents 2007.

(WLBS). Secondly, the Childcare and Early Years Survey of Parents (CEYP)<sup>131</sup> was used to look at parental views of local childcare, as well as both childcare arrangements and support that helped respondents work, and child-related reasons for the respondent not working.

The Work-Life Balance Employer Survey 2007 confirms that there were no significant differences between the East Midlands and England in the proportion of employers<sup>132</sup> which provide assistance with childcare. In 2007, 21% of East Midlands employers provided assistance<sup>133</sup> with childcare compared to the English average of 17%. However, in 2003 the proportion of East Midlands employers which provided assistance with childcare was significantly lower than the national average at 3% compared to 7%. This suggests that some progress has been made between 2003 and 2007 both nationally and regionally in the provision of childcare arrangements by employers.

In 2004, families in the East Midlands held more positive views with regard to quality and affordability of local formal childcare compared with England. However, this positive view had changed by 2007 when 61% of families with children aged 14 or younger in the East Midlands reported that the quality of childcare in the local area is good compared to 63% in England.

Data suggests that in 2007 workless households were less satisfied with childcare provision. In the East Midlands in 2007 only 50% thought that the quality of formal childcare provided was good compared to 64% of those couples where both parents were at work.

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<sup>131</sup> The Childcare and Early Years Survey of Parents 2007 (CEYP) was commissioned by the Department for Children, Schools and Families (DCSF), the Childcare and Early Years Survey of Parents (CEYP) provides comprehensive data on parents' take-up, views and experiences of childcare. The 2007 CEYP is the most recent wave in the series.

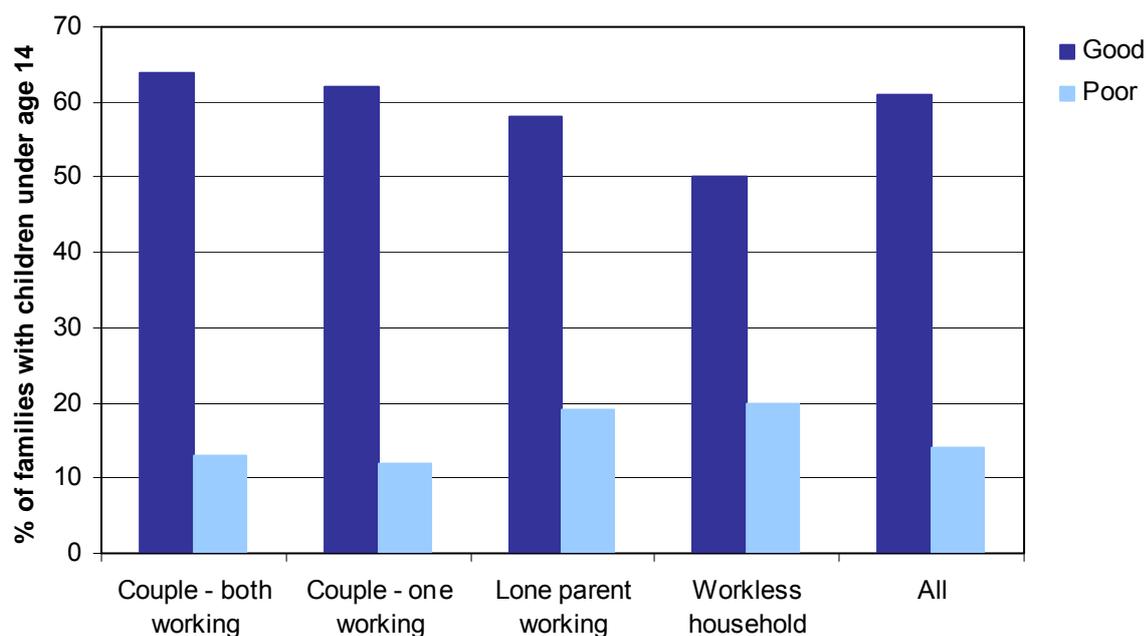
<sup>132</sup> Establishments with five or more employees.

National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009.

<sup>133</sup> *Ibid.*

Childcare arrangements provided by employers include childcare situated at workplace, financial help and other help with childcare. This latter consists of childcare arrangements during school holiday, information about local provision etc.

**Chart 28: Families perception about the quality of local formal childcare, East Midlands 2007 (%)**



Source: National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009. Childcare and Early Years Survey of Parents 2007.

Base: All parents with children aged 14 and under, based on 649 unweighted observations.

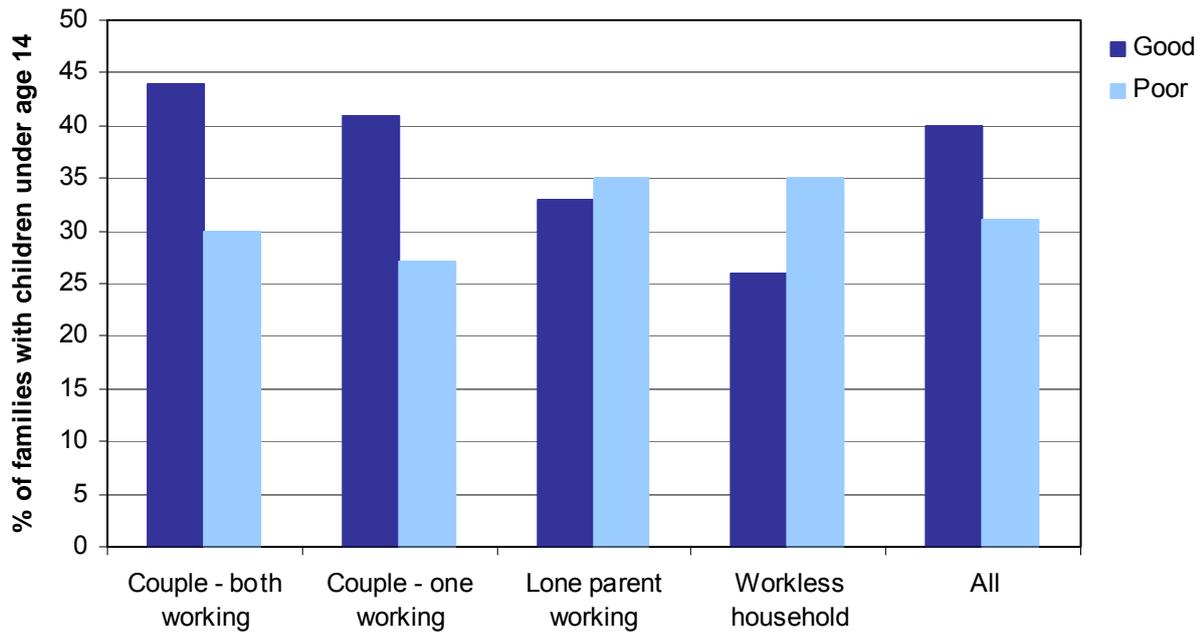
Note: Good is the sum of 'Very good' and 'Fairly good'. Poor is the sum of 'Very poor' and 'Fairly poor'. The proportion of 'Don't know' category ranges between 23% (Couple – both working) and 31% (Workless household). The average of 'Don't know' category is 25%.

In 2007, 40% of East Midlands families thought that the affordability of formal local childcare is good<sup>134</sup> compared to 38% in England. However, opinion about affordability differs again by household working status. Workless households tend to be less satisfied with affordability compared to families where both partners are at work. Only 26% of workless families reported that affordability of childcare is good compared to 44% of working couples.

<sup>134</sup> Ibid.

'Very good' and 'Fairly good' together.

**Chart 29: Families perceptions and views about the affordability of local childcare, East Midlands 2007**



Source: National Centre for Social Research commissioned by emda, 'Secondary Analysis of Regional Data in National Surveys', 2009. Childcare and Early Years Survey of Parents 2007.

Base: All parents with children aged 14 and under, based on 649 unweighted observations.

Note: Good is the sum of 'Very good' and 'Fairly good'. Poor is the sum of 'Very poor' and 'Fairly poor'. The proportion of 'Don't know' category ranges between 26% (Couple – both working) and 40% (Workless household). The average of 'Don't know' category is 30%.

In 2007, 45% of families reported that there are too many or a sufficient number of formal childcare places in their local area both in the East Midlands and in England. Therefore, parents' perceptions of the availability of formal childcare provision is not significantly different in the region than nationally. Again, a smaller proportion of workless families in the region were satisfied with the number of childcare places in their local area compared to working couples at 36% and 47% respectively.

Informal childcare is an important source of help for families with children<sup>135</sup>. In 2007, a significantly larger proportion of families in the East Midlands cited help from relatives and friends as the most important childcare arrangement that helped the respondent work (17% compared with 12% in England). Families with the youngest child of primary school age (5 to 11 years) in the East Midlands are more likely to have help from relatives and friends.

<sup>135</sup> Informal childcare includes help from wife, husband or ex-partner, from grandparents, child's older brother or sister, any other relatives, friends or neighbours. Department for Children, Schools and Families, 'Childcare and Early Years Survey 2007, Parents' Use, Views and Experiences' <http://publications.dcsf.gov.uk/eOrderingDownload/DCSF-RR025.pdf> Research Report DCSF-RR025, Table 2.1.

## Flexible working

'Flexible working' is a phrase that describes any working patterns adapted to suit employee needs to reconcile their work and family or carer duties. These flexible working arrangements are crucial in tackling barriers to employability for carers and parents with children or with a disabled child under 18. Common types of flexible working are<sup>136</sup>:

- Part-time: working less than the normal hours, perhaps by working fewer days per week;
- Flexi-time: choosing when to work (there is usually a core period during which you have to work);
- Annualised hours: your hours are worked out over a year (often set shifts with you deciding when to work the other hours);
- Compressed hours: working your agreed hours over fewer days;
- Job sharing: sharing a job designed for one person with someone else; and
- Home-working: working from home.

The Work-Life Balance Employer Survey (WLBS) allows an assessment of the availability and take-up of flexible working practices from an employer perspective, while the Labour Force Survey (LFS) explores this from an employee perspective<sup>137</sup>.

Chart 30 shows that based on the WLBS, in 2007, there were no statistically significant differences in the proportion of establishments with employees working flexibly in the last 12 months<sup>138</sup> in the East Midlands compared to England as a whole<sup>139</sup>. Part-time working seems the most widespread type of flexible working both in the East Midlands and England. However, we can expect that the proportion of part-time working may increase because of the working hours arrangements applied by businesses due to the recession.

Generally, job share and compressed hours are the less widespread practices.

- In the East Midlands 84% of establishments had employees who worked part-time compared to 75% in England.
- In the East Midlands 23% of establishments had employees who worked flexi-time compared to 24% in England.
- In the East Midlands 32% of establishments had employees who worked reduced hours compared to 22% in England.
- In the East Midlands 19% of establishments had employees who worked from home compared to 16% in England.

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<sup>136</sup> Directgov, 'Flexible working and work-life balance'

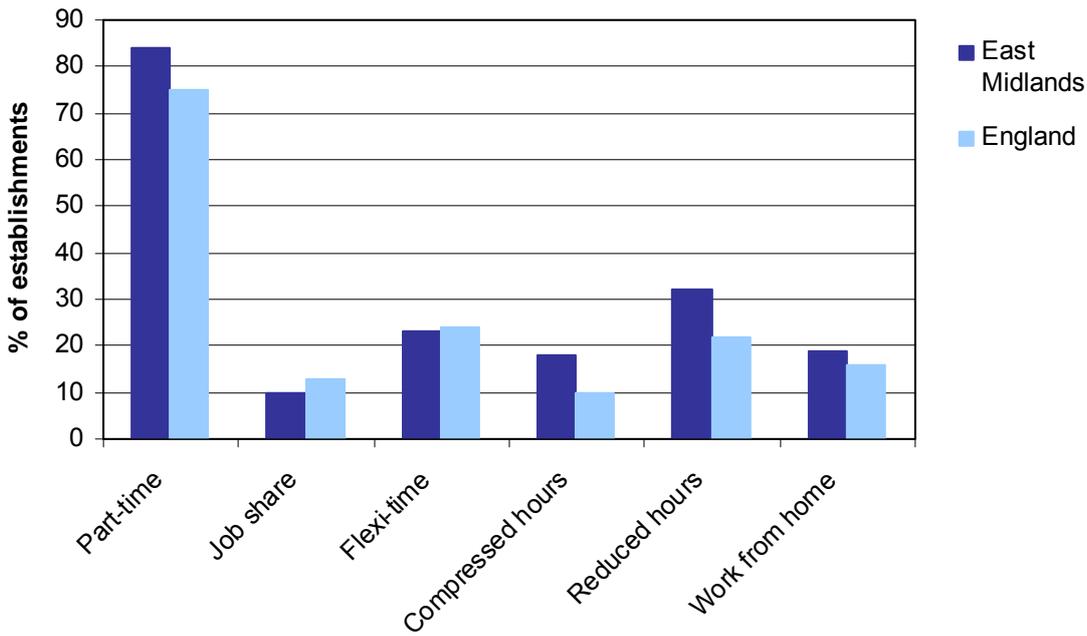
[http://www.direct.gov.uk/en/Employment/Employees/WorkingHoursAndTimeOff/DG\\_10029491](http://www.direct.gov.uk/en/Employment/Employees/WorkingHoursAndTimeOff/DG_10029491)

<sup>137</sup> However, the LFS tables do not match entirely to the WLBS tables because WLBS employer tables do not include part-time working as a category of flexible working.

<sup>138</sup> The WLBS identifies flexible working arrangements as part-time, job share, flexi-time, compressed hours, reduced hours and work from home.

<sup>139</sup> National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009.

**Chart 30: Proportion of establishments with employees working flexibly in the last 12 months, 2007**



Source: National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009. Work-Life Balance Employer Survey 2007.

Base: Establishments with five or more employees, based on 95 unweighted observations.

Note: Multiple responses.

Based on the Labour Force Survey 2007-2008<sup>140</sup> data there is no significant difference between flexible working arrangements<sup>141</sup> reported by employees in the East Midlands compared to England, at 24% and 24% respectively. There was no significant difference between the East Midlands and England in flexible working arrangements reported by gender, ethnicity and disability. This suggests that generally flexible working is a relatively widespread instrument among employees to address issues around work-life balance.

### 5.7.3 Access to services

Accessibility is a key requirement of a functioning economy. Poor accessibility not only impacts on the quality of residents' day-to-day lives but also their future prospects e.g. access to education and employment. We can analyse the issues related to accessibility in the East Midlands by considering the geographical availability of services. As well as the physical distance to key services it is also important to analyse the time it takes for residents of the region to access these key services. These two important measures of accessibility will be discussed in this section and used to highlight the disparities present between urban and rural areas of the East Midlands.

Improving places and making services and employment more accessible improves quality of life.

<sup>140</sup> These data refer to Labour Force Survey 2007-2008 – five quarter longitudinal dataset.

<sup>141</sup> Flexible working arrangements asked by the LFS are flexi-time, annualised hours contract, term-time working, job sharing, nine day fortnight, four and a half day week and zero hour contract.

The East Midlands is the third most rural region in England<sup>142</sup>. Accessibility indicators echo this geographical feature as a lower proportion of the East Midlands population enjoys the same level of accessibility to some of key services than residents of other regions.

### **Distance to services**

The following section of this chapter summarises how accessible some of the public and private services are (in terms of their distance) in the East Midlands compared to other regions<sup>143</sup>. Services discussed in this section are the nearest Jobcentre, GP, hospital, supermarket and Post Office.

- In 2009, 83.9% of East Midlands residents had a Jobcentre within 8km. This is the fourth lowest proportion compared to other English regions but higher than the South West, East of England and the South East at 72.4%, 80.6% and 82.0% respectively.
- In 2009, 96.6% of residents had a GP surgery within 4km in the East Midlands. This is the third lowest proportion among all English regions. The proportion of residents having a GP within 4km is 94.8% in the South West and 95.9% in the East of England. In London, all residents have a GP surgery within 4 km.
- A smaller proportion of residents live within 8km of the nearest hospital in the East Midlands than in most of the regions. Only 86.8% of the East Midlands resident population have this service within 8km. This is the second lowest proportion among the English regions and just slightly better than the East of England where 85.4% of the population live within 8km of the nearest hospital.
- In 2009, 93.0% of the East Midlands resident population had a supermarket within 4km. This is the third lowest proportion among the nine English regions. The accessibility of supermarkets was more difficult in the South West and in the East of England where 88.1% and 90.2% of the population lived within 4km of the nearest supermarket respectively.
- In 2009, 94.4% of the East Midlands population live within 2km of the nearest Post Office. This is the third lowest proportion among the other regions and it is slightly better than the South West (93.1%) and the East of England (93.6%).

Accessibility is directly determined by available infrastructure and this is affected significantly by rurality. Table 4 shows what proportion of the regions households are within a specified distance of specified services split by urban rural definition. The table also highlights:

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<sup>142</sup> *emda*, 'The Rural East Midlands in 2008'.

<sup>143</sup> Commission for Rural Communities, 'Rural Services Data Series, 2009'  
<http://www.ruralcommunities.gov.uk/projects/ruralservicesseriesdata/overview>

- Households in rural areas, in general, have to travel further to access services than households in urban areas. Jobcentres, banks and building societies experience the greatest disparity between urban and rural classification, by around 40 percentage points;
- There is very little variation in the percentage of households within specified distances from services in urban areas. Hospitals remain the furthest from households in urban areas, however, they are still within 8km for over 97% of households in the East Midlands; and
- There is significantly more variation in the percentage of households within specified distances of services in rural areas. Jobcentres are the furthest from the rural areas where only 51% of households are within 8km. In contrast, pubs (2km) and cashpoints (4km) are closest to rural households with 92.8% and 90.5% of households within the specified distance respectively.

**Table 4: Percentage of households within a given distance of a key service in the East Midlands, by rural/urban classification<sup>144</sup>, 2009**

Service (Distance)	Rural	Urban
Jobcentres (8km)	50.8%	97.6%
Banks and building societies (4km)	60.0%	99.5%
Hospitals (8km)	61.6%	97.2%
Secondary schools (4km)	62.8%	99.5%
NHS dentists (4km)	63.0%	99.6%
Convenience stores (4km)	75.6%	98.9%
Supermarkets (4km)	76.2%	99.9%
Post Offices (2km)	82.0%	99.5%
Petrol stations (4km)	85.2%	100.0%
GP surgeries (All sites) (4km)	88.5%	100.0%
Primary schools (2km)	89.1%	99.9%
Cashpoints (4km)	90.5%	100.0%
Pubs (2km)	92.8%	99.9%

Source: Commission for Rural Communities, Rural Services Series, Analysis by Defra RSU, 2009

### Travel times to services<sup>145</sup>

Although distance to a given service is a good indicator of proximity it does not consider the wider accessibility of the service. It is more useful to consider how long it actually takes to get to the service using the available transport infrastructure and how this relates to the population which is most likely to use it.

Data from the Department for Transport offers information on the proportion of the resident population that can access key services within a certain time via public transport or walking. They also produce indicators based on the proportion of the

<sup>144</sup> Defined by the 2004 Rural and Urban definition developed by the Rural Evidence Research Centre at Birkbeck College (RERC).

<sup>145</sup> Via public transport or walking.

population most likely to use the service, known as the ‘target’ population as well as the proportion of the population which may find it more difficult to access the service (possibly due to cost or ability to access a car), known as the ‘risk’ population. It is generally the case that the ‘risk’ population has greater accessibility to key services than the larger ‘target’ population.

The population of the East Midlands experiences almost universal access to **primary schools** within 30 minutes via public transport or walking, irrespective of rurality. Of the district classification Rural 80 districts are the least accessible to primary schools. However, with 95% of the target population<sup>146</sup> within a travel time of 15 minutes, primary schools are classed as highly accessible.

**Table 5: Travel times to primary schools, 2008**

	Percentage of target population within a travel time of 15 mins	Percentage of target population within a travel time of 30 mins	Percentage of the at risk population within a travel time of 15 mins	Percentage of the at risk population within a travel time of 30 mins
LU	100	100	100	100
OU	100	100	100	100
SR	97	100	98	100
R50	97	100	99	100
R80	95	99	98	100

Source: Defra, Local Authority Core Accessibility Indicators, November 2009, Accessed January 2010.

Note: Risk population is defined as 5-10 year olds in receipt of Free School Meals.

The accessibility of **secondary schools** in the East Midlands is lower than that of primary schools, mirroring national trends. The pattern of accessibility of secondary schools mirrors that of primary school as population in more rural districts have to travel further to reach secondary schools than in more urban districts. Despite this, secondary schools are still accessible to over 95% of the population within a travel time of 40 minutes in Rural 80 Districts. Areas in Northamptonshire, such as Daventry and Corby experience particularly low accessibility where less than 60% of the target population is within 20 minutes travel time of a secondary school.

Accessibility to **GPs** is almost universal to the ‘at risk’<sup>147</sup> population within a travel time of 30 minutes. Unsurprisingly, there is a greater variation in the accessibility for the ‘target’ and ‘at risk’ population within a travel time of 15 minutes. The target population<sup>148</sup> in Rural 80 districts experiences the lowest levels of accessibility within 15 minutes, of 72%. On this indicator, Melton, along with areas of Lincolnshire including South Holland and East Lindsey, experience the lowest levels of accessibility.

A slightly different measure is available to assess the accessibility to **employment**. National Indicator 176 is based on a composite measure of travel where public transport, cycling and walking are weighted by the national mode split but does not include a travel time measure. Table 6 shows the percentage of the population with access to employment on this composite measure.

<sup>146</sup> Target population is defined as 5-10 year olds.

<sup>147</sup> Risk population is defined as all households without access to a car.

<sup>148</sup> Target population is defined as all households.

**Table 6: Accessibility to employment centres by composite mode of travel, 2008**

	<b>Percentage of target population weighted by the access to employment centres by composite mode</b>
LU	84
OU	82
SR	80
R50	80
R80	76

Source: Defra, Local Authority Core Accessibility Indicators, November 2009, Accessed January 2010.  
Note: Target population is defined as 16-74 year olds.

Table 6 shows that the more rural districts in the region experience lower levels of accessibility. It does, however, remain the case that even in Large Urban areas 16% of the target population does not have access to employment centres by the composite measure.

## **Key Points: Barriers to labour market participation and economic inclusion**

- Productivity losses due to ill health were estimated to be £802 million in the East Midlands in 2006-2007.
- Life expectancy has been increasing in the East Midlands mirroring the trend in England. However, the absolute gap between the quintile of eight Local Authorities with the lowest life expectancy and the East Midlands population increased both in case of males and females.
- The main reported health problems in the region were heart, blood pressure and circulation, chest and breathing, and back and neck problems.
- Overall, there were no significant differences between the East Midlands and England in the proportion of employers which provide assistance with childcare.
- Workless households are less satisfied with the childcare provision both in the East Midlands and in England.
- In 2007, a significantly larger proportion of working parents in the East Midlands cited help from relatives and friends as the most important childcare arrangement that helped the respondent to work.
- In 2007, there were no significant differences between flexible working arrangements reported by employees in East Midlands compared to England. Among these arrangements, part-time working seems to be the most widespread type of flexible working offered by firms.
- There were similar proportions of the working age population claiming for health related benefits (Attendance Allowance and Disability Living Allowance) and Carer's Allowance in the East Midlands and in Great Britain. However, both health related benefit claimants and carers appear to be concentrated in the coalfields and parts of the Lincolnshire coastal area suggesting deeply rooted issues of economic exclusion.
- Part-time working seems the most widespread type of flexible working both in the East Midlands and England. However, we can expect that the proportion of part-time working may increase because of the working hours arrangements applied by businesses due to the recession.
- In 2007 10% of non-working parents reported that they could not find free or affordable childcare which would make working worthwhile. This proportion was 12% in England which is not significantly different.
- The pattern of accessibility of services shows that those who live in more rural districts have to travel further to reach public services or employment opportunities than those living in more urban districts. For example, Jobcentres are the furthest from the rural areas where only 51% of households are within 8km. This is compared to 97.6% of households living in urban areas.

## 5.8 Crime

Crime is often a manifestation of deeply rooted disadvantage and poverty combined with dysfunctional family conditions and lack of social networks. However, crime is also a sensitive indicator of life chances, as when economic performance declines, crime often rises. Crime damages the quality of life and makes the local area a less attractive place to live.

This section is based on Crime in England and Wales, 2008-2009 published by the Home Office. This is the eighth report in an annual series that combines the reporting of [police recorded crime](#)<sup>149</sup> and the [British Crime Survey](#) (BCS)<sup>150</sup> results. The police recorded and BCS figures are a complementary series that together provide a better picture of crime than could be obtained from either series alone.<sup>151</sup>

Offences in the BCS are reported for the person and for the household.<sup>152</sup> For households, the respondent answers on behalf of the whole household in the offence categories of bicycle theft, burglary, theft in a dwelling, other household theft, thefts of and from vehicles and vandalism to household property and vehicles.<sup>153</sup> The common term used in interpreting this indicator is the “risk of household crime” where one or more persons experienced crime on one or more occasions during the 12 months prior to interview.

Chart 31 shows that in 2008-2009, the risk of household crime was 18% in the East Midlands. The highest risks of household crime were in the South East, North West, North East and London at 19%. In contrast, the lowest proportions were in the South West and in the West Midlands at 16% in 2008-2009.

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<sup>149</sup> The police recorded crime data analysed in this chapter reports crime on the financial year 2008-2009. The police recorded crime statistics provide a good measure of trends in well-reported crimes, are an important indicator of police workload, and can be used for local crime pattern analysis. However, they do not include crimes that have not been reported to the police. Recorded crime statistics provide the only measure of homicide and also the only reliable measure of relatively rare crimes such as robbery. Home Office, ‘Crime in England and Wales 2008-2009’. Chapter 1.

<http://www.homeoffice.gov.uk/rds/crimeew0809.html>

<sup>150</sup> The British Crime Survey (BCS) is a victimisation survey in which adults living in private households are asked about their experiences of crime in face-to-face interviews. BCS results are based on interviews conducted in the financial year 2008-2009. It includes property crimes such as vehicle-related thefts and burglary, and personal crimes such as assaults. For the crime types it covers, the BCS can provide a better reflection of the true extent of household and personal crime because it includes crimes that are not reported to the police. The BCS count also gives a better indication of trends in crime over time because it is unaffected by changes in levels of reporting to the police and in police recording practices. The BCS is also the main Home Office source of data on perceptions of crime, anti-social behaviour and attitudes to the criminal justice system (CJS).

Home Office, ‘Methodological information about the British Crime Survey’

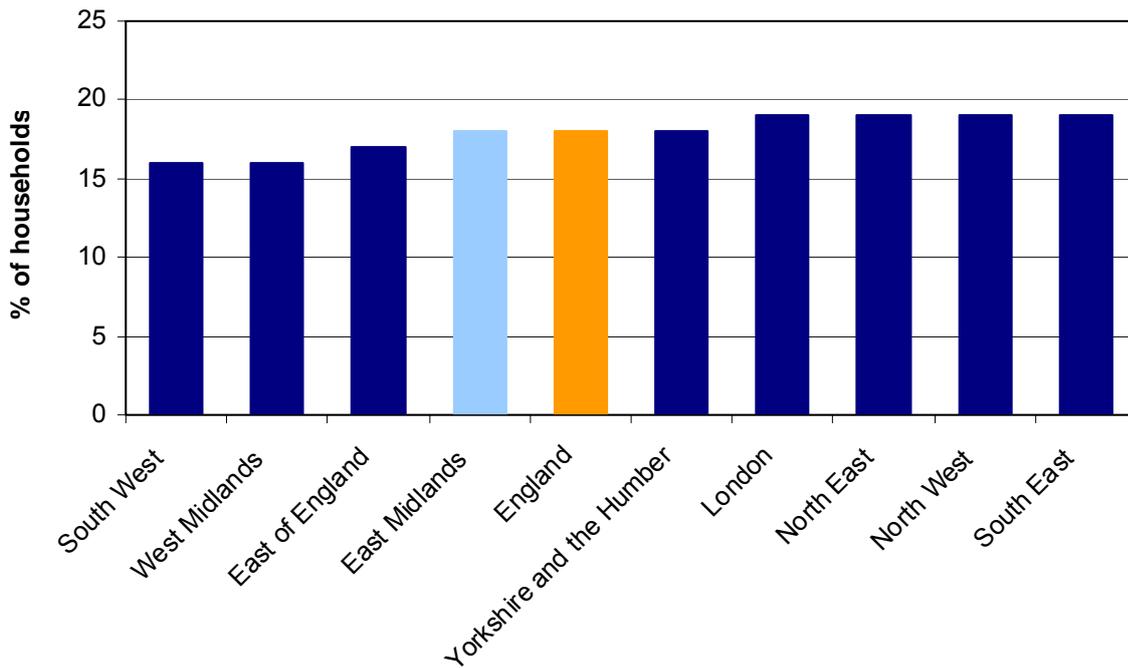
<http://www.homeoffice.gov.uk/rds/bcs-methodological.html>

<sup>151</sup> Home Office, ‘Research Development Statistics’, <http://www.homeoffice.gov.uk/rds/crimeew0708.html>

<sup>152</sup> The risk of personal crime shows little regional variations. Therefore, the risk of household crime was chosen for this analysis. Home Office, ‘Crime in England and Wales 2008-2009’. Chapter 7, Table 7.08 and 7.09. <http://www.homeoffice.gov.uk/rds/crimeew0809.html>

<sup>153</sup> Home Office, ‘Crime in England and Wales 2008/09’. Glossary, <http://www.homeoffice.gov.uk/rds/crimeew0809.html>

**Chart 31: Risk of household crime by region, British Crime Survey 2008-2009**

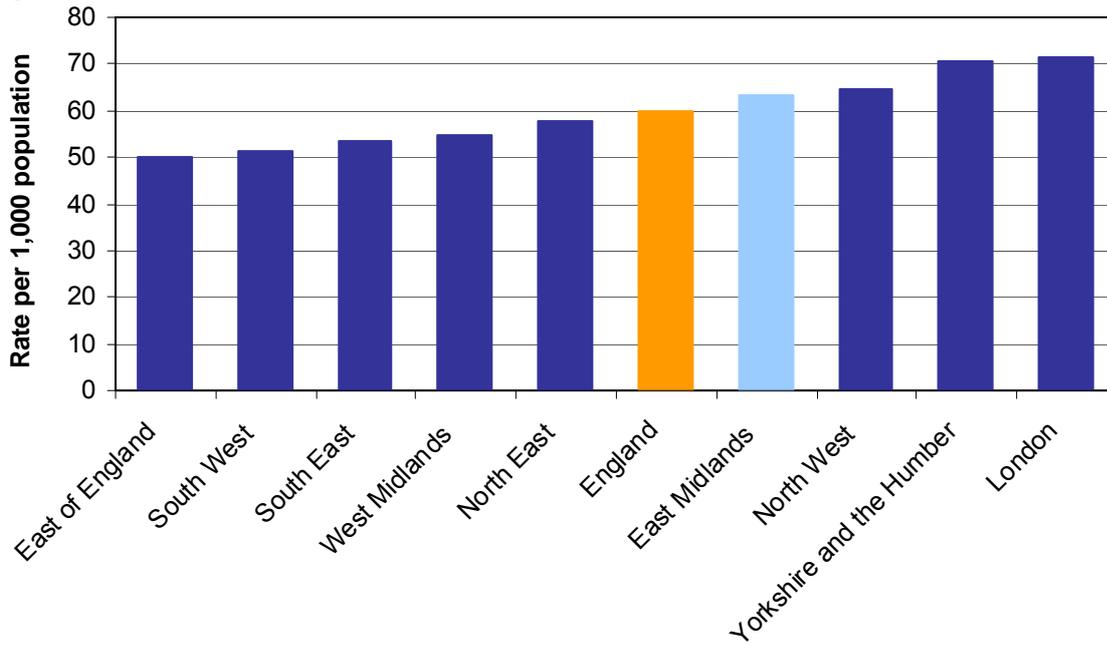


Source: Home Office, 'Crime in England and Wales 2008-2009'. Chapter 7, Table 7.08. BCS household crime.

Note: Risk of household crime includes bicycle theft; burglary; theft in a dwelling; other household theft; thefts of and from vehicles, and vandalism to household property and vehicles.

Police recorded crime related to offences against property and possession include robbery, burglary, criminal damage, other theft and offences against vehicles. The recorded offences rate per 1,000 population was 63 in the East Midlands. This is higher than the English average of 60 offences per 1,000 people. The highest offence rates were in London and in Yorkshire and the Humber at 71 recorded crimes per 1,000 population respectively. In the East of England and in the South West, 50 and 51 offences were recorded per 1,000 people respectively. These are the lowest rates among the English regions.

**Chart 32: Recorded crime against possession and property by police force area, English regions (rates per 1,000 population), 2008-2009**

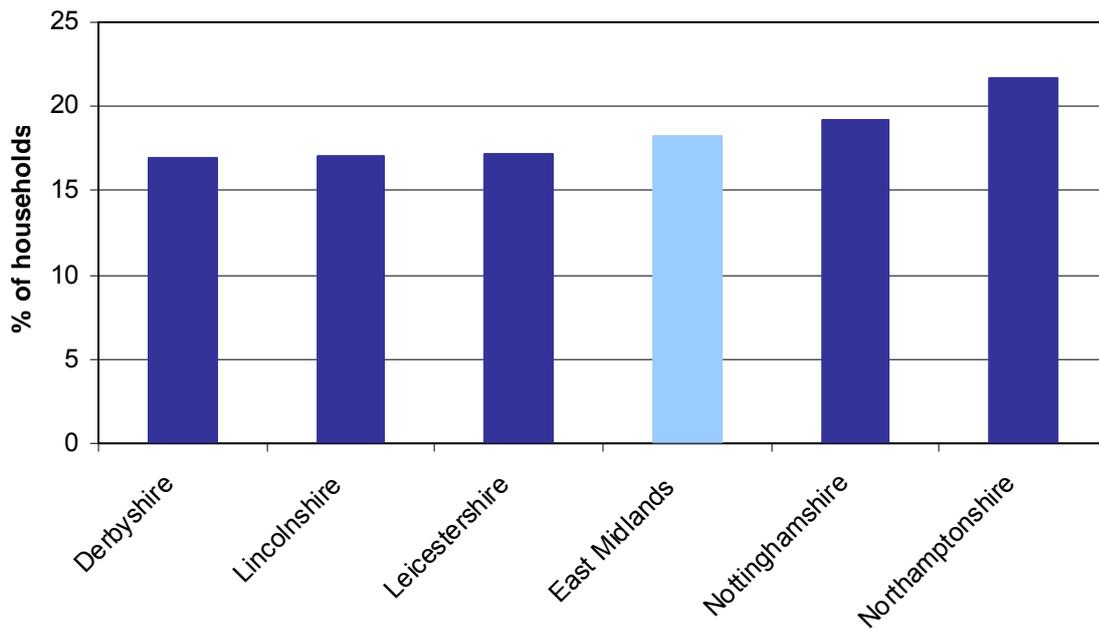


Source: Home Office, 'Crime in England and Wales 2008/09'. Chapter 7, Table 7.05. Recorded crime.

Note: Crime against property and possession includes robbery, burglary, criminal damage, other theft and offences against vehicles. Offences against vehicles include theft of a motor vehicle, theft from a vehicle, aggravated vehicle taking and interfering with a motor vehicle.

During the 2008-2009 financial year, the risk of household crime was the highest in Northamptonshire at 22% and in Nottinghamshire at 19%. The risk of household crime was the lowest in Derbyshire, Lincolnshire and Leicestershire at 17%.

**Chart 33: Risk of household crime by East Midlands' sub-region, British Crime Survey 2008-2009**

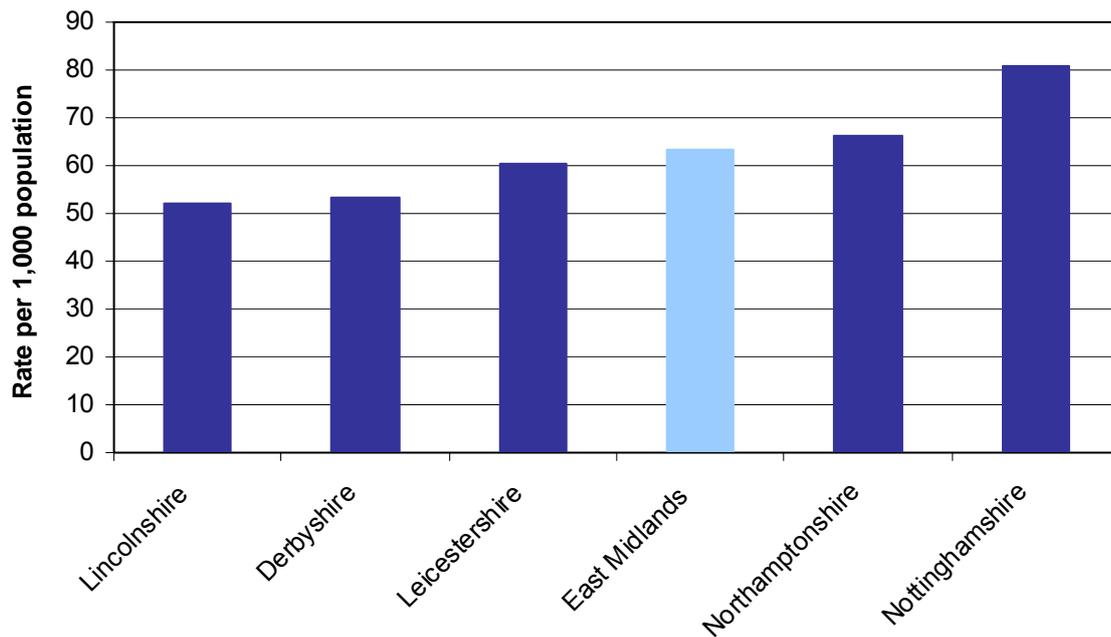


Source: Home Office, 'Crime in England and Wales 2008-2009'. Chapter 7, Table 7.08, BCS household crime.

Note: Risk of household crime includes bicycle theft; burglary; theft in a dwelling; other household theft; thefts of and from vehicles, and vandalism to household property and vehicles.

Sub-regional analysis shows that the highest offences rate against possession and property was in Nottinghamshire at 81 per 1,000 population in 2008-2009. The lowest rates of police recorded offences were in Lincolnshire and Derbyshire at 52 and 54 per 1,000 population in 2008-2009.

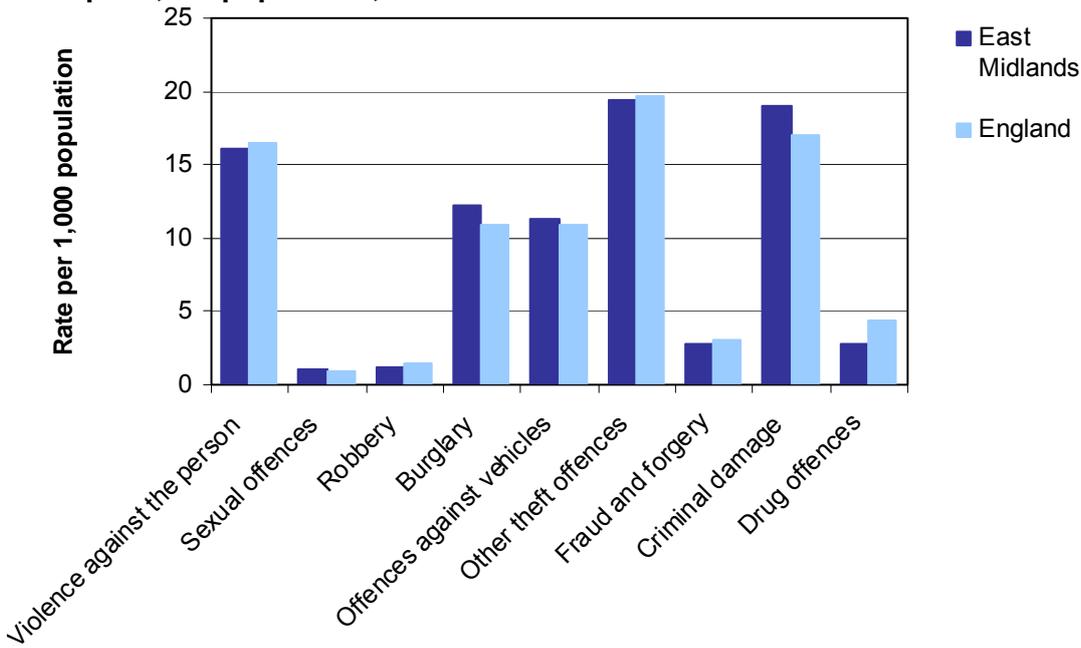
**Chart 34: Recorded crime against possession and property by East Midlands' sub-regions (rates per 1,000 population), 2008-2009**



Source: Home Office, 'Crime in England and Wales 2008-2009'. Chapter 7, Table 7.05. Recorded crime.  
 Note: Crime against property and possession includes robbery, burglary, criminal damage, other theft and offences against vehicles. Offences against vehicles include theft of a motor vehicle, theft from a vehicle, aggravated vehicle taking and interfering with a motor vehicle.

For the following analysis by offence groups, the police recorded crime data are used. Crime against or committed by individuals will be also covered such as 'violence against the person' or 'drug offences'. Chart 35 shows that theft, criminal damage and violence against the person were the most often recorded offences both in the East Midlands and in England. Burglary and criminal damage were more often recorded in the East Midlands than in England. In 2008-2009 the criminal damage rate per 1,000 people was 19 in the East Midlands compared to 17 in England. The burglary rate per 1,000 population in the East Midlands was 12 compared to 11 in England.

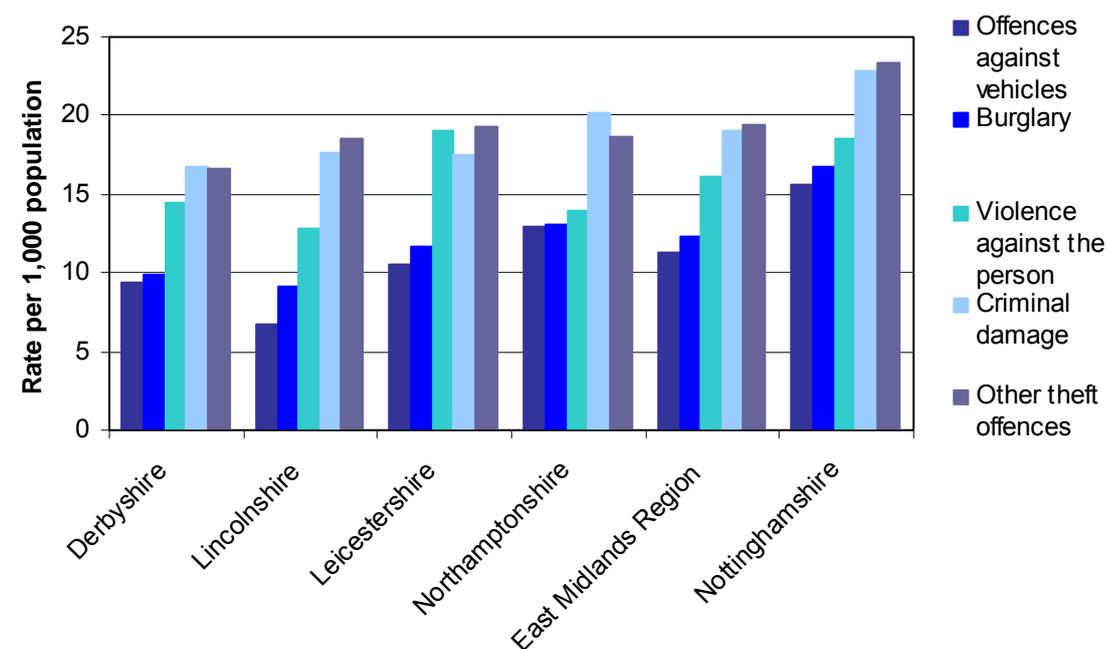
**Chart 35: Recorded offences by offence group, East Midlands and England, rates per 1,000 population, 2008-2009**



Source: Home Office, 'Crime in England and Wales 2008-2009'. Chapter 7, Table 7.05. Recorded crime. Note: Sexual offences and other offences are left out due to small numbers.

Chart 36 shows the five most commonly recorded offences in the East Midlands sub-regions: violence against the person, burglary, offences against vehicles, other theft offences and criminal damage. The rate of each offence is the highest in Nottinghamshire except violence against the person where the highest rate was recorded in Leicestershire.

**Chart 36: The five most common recorded offences in the East Midlands sub-regions (rates per 1,000 population), 2008-2009**



Source: Home Office, 'Crime in England and Wales 2008-2009'. Chapter 7, Table 7.05. Recorded crime.

**Key Points: Crime**

- In 2008-2009, the risk of self-reported household crime was 18% in the East Midlands. This is the same as the English average.
- Police recorded crime against possession and property was higher in the East Midlands than the England.
- During 2008-2009, the risk of self-reported household crime was the highest in Northamptonshire and the lowest in Derbyshire, Lincolnshire and Leicestershire.
- Analysis by offence groups shows that burglary and criminal damage was more often recorded by the police in the East Midlands than in England.
- The five most commonly recorded offences in the East Midlands were also the highest in Nottinghamshire except violence against the person where the highest rate was recorded in Leicestershire. The five most common recorded offences were the lowest in Lincolnshire and Derbyshire.

## 5.9 Active and cohesive communities

Active and cohesive communities are those where there is a sense of belonging to the neighbourhood and a strong, supportive and positive relationship between people. Community cohesion helps to find consensus for local problems and provides a common ground of understanding of local issues on which people can work together.

The analyses draw on data from the Citizenship Survey (CS). The CS is the principal source of Home Office monitoring of Public Service Agreement (PSA) objective 21 to “Build more cohesive, empowered and active communities”.

Active communities are explored by examining the prevalence of formal volunteering, informal voluntary help and participation in civic activities<sup>154</sup>:

- In 2007, the proportion of respondents who provided formal voluntary help<sup>155</sup> in the last 12 months was 43% both in the East Midlands and in England. The engagement of different groups (gender, disability, age and household composition) in this activity does not differ significantly between the East Midlands and England;
- In 2007, the proportion of respondents who provided informal help<sup>156</sup> in the last 12 months was 64% both in the East Midlands and in England. Again there are no significant differences between the East Midlands and England in participation in informal volunteering by social group; and
- The proportion of people participation in civic activities<sup>157</sup> was 38% in the East Midlands and 39% in England in 2007. Participation in civic activities is somewhat lower for ethnic minorities compared to other groups both in England and in the East Midlands.

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<sup>154</sup> National Centre for Social Research commissioned by *emda*, ‘Secondary Analysis of Regional Data in National Surveys’, 2009.

<sup>155</sup> Formal voluntary help covers every activity taken part in, supported or helped either alone or with others which helped a group, club or organisation in the last 12 months, excluding giving money and anything that was required of the respondents’ daily job.

Citizenship Survey 2007, <http://survey.net.essex.ac.uk/SQB/QB/surveys/citizenship/07questcs.pdf>

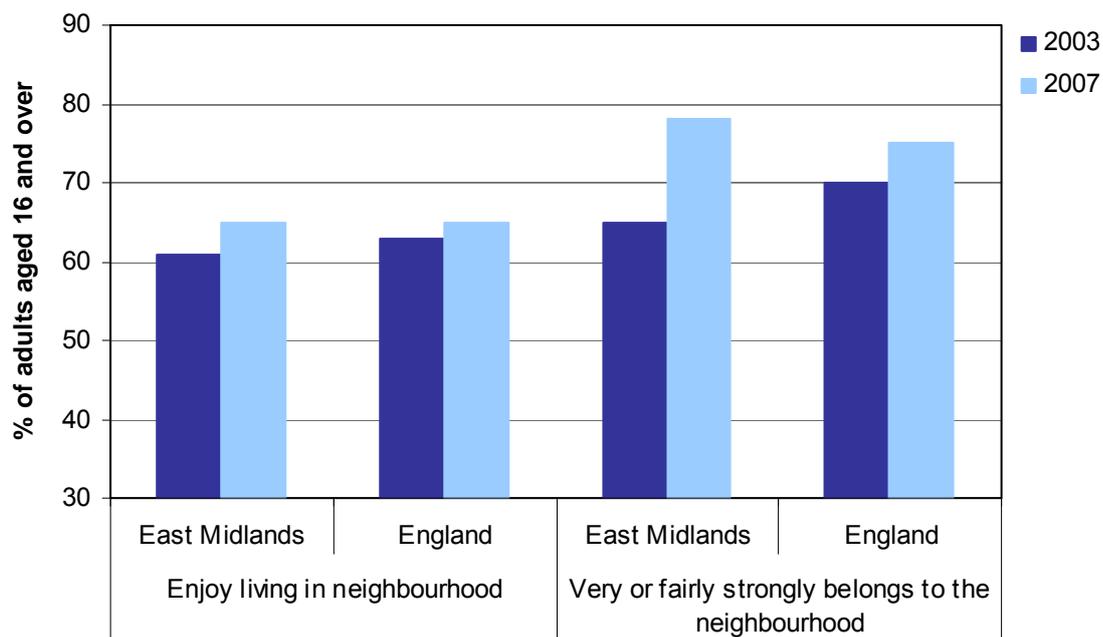
<sup>156</sup> Informal help covers any unpaid help that the respondent, as an individual, may have given to other people. This could be help for a friend, neighbour or someone else but not a relative. Citizenship Survey 2007, <http://survey.net.essex.ac.uk/SQB/QB/surveys/citizenship/07questcs.pdf>

<sup>157</sup> Civic activities include activities that the respondent has done in the last year and include having; been a local councillor (for the Local Authority, town or parish), been a school governor, been a volunteer, Special Constable or a Magistrate. If the respondent was a member of a group making decisions on local health services, on regeneration issues of the local area, on local crime problem, on a tenants’ group decision, on local education services, on issues related to the local communities etc. <http://survey.net.essex.ac.uk/SQB/QB/surveys/citizenship/07questcs.pdf>

The strength and cohesion of communities is explored by the enjoyment of living in the neighbourhood, the sense of belonging to their neighbourhood and respondents' trust in their neighbours.

Chart 37 shows that in 2003, the proportion of East Midlands residents who felt that they very or fairly strongly belong to their neighbourhood was significantly lower than in England at 65% compared to 70%. Between 2003 and 2007, the proportion of those who had a strong sense of belonging to their community increased remarkably in the East Midlands. In 2007, 78% of East Midlands residents felt strong bonds to their community similar to 75% in England.

**Chart 37: Proportion of adults who enjoy living in their neighbourhood and have a sense of belonging to the neighbourhood**



Source: National Centre for Social Research commissioned by *emda*, 'Secondary Analysis of Regional Data in National Surveys', 2009. Citizenship Survey 2003 and 2007.

Base: Adults aged 16 and over living in private households.

**Key Points: Active and cohesive communities**

- In 2007, the proportion of respondents who provided formal voluntary help in the last 12 months was the same in the East Midlands and in England at 43%.
- Similarly, the proportion of respondents who provided informal voluntary help in the last 12 months was 36% both in the East Midlands and in England.
- The proportion of people participating in civic activities was 38% in the East Midlands and 39% in England in 2007.
- Between 2003 and 2007, the proportion of East Midlands residents who had a strong sense of belonging to their community increased in the East Midlands. In 2007, 78% of East Midlands residents felt strong bonds to their community compared to 75% in England which is not significantly different.

## 5.10 Conclusions

As a result of recession, the claimant count rate in the East Midlands has increased since the summer of 2008. However, in the last 10 months it has levelled off at around 4.0%. Analysis shows that vulnerable groups appear to be geographically concentrated in the most deprived Local Authority wards. As a result of the recession the unemployment rates for these areas may be expected to increase more quickly than rises in national unemployment.

Area-based analysis highlighted that the most deprived LSOAs (as measured by the index of deprivation) of the East Midlands are concentrated around the three cities of Leicester, Derby, and Nottingham, the former coalfields districts of Mansfield, Ashfield, Bassetlaw, Chesterfield and Bolsover, and the Lincolnshire coast.

The economic challenge of the former coalfields area is well established.<sup>158</sup> Communities in the coalfields area tend to have higher numbers of people on incapacity benefit and in other forms of inactivity. In addition, due to the recession some groups where intergenerational unemployment is already an issue, may face further difficulties in getting into work or maintaining their labour market position.

Deprivation in the Lincolnshire coastal areas is partly related to access to services and employment because of a lack of connectivity. The problems of deprived localities like inner-city areas (parts of Nottingham and Leicester for example) and former coalfields areas (Mansfield, Bolsover and Chesterfield) are very different.<sup>159</sup> The labour market challenges posed by a highly stable, largely homogeneous population experiencing intergenerational unemployment in a former coalfield area are quite different from those of an ethnically diverse, younger and more transient population living in an inner-city area.<sup>160</sup>

The extent of labour market participation varies significantly by social groups identified by gender, age, ethnicity and disability. Economic inclusion and labour market participation of young people, women, ethnic minorities and disabled people are below average.

As the Labour Market chapter highlights, educational attainment is one of the routes which leads to sustainable employment. Between 2007-2008 and 2008-2009 education achievement of pupils shows a significant overall improvement across the UK and in the East Midlands. However, participation in education and educational achievement varies significantly not only by the ethnic background of pupils but also by local areas. In the East Midlands educational attainment of pupils with Mixed and Black ethnic minority groups is generally lower than average. In addition, comparing the East Midlands to England as a whole, educational attainment is significantly weaker in every ethnic group

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<sup>158</sup> The Coalfields Regeneration Trust, changing the face of coalfield communities

<http://www.coalfields-regen.org.uk/default.asp>

<sup>159</sup> North, D, Syrett, S and Etherington, D, Joseph Rowntree Foundation 'Devolution and regional governance: Tackling the economic needs of deprived areas', 2007.

<sup>160</sup> Marilyn Taylor, Joseph Rowntree Foundation 'Transforming disadvantaged places: Effective strategies for places and people', 2008. <http://www.jrf.org.uk/knowledge/findings/housing/pdf/2255.pdf>

(Whites, Mixed, Black and Chinese) apart from pupils with an Asian background, who perform relatively better in the region than in England. Local analysis in the Labour Market chapter suggests that absenteeism is higher and achievement is generally weaker in Nottingham and in Leicester (deprived inner-city areas), highlighting the challenge of tackling the intergenerational transmission of social disadvantages.

Although moving into work was identified as the main factor associated with movement out of income poverty, concerns about “in-work” poverty have been raised because of the low-skill, low-pay nature of much employment in the region. This highlights the challenges of the quality of jobs, depressed earnings, the generally skewed employment toward the lower end of the occupation scale, and its long lasting social impact on the life chances of the regional population. It may be the case that some sub-regions are more affected than others especially where businesses tend to compete on the basis of price. As the Labour Market section suggests, this may be the case in the coastal areas of Lincolnshire where the concentration of low-skilled labour may have a stronger negative effect on productivity<sup>161</sup> and consequently on the wellbeing of its residents.

The spatial pattern of child poverty shows that the proportion of children living in households receiving out-of-work benefits are concentrated in Nottingham, Leicester and some wards in Derby. The labour market participation of parents is crucial in avoiding intergenerational poverty. However, in 2006, 51% of poor children lived in working households (i.e. lone parent who worked, couples where one or both worked) in the East Midlands compared to 53% in England.<sup>162</sup>

Health status has a reciprocal relationship with employability as healthy individuals are more likely to seek, obtain and remain in employment. In addition, work can also have a valuable social role and beneficial consequences for health.<sup>163</sup> Health deprivation and health inequalities are the result of complex interactions between a wide range of social, environmental and biological factors.<sup>164</sup> Nottingham, Mansfield and Bolsover are the most health deprived areas where wider determinants of health such as poverty, poor educational outcomes, unemployment, poor housing, and the problems of disadvantaged neighbourhoods appear to also be concentrated. In addition, although there were a similar proportion of the working age population claiming for health related benefits (Attendance Allowance and Disability Living Allowance) and Carer’s Allowance in the East Midlands than in Great Britain, both health related benefit claimants and carers appear to be concentrated in the coalfields and parts of the Lincolnshire coastal area, suggesting deeply rooted issues of economic exclusion.

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<sup>161</sup> Gambin Lynn et al, Warwick Institute for Employment Research, University of Warwick, commissioned on behalf of *emda*, ‘Exploring the links between skills and Productivity’, 2009, cited Webber et al, ‘Explaining Spatial Variation in Business Performance in Great Britain’, *The European Journal of Comparative Economics*, 2007, 4(2): 319-332.

<sup>162</sup> Families and Children Study 2006 (FACS) data provided by National Centre for Social Research commissioned by *emda*, ‘Secondary Analysis of Regional Data in National Surveys’, 2009. Working households are: Lone parent working 16+ hours, couple one working 16+ hours and couple both working 16+ hours.

<sup>163</sup> Vanessa Beck et al, commissioned by *emda*, ‘The Economics of Health’, 2008.

<http://www.intelligenceeastmidlands.org.uk/>

<sup>164</sup> East Midlands: The health of the region 2007. Report of the Regional Director of Public Health for the East Midlands. [www.emphasisnetwork.org.uk/publications/rdphrpt2007/rdphreport2007.pdf](http://www.emphasisnetwork.org.uk/publications/rdphrpt2007/rdphreport2007.pdf)

Health barriers to employment remain an issue. Health barriers to employability can be grouped into individual and employer factors. Individual factors include health concerns, the availability of suitable jobs, confidence and skills, stigmatisation, financial considerations and transport issues. Employer factors include discrimination, the need to make adjustment to the workplace, provision of training and support, and lack of knowledge of relevant legislation.

The difficulties of reconciling family and work duties pose another barrier to employability. Access to childcare services and flexible working arrangements are the main instruments by which these barriers can be reduced. Barriers to childcare may hinder labour market participation especially for lone parents. In the East Midlands, 10% of non-working parents reported that they could not find free or cheap childcare which would make working worthwhile. In the East Midlands, 6% of non-working parents reported that they could not find childcare for the hours or days when they would need to go out to work.

The East Midlands is the third most rural region in England. Accessibility indicators echo this geographical feature as a lower proportion of the East Midlands population enjoys the same level of accessibility to some key services than residents of other regions. Barriers to transportation and key services can be an issue for those living in remote rural areas and the Lincolnshire coast, as the Transport chapter of the evidence base also highlights.

Recorded crime related to offences against property and possession is higher in the East Midlands than the English average. These crimes are concentrated in Nottinghamshire and in Northamptonshire while violence against the person was the highest in Leicestershire. In spite of this, the East Midlands is a place where people have strong sense of belonging to their community.

Active and cohesive communities are more likely to find consensus for their local problems and the sense of belonging to this neighbourhood is greater.<sup>165</sup> The proportion of residents participating in formal voluntary help, informal help and civic activities in the East Midlands was almost the same as the English average. In addition, the proportion of East Midlands residents who had a strong sense of belonging to their community increased in the East Midlands between 2003 and 2007.

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<sup>165</sup> Department for Communities and Local Government, '2005 Citizenship Survey, Active Communities Topic Report', page 11.

<http://www.communities.gov.uk/publications/communities/2005citizenshipsurveyactive>

## 6. Transport and Infrastructure

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## 6.1 Introduction

This section of The East Midlands in 2010 uses current data to explain the issues in the areas of transport, infrastructure and physical development in the East Midlands.

Transport and infrastructure are key elements in the economy of the East Midlands for both the resident population and businesses alike. Efficient public transport, combined with a well planned and developed infrastructure can increase the attractiveness of a region as a place to live and work. The accessibility and connectivity provided by transport and other communications infrastructure is also an important factor businesses consider when evaluating where to locate as they require access to a strong supply of labour, as well as being able to transport intermediate and finished goods from suppliers to customers. In this way transport and infrastructure are enablers of economic performance.

In conjunction with transport and infrastructure, land use makes a key contribution to delivering sustainable economic development. The adequate provision of quality employment land supporting the specific demands from industry allows regional economies to prosper. Without adequate provision of employment land, levels of output and employment can be constrained. It is, therefore, important for the provision and type of employment land to remain responsive to industrial demands.

Section 2 examines construction activity in the region. It shows that construction output peaked in 2006 and fell back in 2007 and 2008. As a result of the recession, a further fall is likely to be reported when data for 2009 becomes available.

Section 3 assesses the region's transport infrastructure. Key transport infrastructure in the region includes East Midlands Airport (one of the most important freight hubs in the country), the M1 and the Midland Main Line. It also sets out analyses of road, rail and air transport use in the region. Levels of public transport patronage in the region are lower than average. Private car is the most common mode of transport to work and people tend to travel greater distances to work than they do elsewhere. Congestion is an issue in some parts of the region, most notably around the three cities.

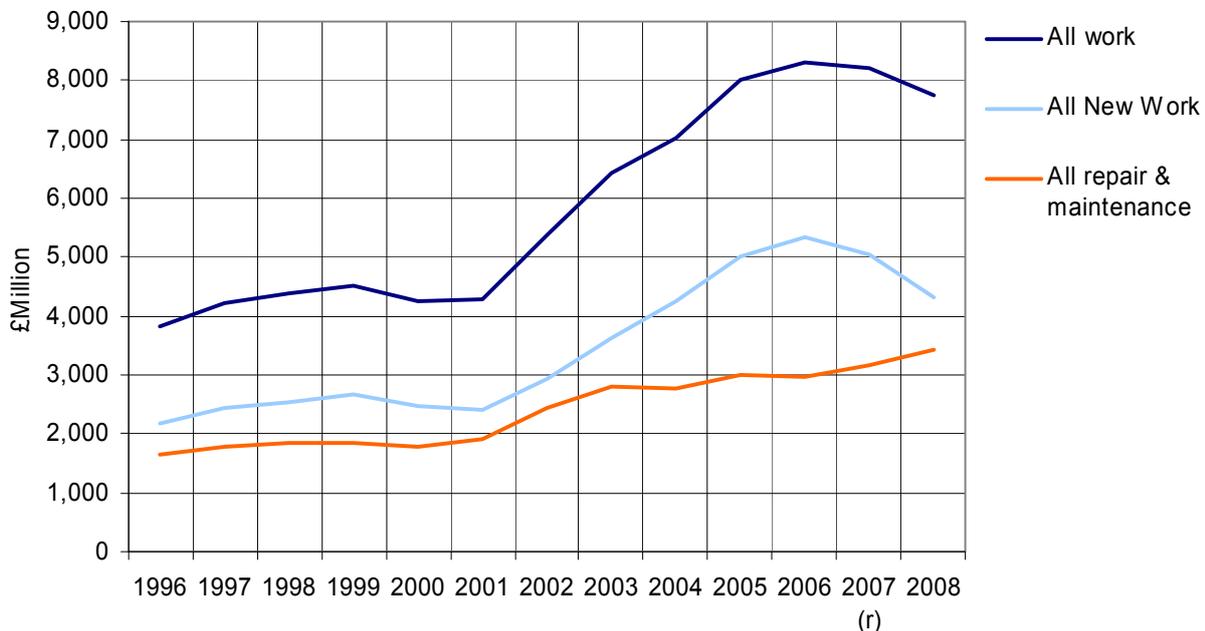
Section 4 highlights the availability and use of broadband in the East Midlands. It shows the availability of and extent to which businesses in the region use broadband. It also shows that the proportion of people in the region who can work at home if required is in line with the national average.

Sections 5 and 6 examine information on land and property in the East Midlands. It shows that typical land values and rentals are highest in the region's larger urban centres. The East Midlands accounts for a relatively large share of the industrial and warehouse space in England, reflecting its industrial structure and location at the heart of the transport network.

## 6.2 Construction

Construction activity in the East Midlands is a good proxy measure of the value of investment in transport and infrastructure as it is through construction activity that infrastructure networks are developed and maintained. The level of construction activity is also closely related to economic performance as 'new work' can only be driven by demand, although this demand can come from both the public and private sector. The chart below shows the value of all construction work in the East Midlands broken down into 'all new work' and 'all repair and maintenance' for the period 1996-2008 and shows the first stages of the impact of the recent recession on output in the sector.

**Chart 1: Construction contractors output in the East Midlands (£Million), 1996-2008**



Source: Construction Statistics Annual, Office for National Statistics, 2009. Data for 2007 has been revised since the 'Construction Statistics Annual 2008' publication.

Chart 1 shows that the construction sector in the region has experienced both periods of stagnation and high growth over the past decade. The end of the 1990s saw the sector continuing to struggle to recover from the recession of the early 1990s with the total value of all construction work fluctuating between £4.0 billion and £4.5 billion. The sector then entered a sustained period of growth between 2001 and 2006 with the total value of all construction work peaking in 2006 at £8.3 billion, more than double that in 1996. Since 2006, however, the total value of construction work in the East Midlands has fallen, having been negatively affected by a lack of availability of finance in 2007 and the onset of recession in 2008.

The data shows that:

- In 2008, the total value of construction work undertaken in the East Midlands was £7.8 billion, of which £4.3 billion (56%) was new work and £3.4 billion (44%) was repair and maintenance;
- The overall level of construction activity fell by £457 million (-6%) between 2007 and 2008, the largest annual fall in output for more than a decade. This fall can be largely attributed to a fall in private investment brought about by the recession causing a marked decrease in the level of new work being generated. Repair and maintenance output has, however, continued to grow steadily due to the largely non-discretionary nature of spending; and
- In 1996 output generated by all work in the East Midlands accounted for 8.6% of the total value of contractors' output in England. Data for 2008 show that this has fallen by 1.3 percentage points to 7.3%.

The data also shows how the recession has impacted on the sub-sectors of construction. This shows that there is a significant gulf between the impact on construction from public and private sector work:

- In terms of size, repair and maintenance of housing is the largest sub sector of construction accounting for 22% of the value of all work, followed by new private housing (at 18%) and the repair and maintenance of private housing (at 16%);
- Output generated from new private housing was £1.4 billion in 2008, a decrease of around 30% of the value of output in 2007. In contrast output from new public housing decreased by just 1% over the same period. The contraction experienced in the housing market has reduced the returns developers can expect from developments. This has reduced their ability to access finance and invest in future projects; and
- The effect of the recession is further highlighted by data for private industrial and private commercial developments when compared to public developments. Output from private industrial developments decreased by 29% between 2007 and 2008 whilst private commercial output fell by 7%. In contrast output from public developments increased by 6% over the same period.

Spending on infrastructure projects increased by 16% between 2007 and 2008, to £527 million, representing over 12% of all new work in the construction sector.

Infrastructure projects are often used as a method of boosting an economy in an economic downturn. Infrastructure projects can be brought forward, stimulating demand and boosting output and employment, this has been the case in the recent recession.

- Output generated from spending related to public buildings – such as schools and hospitals – increased by 6% between 2007 and 2008 to £739 million.

- Output from new public housing fell by just -0.7%, compared to the fall of -30% in new private housing.

Recent major infrastructure projects either planned or underway in the region include the widening of the M1 between junctions 21-25 and 28-30 and the duelling of the A46. There are also expectations that the Midland Main Line may be electrified in the relatively near future.

More analysis of the effects of the recession on the construction sector can be found in the Economy and Productivity chapter.

#### **Key Points: Construction**

- Construction output in the East Midlands peaked at £8.3bn in 2006, twice its level in 1996.
- Construction activity fell by around -6% between 2007 and 2008. Private investment in both housing and commercial developments has been responsible for a significant proportion of the fall. Public sector activity, which tends to be less affected by the economic cycle, has held up well.

## 6.3 Transport

The quality and availability of infrastructure and transport are key factors which influence economic growth. Individuals and firms alike make economic decisions based on the accessibility provided by existing and planned infrastructure. For this reason, good local, national and international transport connectivity is considered a prerequisite for economic competitiveness and sustainable economic growth.

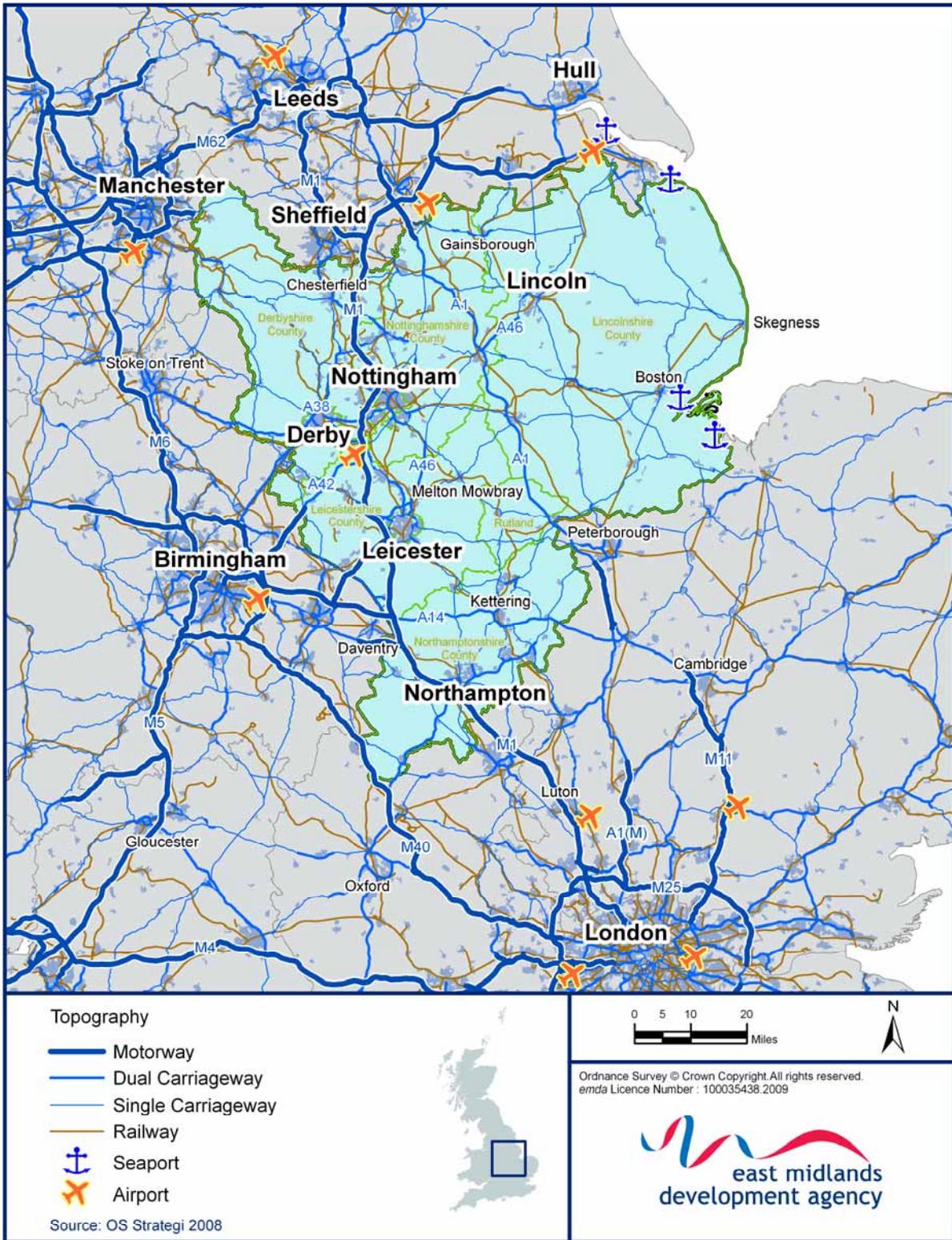
High quality transport and communications infrastructure can contribute to the region and its economy in a number of ways:

- Facilitating the movement of goods, people and information both within the region, and to markets outside the region;
- Increasing the attractiveness of the region for investment opportunities to both domestic investment as well as Foreign Direct Investment (FDI);
- Maintaining an active and productive population, key for the future success of the region; and
- Increasing the status and image of the East Midlands as a place to live, work and pursue leisure activities.

The East Midlands benefits from a number of strategic transport sites and networks, as shown in Map 1.

- East Midlands Airport, in close proximity to Nottingham, Leicester and Derby.
- The M1 motorway which runs through the East Midlands from Chesterfield in the north to Northampton in the south, and connects the region to London and the South East, and to Yorkshire and the North East.
- The A1 road to the east of the M1, which runs through Rutland, Lincolnshire and Nottinghamshire and provides strategic inter-regional links.
- The A14 running from east to west through Northamptonshire, providing links to the international Haven Ports.
- The A46 which runs from the M1 into Lincolnshire. Plans have been agreed to widen the A46 into a dual carriageway between Farndon and Widmerpool. This is due to start in 2009 and be completed in 2012.
- West Coast, Midland and East Coast Main Lines – the principal rail routes across the region. The West Coast Main Line connects Northampton to London, Birmingham and the North West. The Midland Main Line links Derby, Leicester and Nottingham to London St Pancras International (as well as Sheffield), whilst the East Coast Main Line links Grantham and Newark to London, West Yorkshire and Scotland.

**Map 1: Major transport infrastructure in the East Midlands**



### 6.3.1 Transport and the economy

Effective transport networks are a key feature of any successful economy. The ability to move goods and people at the lowest cost contributes to economic performance. These movements can be significant. For example it is estimated that 108,000 people commute into the East Midlands to work and 198,000 people commute out of the East Midlands to work, on a daily basis, in nearby employment centres including Peterborough, Sheffield, Milton Keynes and East Staffordshire, as well as Birmingham, Coventry, Manchester, East Lincolnshire, Rotherham and London<sup>1</sup>. (See the Spatial Economy chapter for more detail.)

The Eddington study<sup>2</sup>, published in 2006 analysed the long-term links between transport and the performance of the UK economy. The report highlighted, that in well developed economies under-performing transport infrastructure can constrain a nation's productivity and competitiveness. However, investment in transport does not have the ability to create economic potential in isolation. An example of the constraints transport can place on an economy is that of congestion. It is estimated that congestion costs the UK economy between £7-8 billion per annum<sup>3</sup>. A recent *emda*-commissioned study estimated the cost of congestion to the East Midlands economy to be around £935 million per annum<sup>4</sup>. One of the key conclusions of the Eddington study is that an emphasis should be put on improving the performance of the existing transport networks. It notes that investment should be focused on areas of unreliability and congestion that are important for the UK's economic success. It should be noted that this key conclusion has been broadly followed in plans for expenditure on infrastructure in the East Midlands. Examples of this include improvement of the current road infrastructure through the widening of the A46 and improvements to the M1 J21 to 30.

Whilst it has been noted that transport plays a key role in the economy there are also a number of disbenefits associated with its use and growth. The Government has identified five broad goals related to the future development of the transport network of the UK.<sup>5</sup> As well as supporting economic growth (outlined above) the paper identified a further four goals:

- Tackling climate change has been highlighted as a key issue for the UK by the Stern Review.<sup>6</sup> In response to this review the Government has committed to achieving an 80% reduction in greenhouse gas emissions from 1990 levels by 2050. The transport sector, accounting for around 40% of the UK's total greenhouse gas emissions, will play a pivotal role in helping to achieve this target;
- Transport policy can contribute to improved health and longer life expectancy by reducing the risk of death, serious injury or illnesses arising from transport and by

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<sup>1</sup> Commuting Flows in the East Midlands, Experian/*emda*, April 2007.

<sup>2</sup> The Eddington Transport Study – The case for action: Sir Rod Eddington's advice to Government, HM Treasury, Department for Transport, December 2006.

<sup>3</sup> *Ibid.*

<sup>4</sup> Economic Costs of Congestion in the East Midlands, Atkins, May 2007.

<sup>5</sup> Delivering a Sustainable Transport System: Main Report, Department for Transport, November 2008.

<sup>6</sup> Stern Review: The Economics of Climate Change, October 2006.

increasing the awareness and use of methods of travelling which are beneficial to health e.g. walking and cycling;

- Transport can play a fundamental role in promoting equality of opportunity. The transport system needs to be able to provide everyone with access to goods and services, employment opportunities and social and leisure activities; and
- Transport should be able to allow people to travel in comfort to the destinations they desire without impacting negatively on non-transport users. The benefits of transport need, therefore, to be viewed in terms of net gains, where the benefits outweigh the adverse impacts on the natural environment and non-transport users.

### 6.3.2 Personal travel

Individual decisions to travel are affected by a range of factors including need, availability, cost and time. Each individual decision to travel has an effect on both the economy and environment of the region.

The National Travel Survey<sup>7</sup> provides data on many aspects of transport at a regional level. The survey suggests that the average number of trips per person per year in the East Midlands is above the English average. This can be explained, in part, by the geography of the East Midlands, and its rural nature in particular. The following key headline points can be drawn from the data:

- Based on combined travel data from the 2007 and 2008 National Travel Survey, 69% of trips made in the East Midlands were by car<sup>8</sup> and 6% were made by public transport<sup>9</sup>. This compares to 65% by car and 10% by public transport for England as a whole (Table 1); and
- Looking specifically at the method of travel to work, 77% of East Midlands' residents travel to work by car, whilst 6% use public transport and 11% walk. The East Midlands, along with the North East, West Midlands and South West, has the highest dependency on the car as a method to travel to work of any Government Office Region (GOR). The East Midlands, along with the South West, has the lowest use of public transport as a means of getting to work (Table 2).

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<sup>7</sup> Department for Transport, National Travel Survey 2008.

<sup>8</sup> Trips by car includes trips by car as a passenger.

<sup>9</sup> The majority of trips made by public transport are by bus. 5% of all trips in the East Midlands.

**Table 1: Trips made by main mode of travel, by region of residence (trips per person per year), 2007-2008**

Region	Percentage of total number of trips (%)						Total number of trips
	Walk	Car driver	Car passenger	Other private vehicles	Local bus	Other public transport	All modes
North East	24	39	23	2	8	3	996
North West	22	43	23	2	7	3	976
Yorkshire and The Humber	23	41	23	3	7	3	964
East Midlands	22	45	24	3	4	2	1,005
West Midlands	20	45	24	2	6	2	1,014
East of England	20	46	25	3	3	3	1,015
London	25	26	16	3	16	15	844
South East	21	45	23	3	4	3	1,033
South West	24	43	24	4	3	2	1,060
England	22	42	23	3	6	4	985

Source: Combined survey years, published in, Department for Transport, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

**Table 2: Usual method of travel to work by region of residence (%), October to December 2008**

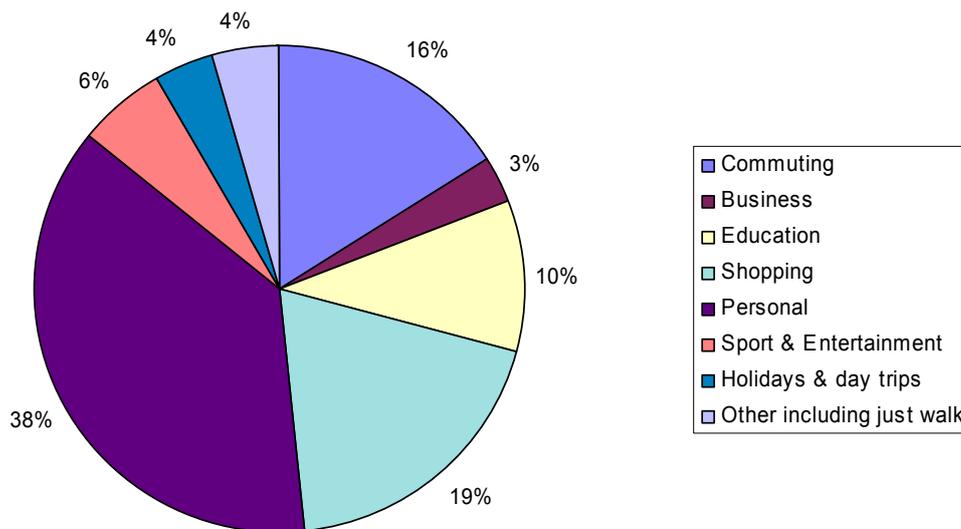
Region	Car	Motorcycle	Bicycle	Bus/coach	National rail	Other rail	All rail	Walk	Other modes
North East	76	*	1	9 1		2	3	10	*
North West	75	1	2	7 3		-	3	11	1
Yorkshire and The Humber	75	1	3	8 2		*	2	11	1
East Midlands	77	*	3	5 1		*	1	11	*
West Midlands	76	1	2	8 3		*	3	10	-
East of England	72	1	4	4 8		1	9	10	1
London	35	2	4	16	14	20 34		9	1
South East	73	1	4	4 7		*	7	11	1
South West	76	1	4	4 2		*	2	13	*
England	69	1	3	7 5		3	8	11	1

Source: Labour Force Survey, Office for National Statistics, published in, Department for Transport, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

### 6.3.2.1 Trips by purpose

Chart 2 shows that the most significant purpose of travel in the East Midlands is personal travel (38%), followed by shopping (19%). Arguably, commuting is amongst the most significant purposes of travel in terms of its importance to the economy, allowing the population to access employment thereby adding value to the regional economy. Constraints on travel for this purpose, like congestion, can therefore have sizeable impacts on the regional economy. It is interesting to note that commuting accounts for only 16% of total trips made. It is, however, the concentration of these trips at particular times that creates many of the negative effects associated with commuter travel, namely peak period congestion and delays. Whilst it is not always economically viable to eliminate congestion where it exists only in specific time periods there may be a case for intervention where congestion is a more persistent problem. The issue of congestion and its economic impact in the East Midlands are explored later in this chapter. Since 2003-2004 there have been no significant changes to trips by purpose in the East Midlands.

**Chart 2: Trips by purpose in the East Midlands (%), 2007-2008**



Source: Combined survey years, published in, Department for Transport, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

### 6.3.2.2 Time taken to travel to work

The time taken to travel to work is an important consideration for many employees and, along with the reliability of journey times, can have a significant effect on their quality of life. Reducing the time taken to travel to work can help increase economic efficiency and productivity. Table 3 shows the average time taken to travel to work for the time period

October-December 2008. The table shows that 49% of the population travelling to work in the East Midlands do so in less than 20 minutes, placing the region third out of all the English regions, behind the North East (50%) and the South West (50%). Eighty five percent of the population of the East Midlands have an average travel to work time of less than 40 minutes, slightly lower than the North East with 86%, but significantly greater than London where only 46% of the population are able to travel to work in under 40 minutes.

**Table 3: Cumulative percentage of time taken to travel to work, October-December 2008**

	Cumulative percentage							
	<20 minutes		<40 minutes		<60 minutes		<90 minutes	
Area of workplace	2001	2008	2001	2008	2001	2008	2001	2008
North East	52	50	88	86.9	6	95.99		99
North West	46	46	83	82.9	3	91.99		98
Yorkshire and The Humber	49	45	84	81.9	4	92.98		98
East Midlands	53	49	89	85.9	6	95.99		99
West Midlands	49	46	83	81.9	3	92.98		98
East of England	53	49	85	83.9	3	92.98		98
London	22	17	50	46.6	8	67.90		90
South East	49	47	83	81.9	2	91.97		97
South West	54	50	87	85.9	5	94.99		98
England	46	42	79	76.9	0	88.97		96

Source: Labour Force Survey, Office for National Statistics, published in Department for Transport, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

Table 3 shows that the time taken to travel to work has increased between 2001 and 2008:

- In 2001, 53% of the workforce of the East Midlands were able to travel to work in less than 20 minutes, significantly higher than in 2008; and
- In 2001, 96% of the workforce were able to travel to work in less than 60 minutes, comparable with 2008 levels.

The decrease in the proportion able to travel to work in less than 20 minutes can be largely attributed to the rapid increase in traffic levels on the East Midlands roads over this period. (For more information on this see section 3.3 on road vehicles and traffic.)

### 6.3.2.3 Average distance travelled by mode of transport

The average distance travelled by mode of transport gives an indication of the population's reliability on particular modes of transport. This is a function of the availability, cost and efficiency of the methods of transport available for any given journey, as well as lifestyle choices and patterns. The population of the East Midlands travels an average of 7,318 miles per person per year, above the average for England.

**Table 4: Average distance travelled by mode of travel by region of residence, 2007-2008, miles per person per year.**

Region	Percentage (%)			Distance (miles)
	Walk	Private vehicles	Public transport	All modes – total miles per person per year
North East	3	83	14	6,399
North West	3	85	13	6,399
Yorkshire and The Humber	3	84	14	6,707
East Midlands	3	88	9	7,318
West Midlands	2	86	11	6,811
East of England	2	84	13	8,280
London	4	58	38	5,305
South East	2	83	14	8,121
South West	3	87	10	7,736
England	3	82	15	7,010

Source: National Travel Survey, published in Department for Transport, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

As demonstrated in Table 4, private vehicles<sup>10</sup> are used for the majority of the total distance travelled per person, per year in all regions. In the East Midlands around 88% of the total distance travelled per person was by private vehicle in 2007-2008. This is a function of the spatial nature of the region with a number of large, sparsely populated rural areas. Conversely, the East Midlands has one of the lowest levels of distance travelled by public transport of the English regions, at 9% of total distance travelled.

There have also been substantial changes in the distance travelled by mode of transport between 1998-2000 and 2007-2008.<sup>11</sup>

- The data suggests that the East Midlands has experienced a significant increase in the distance travelled by public transport over this period.
- The data also suggests that the number of people travelling by private vehicle has increased over the same time period.
- London has experienced the largest increase in distance travelled by public transport and the largest fall in distance travelled by car. This is likely to be a

<sup>10</sup> Private vehicles include car, car passenger and other private vehicles.

<sup>11</sup> There have been significant changes to the methodology of the National Travel Survey between 1998-2000 and 2007-2008. These changes have caused a discontinuity in the time series meaning comparisons over this period should be made with caution. For more information see <http://www.dft.gov.uk/pgr/statistics/datatablespublications/personal/methodology/weightingnts/>

function of an improvement in the public transport offer combined with the effects of the London congestion charge, introduced in 2003.

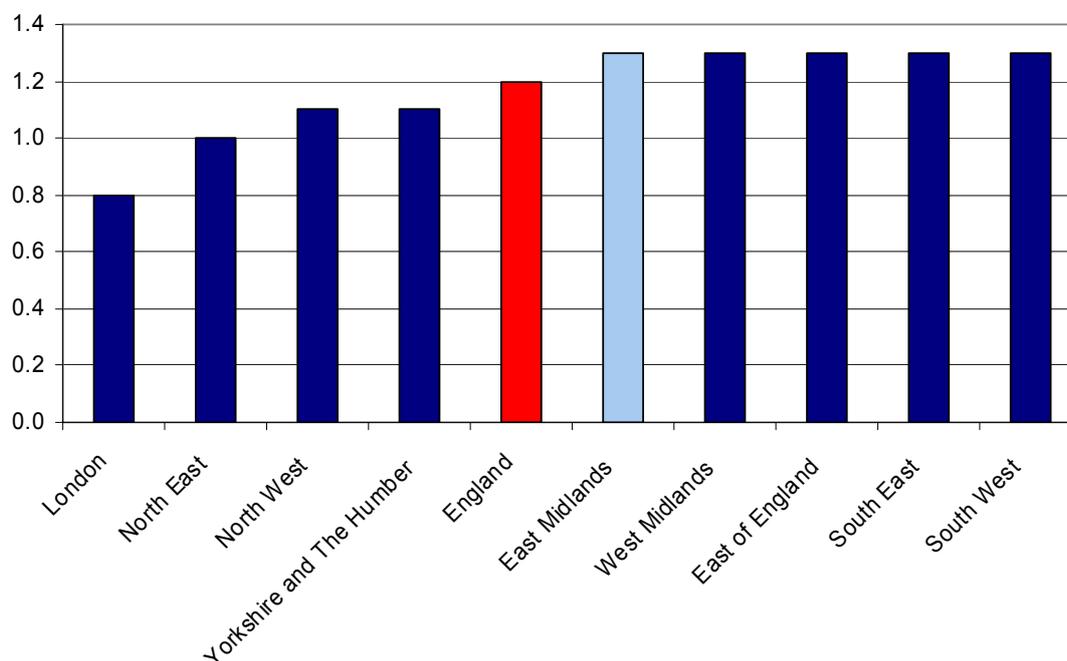
- The East Midlands has experienced a large increase in the total miles walked per person per year.

### 6.3.2.4 Car ownership

Need and affordability are the two principal factors faced by households when considering car ownership. Car sales have been particularly hard hit during the recession and this has yet to appear in the data used in this section. In the decade prior to the recession car ownership has increased. Chart 3 shows that:

- Car ownership per household in the East Midlands was 1.3 in the period 2007-2008, similar to the South West, South East, East of England and the West Midlands. This is almost 20% higher than the England average and can be linked to the rural nature of much of the region; and
- London has the lowest level of car ownership per household reflecting the widely developed public transport infrastructure.

**Chart 3: Car ownership per household, 2007-2008**



Source: National Travel Survey, published in, Department for Transport, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

The cost of motoring has increased steadily in recent years:

- Between 2001 and 2007 the cost of motoring<sup>12</sup> increased by around 0.6% per year; and
- In 2008 the cost of motoring increased by 3.1%. This increase can be almost entirely attributed to the rising cost of petrol and oil (rising by 15.1% in 2008). The price of petrol and oil has since fallen back from their respective peaks.

In recent times the cost of public transport has increased at a faster rate than that of motoring. This is likely to have contributed to increased car ownership despite the increased cost of motoring.

- Between 2001 and 2007, rail fares rose by an average of 3.5% per annum. Over the same period bus and coach fares increased by 4.3% per annum.
- In 2008 the cost of rail fares and bus and coach fares increased by 4.3% and 6.2% respectively.

These increases are generally greater than the wider cost of living increases as measured by the CPI indicating that public transport is becoming relatively more expensive compared to the private car.

Due to the substantial fixed costs associated with motoring (including road tax, insurance, maintenance, servicing and depreciation) the rise in the cost of petrol and oil is unlikely to have a significant impact on the number of people using cars. The rising price of petrol and oil could, however, make people consider increasing their use of public transport, especially if the higher costs persisted for a prolonged period of time. However, the impacts this would be likely to have would be dependant on a number of factors including the relative cost compared to the public transport alternative, as well as the convenience, reliability and efficiency of these alternatives.

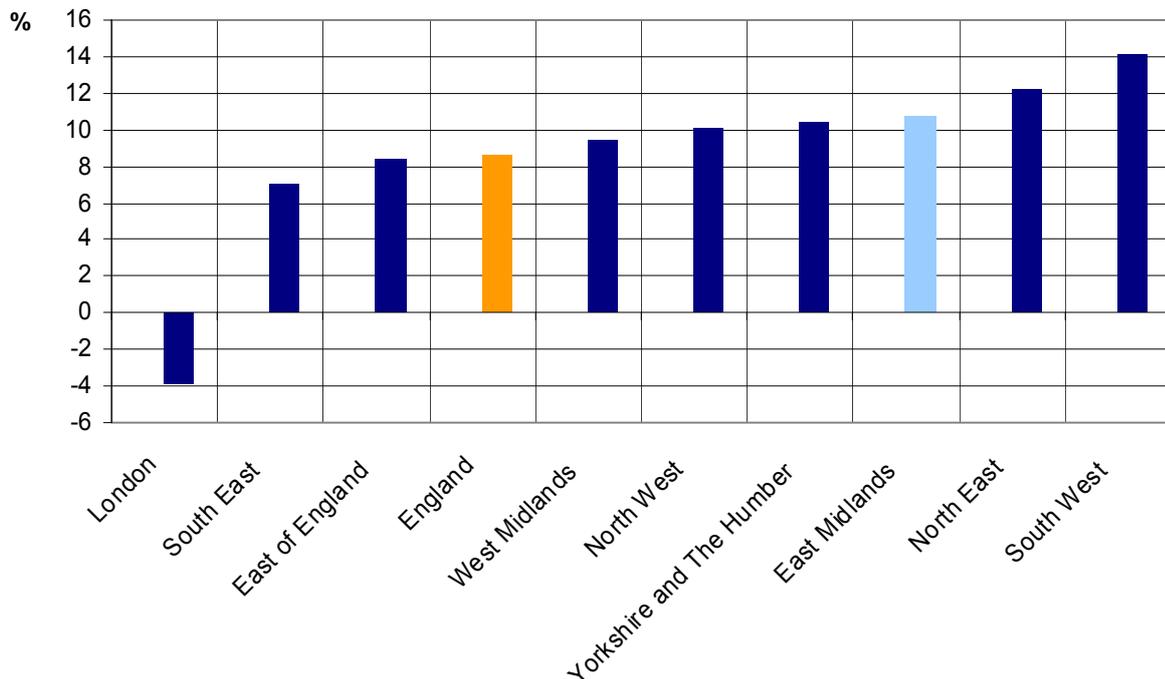
### 6.3.3 Road vehicles and traffic

The latest data suggests that the East Midlands has experienced higher than average road traffic growth over the last decade. Chart 4 shows that the region has experienced the third highest growth of the nine Government Office Regions (behind the South West and North East) on this measure. Between 1998 and 2008 the level of road traffic on motorways and A-roads increased by almost 11% in the East Midlands.

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<sup>12</sup> Motoring expenditure as measured by the Consumer Price Indices (CPI), accessed January 2010.

**Chart 4: Traffic increase on major roads (% change in vehicle kilometres), 1998-2008**



Source: National Road Traffic Survey, Department for Transport, Regional Transport Statistics: Current live tables, November 2009, accessed January 2010.

Increasing levels of traffic combined with demographic factors such as an increasing population will likely increase the capacity required on the transport infrastructure of the East Midlands.

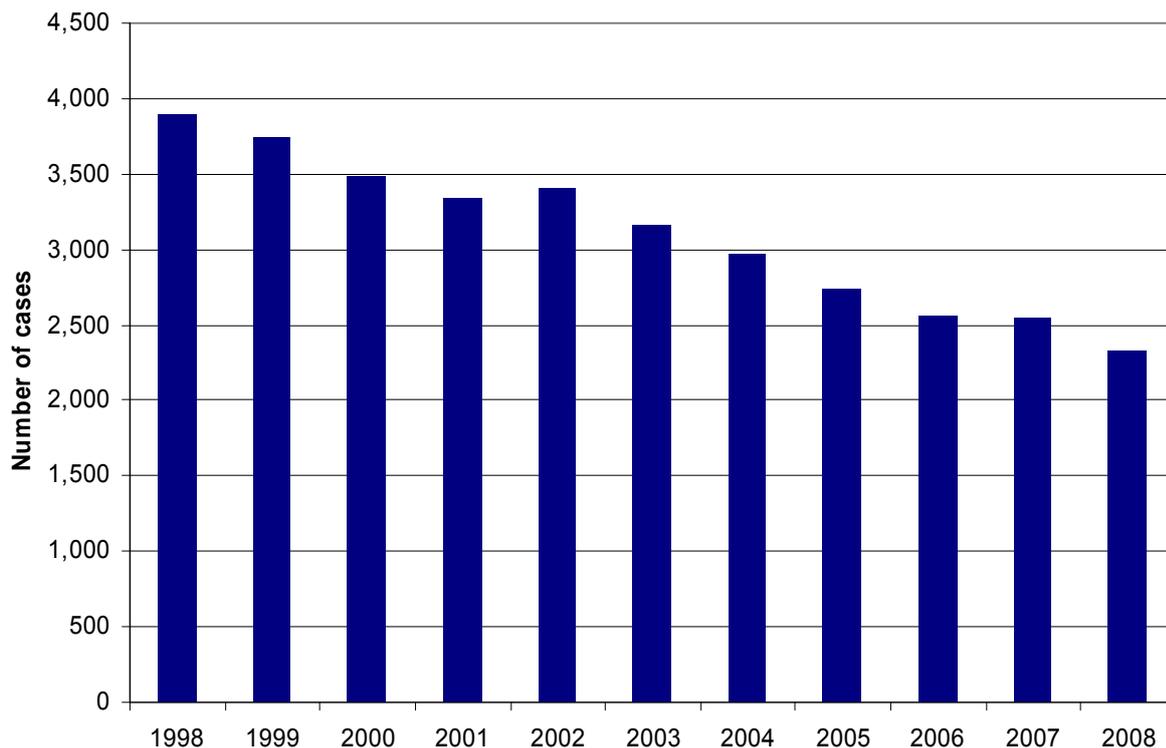
The negative effects associated with increasing traffic levels include congestion, and air pollution, both of which are discussed in more detail later in this chapter and in the Environment chapter. As well as this levels of traffic are also a determinant of the number of accidents that occur on the regions roads.

Accidents are one of the largest disbenefits associated with road transport alongside pollution. There are a number of costs associated with road accidents. In economic terms, there are costs incurred through the congestion caused by accidents, costs associated with the emergency services and National Health Service (NHS) and the loss of output during the time it takes to recover. The loss of life, serious injury and suffering that is experienced as a result of accidents on the regions roads also has an adverse impact on economic wellbeing.

There were over 17,500 casualties on the region's roads in 2008 (6% lower than in 2007 and accounting for 8.7% of the total number of casualties in England). The number of casualties has been steadily decreasing from a peak of around 24,000 in 1998 to their current levels.

Chart 5 shows how the number of people killed or seriously injured has also decreased in the last decade from 3,900 in 1998 to 2,300 in 2008, a fall of 40%. This is greater than the fall in England of around 35% over the same period. This reduction has been experienced despite the significant increase in the levels of traffic on the regions roads compared to the averages for England and Great Britain. The Regional Transport Strategy<sup>13</sup> (RTS) highlights improvements in safety as a key objective of road investments.

**Chart 5: Killed or seriously injured casualties on roads in the East Midlands, 1998-2008**



Source: Department for Transport, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

### 6.3.4 Personal road transport energy consumption

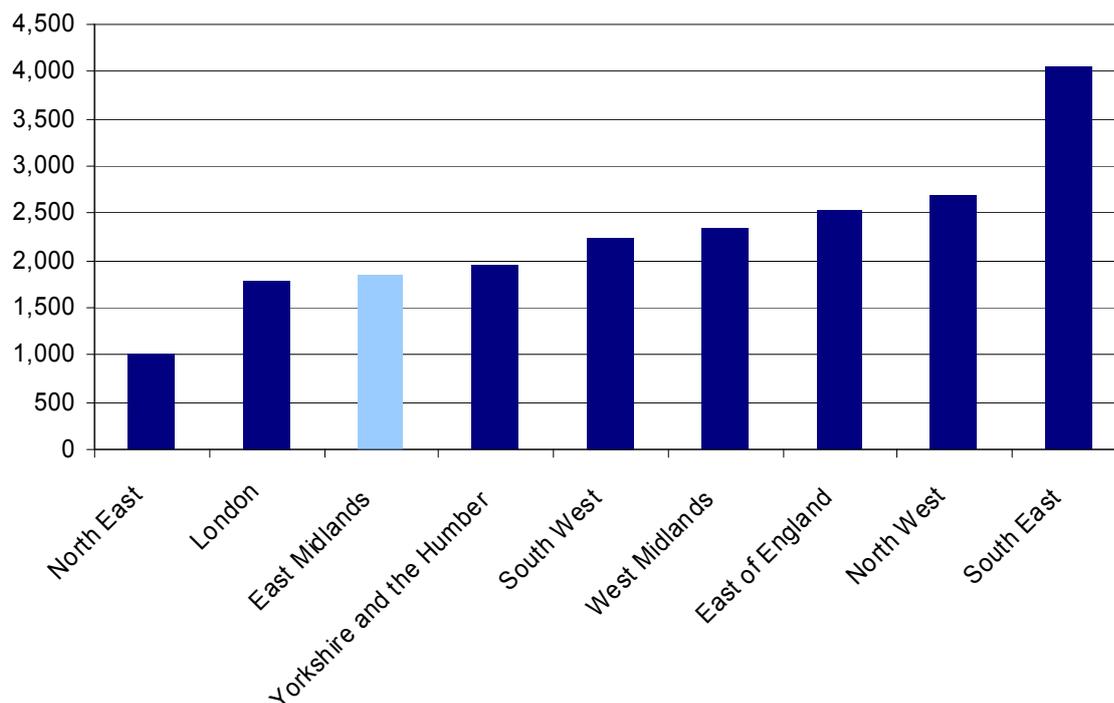
The East Midlands has relatively low personal road transport energy consumption<sup>14</sup> despite having a higher than average dependence on the use of private transport and a high level

<sup>13</sup> Regional Transport Strategy, published in the Regional Spatial Strategy for the East Midlands, Government Office for the East Midlands, March 2005.

<sup>14</sup> Personal road transport energy consumption is the measure of fuel consumption and CO<sub>2</sub> emissions for personal vehicles including buses, diesel cars, petrol cars and motorcycles produced by Netcen, an operating division of AEA Technology. Netcen uses fuel consumption factors combined with traffic data on six major classes of vehicles to estimate national fuel consumption and CO<sub>2</sub> emissions from the road transport sector. Source: Development of regional estimates of fuel consumption by the road transport sector – Stage 2, a report produced for DTI, March 2005.

of freight movement (Chart 6). The relatively small size of the East Midlands population can partly explain this analysis as the data is a regional total, and not produced on a per capita basis. With the projected strong growth in population, it is likely that road transport energy consumption will increase in the long term.

**Chart 6: Personal road transport energy consumption by Government Office Region, 2007, thousands of tonnes of fuel**



Source: Regional and Local Authority road transport consumption statistics 2007, Department of Energy and Climate Change, June 2009.

Note: Personal includes personal travel (buses, diesel cars, petrol cars and motorcycles).

Data is also available at a sub-regional level for CO<sub>2</sub> generated from road transport giving a more direct measure of road transport's effect on the environment. The data shows that the Housing Market Areas (HMAs) of Leicester and Leicestershire, Northern, Nottingham Core, Nottingham Outer and West Northamptonshire all have over 10% CO<sub>2</sub> emissions generated from road transport.<sup>15</sup> This is a product of the level of commuting in these HMAs and major road transport infrastructure – principally the M1.

### 6.3.5 Public expenditure and public transport

The road infrastructure of the UK is an integral part of the UK economy. As such a significant amount of public infrastructure expenditure is allocated to the construction and maintenance of the road network. The size of these infrastructure projects often means

<sup>15</sup> East Midlands RSS Partial Review: A Statement of Conditions & Issues, East Midlands Regional Assembly/Atkins, October 2008. For more information on HMA's see Demography Chapter.

they have a direct impact on output and employment in regions. In this way they can be used to stimulate demand in times of an economic downturn. Table 5 shows that in 2006-2007 there was a total of £636.1 million spent on the road infrastructure of the East Midlands, just over 9% of the total spent on England's roads.

- Around 70% of all expenditure on the road network (motorways, trunk roads and local roads) in the East Midlands was on new construction or improvement.
- As a proportion of total spend there is significantly more expenditure on motorways and major trunk roads in the East Midlands (31.4%) than in England as a whole (23.1%).
- Just over 20% of expenditure was on routine maintenance of the road network in the East Midlands, similar to the level in England.
- The East Midlands has a lower proportion of spending on other items such as road safety and lighting than in England as a whole.

**Table 5: Expenditure on roads in the East Midlands and England, 2006-2007**

		East Midlands		England	
		£ million	%	£ million	%
<b>Motorways and trunk roads</b>	New construction / improvement and structural maintenance	199.9	31.4	1,620.8	23.1
	Current maintenance including routine and winter maintenance	54.8	8.6	482.0	6.9
	DBFO shadow tolls <sup>1</sup>	16.3	2.6	242.1	3.5
<b>Local roads<sup>2</sup></b>	New construction/improvement for highways, lighting, road safety and structural maintenance <sup>3</sup>	236.0	37.1	2,730.0	38.9
	Revenue expenditure on bridge structural maintenance and strengthening	2.8	0.4	58.3	0.8
	Routine and winter maintenance	78.8	12.4	1,068.9	15.2
	Revenue expenditure on road safety	16.2	2.5	399.6	5.7
	Revenue expenditure on public lighting	31.3	4.9	407.5	5.8
	<b>All road expenditure</b>	<b>636.1</b>	<b>100</b>	<b>7,009.2</b>	<b>100</b>

<sup>1</sup> Payments to contractors under design, build, finance and operate schemes (DBFO).

<sup>2</sup> Local Authority expenditure excludes car parks.

<sup>3</sup> Includes expenditure on patching.

Source: Highways Agency Financial Accounts and Local Authority returns to Communities and Local Government, published in Department for Transport, Regional Transport Statistics 2008, January 2009.

### 6.3.5.1 Bus and light rail

Buses are the most widely used method of public transport for local journeys across the country, offering a more flexible, and in some instances more convenient, method of transport than fixed rail lines. Nationally, more than three quarters of buses are provided commercially. As such, services are usually provided where there is a business case to do so. Local government can, and does, use subsidies to ensure provision where local needs are not being met.

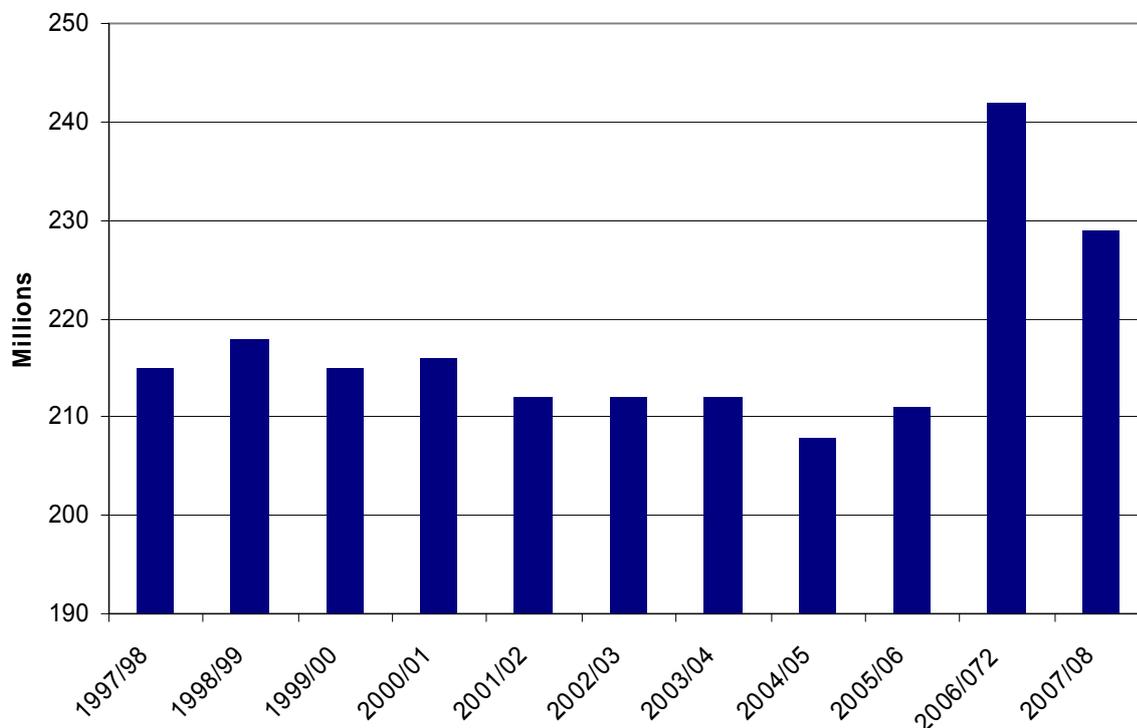
- Journeys taken by bus and light rail have been relatively volatile over the past decade. Between 1997-1998 and 2004-2005 the number of journeys taken by bus and light rail decreased from 215 million to 208 million, a fall of 3.3%. However, Chart 7 shows that in 2006-2007 the number of journeys had increased to 242 million before falling to 229 million in 2007-2008. The level of bus and light rail journeys experienced since 2006-2007 is a significant departure from the preceding trend. This is likely, in part, due to an increase in the number of travel schemes for residents of the region between 2006 and 2008.
- The North West has the largest number of bus and light rail journeys outside of London, accounting for 21% of all journeys made in England (excluding London). The East of England has the lowest number of bus and light rail journeys accounting for 7% of all journeys made in England (excluding London).
- Research into bus journeys by Housing Market Area (HMA)<sup>16</sup> shows that the highest percentage of total bus journeys are made in the regions urban centres – Nottingham Core (31%), Leicester and Leicestershire (27%) and Derby (10%).
- Part of the increase in journeys recorded between 2004-2005 and 2007-2008 can be attributed to Nottingham Express Transit (Nottingham Tram) – the only light railway service in the East Midlands. Since opening in 2004, Line One<sup>17</sup> has experienced significant growth in passenger numbers, peaking at 10.2 million journeys on the network during 2007-2008. The success of the Line One network has led to plans for two more lines to be put forward (Phase Two). Funding options for Phase Two are currently being explored by local and regional partners.

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<sup>16</sup> East Midlands RSS Partial Review: A Statement of Conditions and Issues, East Midlands Regional Assembly/Atkins, October 2008.

<sup>17</sup> Line One was the first stage of the tram network connecting Hucknall and Phoenix Park to Nottingham Railway Station. <http://www.nottinghamexpressstransit.com/>

**Chart 7: Bus and light rail journeys, East Midlands (millions), 1997-1998 to 2007-2008, millions**



Source: Department for Transport, Survey of Public Service Vehicle and Tram Operators, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

Use of the bus network is affected by the efficiency and availability of the service, although some non-car-owning households in the region are captive to the bus network regardless of these factors. The National Travel Survey offers a measure of availability based on the percentage of households within 13 minutes walk of their nearest bus stop. On this measure the East Midlands performs relatively badly as 87% of households were within 13 minutes walk of their nearest bus stop in 2006-2007. Although this represents a significant improvement on the level reported in 1995-1996 (of 81%) it remains one of the lowest of the English regions. The geography of the region is likely to be a contributing factor. On this measure the North East is the best performing region outside of London where 95% of households are within a 13 minute walk of a bus stop. The South West and East of England perform the worst on this measure where 82% and 84% of the population are within the specified distance respectively.

### 6.3.5.2 Rail

Rail is the second most used method of public transport behind bus and light rail with over 26 million passenger trips taking place every year.<sup>18</sup>

<sup>18</sup> Office of Rail Regulation, National Rail Trends Yearbook April 2008- March 2009, September 2009.

Rail patronage in the East Midlands has increased by almost 80% between 1995-1996 and 2007-2008. As Chart 8 shows, until 2004-2005 the increase was significantly higher than the increase in England as a whole. However, between 2004-2005 and 2007-2008 rail patronage in England increased significantly (by 45%) compared to the increase experienced in the East Midlands (18%). The East Midlands is now ranked 6th, in front of the South East, South West and North East using the rail patronage index. Further analysis of data from the Office of Rail Regulation<sup>19</sup> indicates that:

- The largest flow of passengers on the rail network of the East Midlands is between Nottingham and Leicester;
- Forty five percent of all journeys originating from the East Midlands were to destinations within the region in 2006-2007. Other main destinations include London (23%) and the West Midlands (9%);
- Of the passengers travelling to London, almost a third originated from Nottingham, Leicester and Derby<sup>20</sup>; and
- The percentage of journeys within the region is significantly lower than other regions such as the North West (81%), Yorkshire and the Humber (74%) and London (70%). This can be explained, in part, by the lack of a single major metropolitan area in the region serviced by local rail networks.

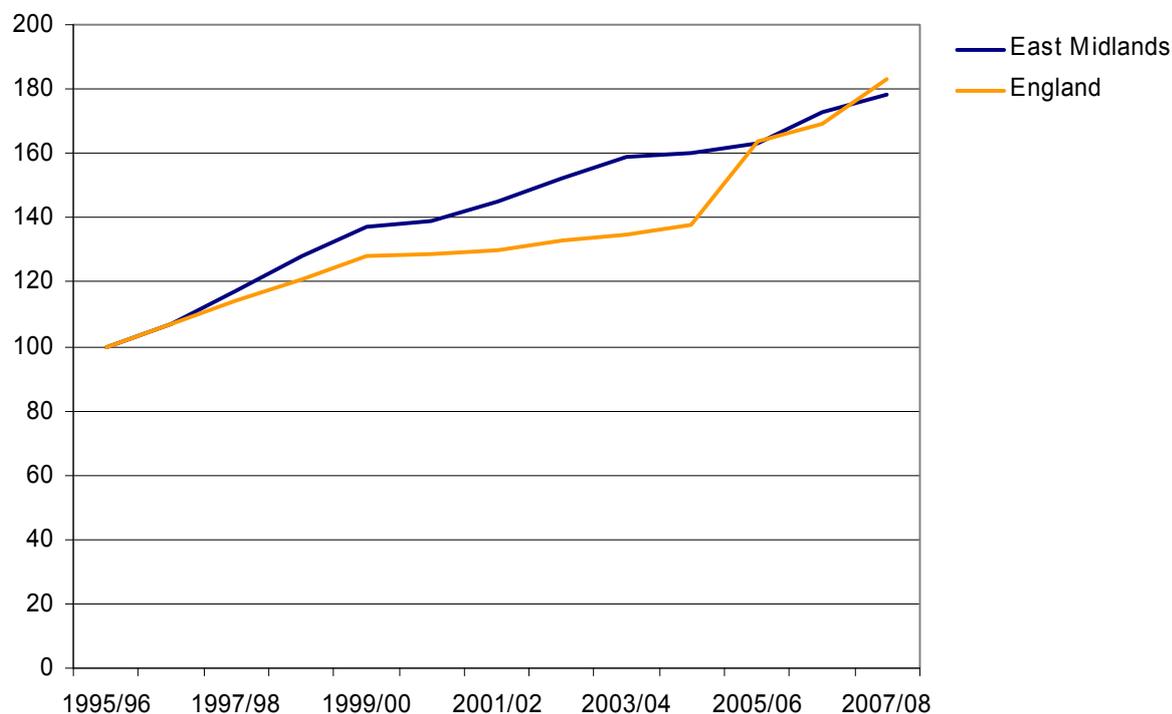
The increase in the use of the rail network over the past decade can be attributed, in part, to a large improvement in the network infrastructure, increasing capacity and improving punctuality and reliability.

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<sup>19</sup> National Rail Trends 2007-2008 Yearbook, Office of Rail Regulation and Regional Transport Statistics: Current live tables, accessed in January 2010.

<sup>20</sup> East Midlands RSS Partial Review: A Statement of Conditions and Issues, East Midlands Regional Assembly/Atkins, October 2008

**Chart 8: Regional rail patronage growth, East Midlands and England, 1995-1996 to 2007-2008 (1995-1996 = 100)**



Source: Office of Rail Regulation published in Department for Transport, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

### 6.3.6 Congestion

Many of the disbenefits associated with travel occur when transport systems become congested. This happens when high demand is placed on them in certain time periods. As previously noted in this chapter (section 3.1.1 'Trips by purpose'), although only 15% of total trips made in the region are classed as 'commuting', it is the concentration of these trips at certain periods which causes congestion. This point is further emphasised by the fact that over 60% of journeys are classed as 'personal' or 'shopping' but these journeys are not seen as a major cause of congestion due to the trips being spread more evenly over different time periods.

Aside from the personal costs (delays, aggravation) and environmental impacts of congestion, there is also substantial evidence that there are significant economic costs to national and regional economies. Estimating the real cost of congestion is subject to a degree of uncertainty. For this reason studies into the area have offered a range of estimates of the cost of congestion to the UK economy. The Confederation of British Industry (CBI) has estimated that congestion costs employers £20 billion per year, equivalent to around £1,000 per household.<sup>21</sup> Other estimates put the annual cost of

<sup>21</sup> The Economic Costs of Road Traffic Congestion, ESRC Transport Studies Unit, University College London, Goodwin, P., May 2004.

congestion between £7 billion<sup>22</sup> and £15 billion.<sup>23</sup> These studies, although differing in methodology and output, suggest that the costs of congestion to the UK economy are substantial and with the number of vehicles on the UK roads increasing by 15% over the last decade and expected to increase further, these associated costs may also increase.

There is no official data at regional level on the costs of congestion but recently commissioned research shows that in the East Midlands:<sup>24</sup>

- The total cost of congestion to the economy of the East Midlands is around £935 million per annum, comprising £825 million in direct costs<sup>25</sup> and £110 million in wider economic impacts.<sup>26</sup> This total cost equates to 0.7% of regional GVA; and
- The highest costs of congestion are centred around the regions major urban centres, such as the Three Cities sub-area<sup>27</sup> and lowest in more rural areas, such as the Northern<sup>28</sup>, Eastern<sup>29</sup> and Peak sub-areas.<sup>30</sup>

These findings corroborate the evidence put forward in the Eddington Study that congestion is an increasingly important issue for the UK and that impacts and disbenefits are centred around the UK's major urban areas.

There are a range of policy measures available to help ease road congestion affecting both the supply and demand of personal transport. A number of these measures have been used to ease congestion in the East Midlands. These can be broken down into measures on both the supply and demand side.

On the supply side:

- Widening of key road networks, including the M1 and A46;
- Investment in public transport services, such as the Nottingham Tram and new rail services;

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<sup>22</sup> The Costs of Road Congestion in Great Britain, National Economic Research Associates, Dodgson, J., Lane, B., July 1997.

<sup>23</sup> PROPOLIS: Planning and research of policies for land-use and transport for increasing urban sustainability, Consortium research project funded by the European Commission, Kari Lautso et al, February 2004.

<sup>24</sup> Economic costs of Congestion in the East Midlands, Atkins, May 2007.

<sup>25</sup> Direct costs are those costs that are directly associated with congestion affecting users (business and other users). Examples of direct costs include the value of labour lost due to congestion and the increased pollution.

<sup>26</sup> Wider impacts include competition, and labour market effects.

<sup>27</sup> The Three Cities sub-area includes Nottingham, Leicester and Derby and the Hucknall part of Ashfield District.

<sup>28</sup> The Northern sub-area is comprised of Nottingham Outer and Northern HMAs (see HMA map in Demography chapter).

<sup>29</sup> The Eastern sub-area comprises of Lincolnshire and Rutland.

<sup>30</sup> The Peak sub-area includes Leicester, Derby and Nottingham Core HMA and the Hucknall part of the Ashfield District.

- Improving the management of the existing road network, including the provision of new or extended bus lanes and safe routes to promote walking and cycling;
- Policies and infrastructural improvements to promote walking and cycling, especially for shorter journeys<sup>31</sup>; and
- Encouragement of patterns of new development that reduce the need to travel, especially by car.<sup>32</sup>

Influencing demand is less direct by its nature and is achieved through attempts to persuade travellers to change their behaviour. Policies outlined in the Regional Transport Strategy (RTS) to influence demand have been termed 'soft measures'. These include<sup>33</sup> demand side measures such as:

- Travel plans in workplaces and schools;
- Creation of transport partnerships to market and promote different travel options;
- Projects promoting innovations in remote working and personalised travel plans; and
- Restraining the supply, or increasing the cost, of car parking to encourage other methods of travel.

Whilst congestion poses a large problem for the region's urban centres, a far larger problem for the region's rural areas is that of accessibility. Accessibility is examined in the Economic Inclusion and Deprivation chapter of The East Midlands in 2010.

## 6.4 Freight transported by land

The transport of goods is essential for the efficient and productive operation of both regional and national economies. Materials and parts for processing (inputs), as well as finished goods (outputs) need to be transported efficiently to reach customers. The central location of the East Midlands increases the attractiveness of the region for distribution activity and as a location for 'distribution hubs'. Indeed, there is an above average number of key national and regional distribution centres in the East Midlands.<sup>34</sup> Whilst this is seen as one of the region's strengths, it has a number of implications for both land-use and transport infrastructure. Increasing the capacity of the region's freight network will play a key role in the future of this industry. To increase capacity in an efficient and sustainable way, approaches such as increasing the use of inland waterways and coastal navigation are being explored in addition to promoting a modal shift from road to rail transportation.

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<sup>31</sup> Regional Spatial Strategy for the East Midlands (RSS8) – Regional Transport Strategy, Government Office for the East Midlands, March 2005.

<sup>32</sup> Ibid.

<sup>33</sup> Ibid.

<sup>34</sup> The Eddington Transport Study, HM Treasury, Department for Transport, December 2006.

#### 6.4.1 Freight transported by road

Table 6 shows the transport by road of goods originating in the East Midlands and England between 2004 and 2008.<sup>35</sup>

**Table 6: Freight transport by road – goods lifted by origin (million tonnes), 2004-2008**

Origin	2004	2005	2006	2007	2008
East Midlands	172	180	197	204	190
England	1,483	1,490	1,553	1,592	1,479
East Midlands as a percentage of England	11.6	12.1	12.7	12.8	12.8

Source: Department for Transport, Continuing Survey of Road Goods Transport, published in Department for Transport, Regional Transport Statistics: Current live tables, October 2009, accessed January 2010.

As demonstrated in Table 6, the proportion of freight being moved from the East Midlands has increased relative to the level reported in England between 2004 and 2008. Goods 'lifted' from the East Midlands account for 12.8% of the total in England, a significant increase of 1.2 percentage points from the level in 2004.

In 2008, 190 million tonnes of freight was lifted in the East Midlands, an increase of 10.5% from 2004. Of all the freight lifted in the East Midlands in 2008, 95 million tonnes (50%) was to destinations within the region. The greatest proportion of freight to be transported outside of the region is to Yorkshire and the Humber (10%), the West Midlands (10%) and the East of England (9%).

The East Midlands has the lowest percentage of internal freight movements (i.e. freight lifted to destinations within the region), of any English region. This demonstrates the importance of the East Midlands to its neighbouring regions. The South West has the highest percentage of internal freight movements, at 76% of all freight lifted, followed by the North East (70%) and the North West (68%). The data highlights that regions lift the majority of freight either within their region or to directly adjacent regions. The relative scale of inter-regional freight movement in the East Midlands reflects both its geography, located centrally in the middle of the UK, and the fact it also borders five other Government Office Regions.<sup>36</sup>

The data also highlights a reduction in total goods lifted between 2007 and 2008 in both the East Midlands and England. This is likely picking up the early stages of the recession when businesses were reluctant to expand growth during an increasingly turbulent economic climate.

It is accepted that freight transported by road has a substantial environmental impact. To combat this impact, haulage firms are increasingly purchasing more environmentally

<sup>35</sup> Data prior to 2004 is no longer comparable with current data due to methodological changes.

<sup>36</sup> The East Midlands shares a border with the East of England, South East, West Midlands, North West and Yorkshire and the Humber.

friendly vehicles which meet with ever more stringent EURO standards<sup>37</sup> and contribute to emissions reductions.

#### 6.4.2 Freight transported by rail

Compared to road transport, rail represents a more environmentally friendly and sustainable method of transport. Rail is primarily used as an efficient method of transporting bulk commodities such as coal, construction materials and oil and petroleum. The Government is keen to expand the use of rail for freight transportation.

With 19 freight terminals primarily handling aggregates and heavy commodities, and the UK's most advanced multimodal railport (Davenport International Rail Freight Terminal, DIRFT), the East Midlands plays a national role in rail freight movements. The Northamptonshire Strategic Employment Land Assessment<sup>38</sup> noted that DIRFT provides "significant, sustainable opportunities for future growth" which could be utilised to prevent "latent market demand.... being 'pushed' away from the county".

Between 2003-2004 and 2008-2009,<sup>39</sup> freight transported by rail increased steadily in Great Britain, with an average annual growth rate of 1.9%. In 2007-2008 and 2008-2009, however, the level of freight transported by rail in the East Midlands fell by 3.2% and 2.6% respectively, to their current levels of 20.6 billion tonne kilometres. In terms of total freight moved by all modes of transport, rail has become relatively more important. In 2002, rail accounted for 7.4% of all freight moved in Great Britain. By 2007 this had increased to 8.3%. It is also interesting to note that this increase in total freight has occurred despite a falling trend in the total number of freight train movements (a fall of 4.7% between 2007-2008 and 2008-2009). This indicates considerable efficiency gains in the system.

It has been noted in recent reports<sup>40</sup> that, along with aggregate materials,<sup>41</sup> the construction sector is responsible for much of the freight movement between the East Midlands and London (a key market for the East Midlands). Freight movements from the aggregate and construction sector between the East Midlands and London are expected to increase steadily over the medium term to service demand generated from major construction projects in the capital, including the 2012 Olympics and Thameslink.

#### 6.4.3 Freight moved by air

Freight movement by road and rail has historically been the most cost efficient method of transporting freight domestically. Developments in the air transport industry have led to increased capacity and reduced costs, meaning air transport has become increasingly affordable for domestic as well as international freight transport. East Midlands Airport

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<sup>37</sup> [http://www.transportenvironment.org/tag/euro\\_standards](http://www.transportenvironment.org/tag/euro_standards)

<sup>38</sup> Northamptonshire Strategic Employment Land Assessment (SELA), Atkins, November 2009, page 19.

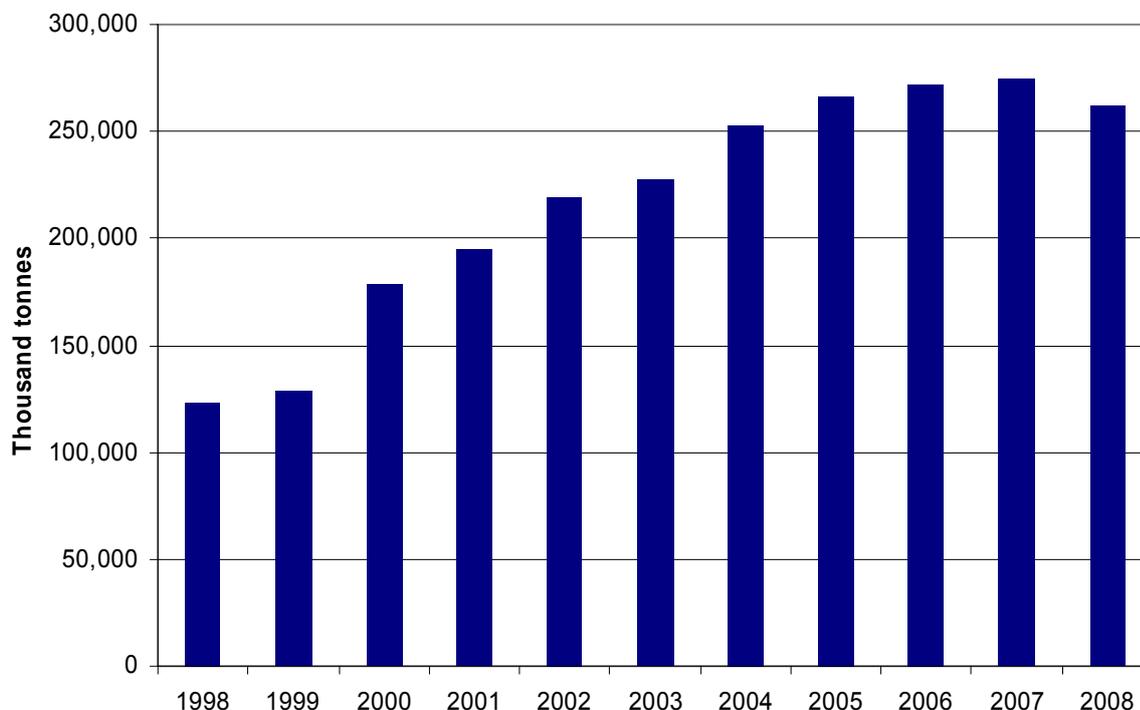
<sup>39</sup> Office of Rail Regulation, National Rail Trends 2008-2009 Yearbook.

<sup>40</sup> Delivering a Sustainable Railway, Department for Transport, July 2007.

<sup>41</sup> The East Midlands is a key exporter of aggregate materials. For more information please see the Environment Chapter.

(EMA) is the UK's primary pure freight regional airport.<sup>42</sup> In 2008, 262,000 tonnes of freight was lifted through East Midlands Airport, the largest amount of freight lifted in any region outside London. The tonnage of freight lifted has increased by 112% over the past decade, from 123,000 tonnes in 1998 to its current level, as shown in Chart 9.

**Chart 9: Tonnage of freight lifted in the East Midlands, 1998-2008**



Source: Civil Aviation Authority, published in Department for Transport, Regional Transport Statistics: Current live tables, November 2009, accessed January 2010.

The tonnage of air freight lifted in the East Midlands as a proportion of total air freight lifted in England has increased from 6.2% in 1998 to 11.9% in 2007. This increase has been driven primarily by developments and capacity improvements at EMA.

The small decline in freight lifted in 2008 compared with 2007 levels can be in part attributed to the early stages of the recession. Future data releases will demonstrate how the recession has affected levels of freight transported by air.

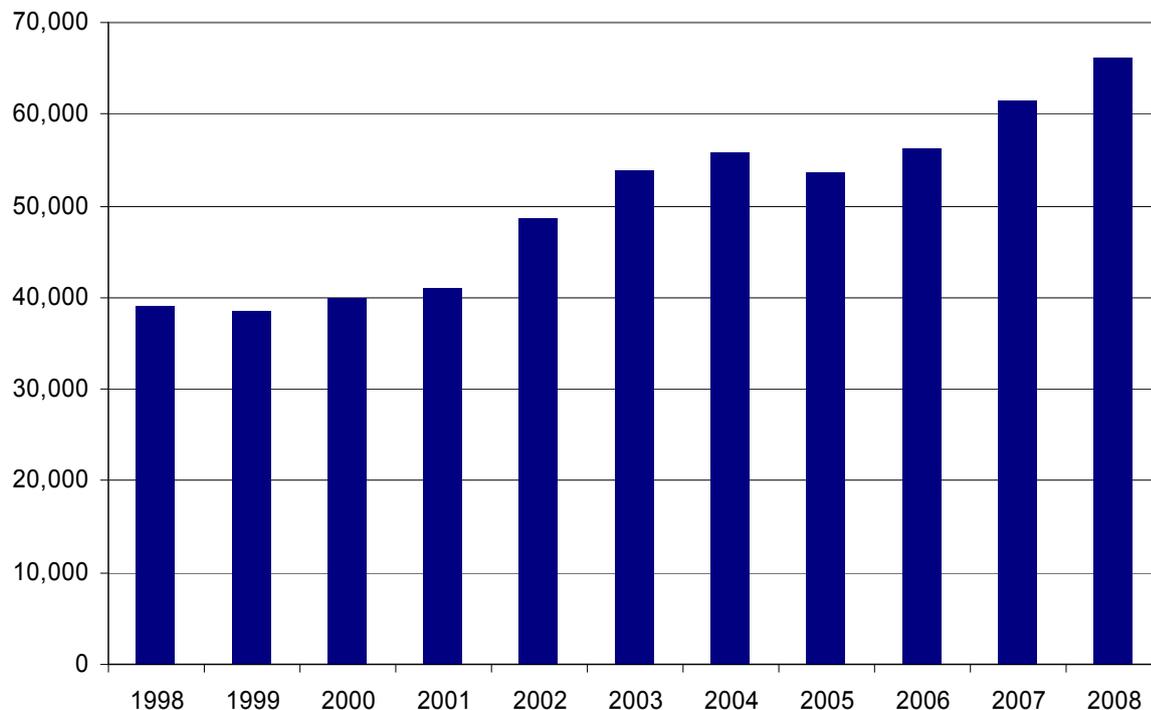
#### 6.4.4 Air transport

As well as increases in freight movements, the East Midlands has also experienced a significant increase in the number of passengers passing through its terminals. With a catchment area of around 10.6 million people within a 90 minute drive, East Midlands

<sup>42</sup> East Midlands Airport <http://www.eastmidlandsairport.com>

Airport (EMA) services one of the largest populations of any UK airport.<sup>43</sup> Chart 10 shows the increases in air transport movements in the East Midlands over the last decade.

**Chart 10: Air transport movements (aircraft landings or take-offs) in the East Midlands, 1998-2008**



Source: Civil Aviation Authority, published in Department for Transport, Regional Transport Statistics: Current live tables, November 2009, accessed January 2010.

- Air transport movements in the East Midlands have increased by around 70% between 1998 and 2008, the third largest increase in percentage terms of the nine Government Office Regions (GOR). Only the South West and East of England have experienced higher growth rates over the same time period.
- Despite the high level of growth in air transport movements over the last decade, in absolute terms the East Midlands still has a relatively small number of total transport movements. Only the North East and Yorkshire and the Humber experience lower levels of total transport movements.

Terminal passenger numbers are another measure used to indicate the demand for air transport at a regional level, shown in Table 7.

<sup>43</sup> East Midlands RSS Partial Review: A Statement of Conditions and Issues, East Midlands Regional Assembly/Atkins, October 2008.

**Table 7: Terminal passengers (arrivals or departures) at UK airports, 1998-2008, millions**

Region	1998	2000	2002	2004	2006	2008
North East	3.6	3.9	4.1	5.5	6.3	5.7
North West	18.2	20.4	21.5	24.6	27.6	26.8
Yorkshire and The Humber	1.8	2.1	2.0	2.9	4.2	4.3
East Midlands	2.1	2.2	3.2	4.4	4.7	5.6
West Midlands	6.6	7.5	7.9	9.3	9.7	9.9
East of England	11.3	18.4	23.0	28.9	33.9	33.1
London	61.7	65.9	64.6	68.8	69.7	70.2
South East	29.8	32.8	30.3	33.0	36.0	36.1
South West	2.8	3.1	4.5	6.4	8.3	9.1
England	137.8	156.3	161.2	183.7	200.5	200.8
Great Britain	154.2	174.6	182.4	208.2	226.9	227.1

Source: Civil Aviation Authority, published in Department for Transport, Regional Transport Statistics: Current live tables, November 2009, accessed January 2010.

Table 7 indicates that:

- Terminal passenger numbers have increased from 2.1 million in 1998 to 5.6 million in 2008 in the East Midlands;
- The East Midlands has experienced the third largest increase in passenger numbers of any GOR, behind the East of England and the South West; and
- Despite the increase in recent years, the East Midlands currently experiences the second lowest level of terminal passengers of any English region. Only Yorkshire and the Humber experiences a lower level, at 4.4 million passengers.

### **Key Points: Transport**

- It is estimated that 108,000 people commute into, and 198,000 people commute out of, the East Midlands to work.
- The East Midlands experiences a lower use of public transport than in England as a whole.
- The time taken to travel to work has increased in the East Midlands between 2001 and 2008. The projected increases in population and traffic levels are likely to put further pressure on the road network of the East Midlands.
- Over two thirds of public spending on the road network of the East Midlands is on new construction or improvement.
- In 2007-2008, 229 million journeys were made in the East Midlands by bus or the Nottingham Tram, 9% of the England total.
- Congestion is estimated to cost the East Midlands economy £935 million per annum.
- There is an above average number of key national and regional distribution centres in the East Midlands supporting the road freight transport industry.
- The East Midlands is home to the UK's primary pure freight airport – East Midlands Airport (EMA).
- The East Midlands has experienced one of the largest increases in terminal passenger numbers of any Government Office Region, supported by EMA.

## 6.5 Communications

Information and Communications Technology (ICT) has played an increasingly important role in the growth of the UK economy in the last three decades. The role of technology is now fundamentally linked to the performance and competitiveness of regional economies. For this reason, it is important to track and monitor the use of ICT within regions. The OECD<sup>44</sup> has highlighted that investment in telecommunications has increased by 9% year on year since 2005 in member countries, driven by strong demand, indicating that many telecoms companies have survived and expanded following the 'dot com' crash observed in 2000.

### 6.5.1 ICT use and broadband availability

Developments in the field of ICT, in particular the availability of broadband internet, are impacting on homes and businesses alike. ADSL "first generation" Broadband services are now available to 99% of all homes and businesses in the UK,<sup>45</sup> with the costs of subscription to these services falling significantly in recent years. In the home it has become easier to communicate and bank, as well as shop. Technological advances have also meant that home working is becoming an option for an increasing proportion of the population.<sup>46</sup> Currently 31% of businesses that use computers in the East Midlands offer some sort of mobile working facility. Businesses are also finding it easier to expand their markets and reach a wider customer base as well as reduce costs.

It has been found that take up of broadband has a direct impact on the ability of a firm to innovate and increase productivity.<sup>47</sup> Many public bodies rank the importance of national broadband infrastructure alongside the other utilities of gas, electricity and water.

*emda* has sponsored a series of surveys to analyse ICT usage and eAdoption by small and medium sized enterprises in the East Midlands. The latest report<sup>48</sup> shows that:

- Almost four fifths (77%) of SMEs in the East Midlands use computers;
- Ninety four percent of businesses in the region who have a computer have an internet connection;
- The majority of these businesses are connected to the internet via broadband (96%);

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<sup>44</sup> Communications Outlook 2009, OECD.

<sup>45</sup> British Telecom, Broadband Information, <http://www.bt broadbandinformation.com>

<sup>46</sup> Atypical Working Practices in the East Midlands, Experian, September 2007.

<sup>47</sup> Department for Culture, Media and Sport, Department for Business, Innovation and Skills, Digital Britain, June 2009.

<sup>48</sup> The Challenge of E-adoption in the East Midlands: East Midlands Small Business E-Adoption Survey 2009, QA Research, August 2009.

- The financial intermediation sector experiences the highest basic computer usage and internet connectivity (98%) followed closely by real estate, renting and business activities (94%). The hotels & restaurant sector experiences the lowest use of computers and the internet, at 52%;
- Computer and broadband usage increases with the number of employees in a business;
- Over half the computer-using businesses in the region have a website, with around two thirds using their websites to conduct online trading; and
- Around 13% of the business population of the East Midlands cited that online business is essential to the future success of their business.

In terms of households, the OECD highlights that an increasing reliance on telecommunications for social and economic interactions has increased the proportion of household budgets dedicated to its provision to around 2.2%. This, together with other factors such as the relatively long contract periods for broadband services (creating a degree of 'stickiness' in the market) has meant that the sector has been able to grow through the recession.

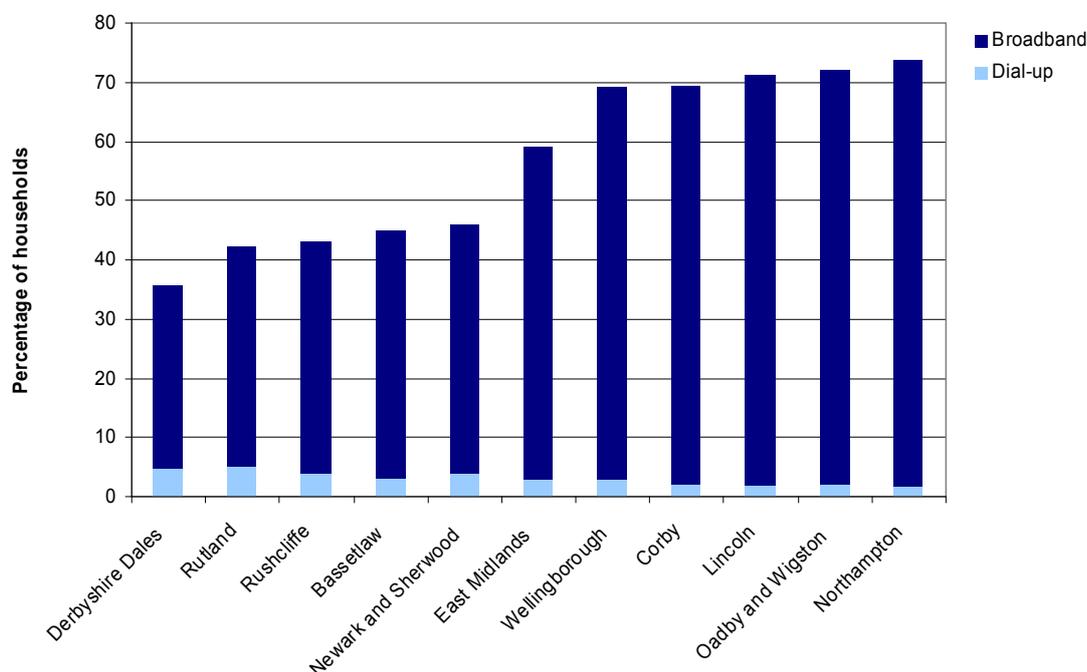
However, despite the fact that an internet connection is available to over 99% of the population not all households are connected. Reasons for not connecting include lack of knowledge, lack of necessity and cost. Although knowledge of the internet and its applications has been increasing and costs have been falling over the last two decades, it is still the case that some sections of the population choose not to have an internet connection at home. ICT usage data is available at district level in the East Midlands<sup>49</sup> and is shown in Chart 11. The recent PWC report commissioned by Martha Lane Fox indicated that the total potential economic benefit from getting everyone in the UK online is in excess of £22 billion.<sup>50</sup>

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<sup>49</sup> Broadband Geography, Point Topic, August 2009, accessed January 2010.

<sup>50</sup> The Economic Case for Digital Inclusion, October 2009.

**Chart 11: Percentage of households with an internet connection by broadband or dial-up, top and bottom five districts, 2009**



Source: UK Broadband Geography, Point Topic, June 2009, accessed January 2010.

This data suggests that 59% of households in the East Midlands have an internet connection, of which 95% is delivered via a broadband connection and 5% via dial-up connections. The highest levels of connection in the region can be found in Northampton (74%), Oadby & Wigston (72%) and Lincoln (71%). These districts also experience amongst the highest levels of broadband access as a percentage of all access methods, at around 97%. Districts such as Derbyshire Dales (36%), Rutland (42%) and Rushcliffe (43%) have the lowest levels of connection. These districts also suffer from relatively low levels of broadband use, at around 89% of all connections. The levels of take-up in these areas are inhibited by relatively low Local Loop Unbundling (LLU)<sup>51</sup> limiting the broadband services available to households in the region, as well as limited cable availability.

A critical factor that affects the potential value to the end user of the internet is the speed of connection. Increasingly many newer applications that consumers and businesses are using are actually hosted on the web – this is in contrast to the early days of the internet where applications sat on the user’s machine. These web-based applications exploit resources located *virtually* on the network itself and use the proliferation of fast broadband connections to access services or data found on the network – this phenomena is generically called ‘cloud computing’. For these applications the consumer’s experience of these applications is determined largely by the speed and quality of their connection.

<sup>51</sup> LLU allows operators to use the copper cable (owned by BT and Kingston in the UK) and make DSL upgrades enhancing the broadband services available to households.

Where the broadband connection is slow or inconsistent consumers will, in practice, struggle to realise the benefits of these innovations.

Ofcom research suggests that in April 2009 average broadband speed in the UK were 4.1Mbit/sec,<sup>52</sup> equivalent to 57% of the average advertised headline speed that consumers see advertised.<sup>53</sup>

Currently access to the internet is largely through a DSL (Digital Subscriber Line) connection which 'piggy backs' on the national telephone network. This technology allows households to theoretically receive download speeds up to 24Mbit/sec. However, the copper-based telephone network infrastructure suffers from a number of constraints. Factors such as the distance from the local exchange, the physical condition of the cabling and connections and the number of subscribers using the internet at any one time also affect the quality of service available.

In contrast properties linked by a fibre optic connection have no such physical limitations and offer practically limitless carrying capacity. Were optical fibre to be deployed widely across the network, particularly in the 'last mile' between the local exchange and the end users premises it would increase the ability of the network to cope with rising demand for bandwidth. A network based on fibre that went all the way to the door would fundamentally change the current market and would easily exceed even the highest (50Mbit/sec) speed currently offered. However, the economics of deployment which favours investment into more densely populated locations suggests that even were fibre to be rolled out it would likely to be seen first in urban locations and only later in the more rural, less densely populated areas.

The UK has moved in a very short period of time from practically no broadband to universal provision of 'first generation broadband'. The Digital Britain report published in June 2010 set out the Government's proposals to "secure the UK's position as one of the world's leading digital knowledge economies" and made a series of recommendations including a new Universal Service Commitment for broadband giving everyone in the UK access to 2Mbps by 2012 and discussed the critical importance of securing timely investment in Next Generation Broadband. Although not specifically defined many commentators accept that this would need to be at least 40Mbit/sec with critics suggesting that it should be much higher, the recently published USA Broadband Plan for example cites 100Mbit/sec.

Currently, however, there are only limited plans to invest in Next Generation Broadband infrastructure. With 379 exchanges in the East Midlands, BT have published a programme of upgrading 16 East Midlands exchanges that are due to be completed by March 2011. This investment forms part of their national Fibre to the Cabinet initiative, which seeks to improve broadband speeds to around 40Mbit/sec by replacing, with fibre, the copper connection currently linking existing BT Exchanges to their network of street cabinets.

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<sup>52</sup> Megabits per second.

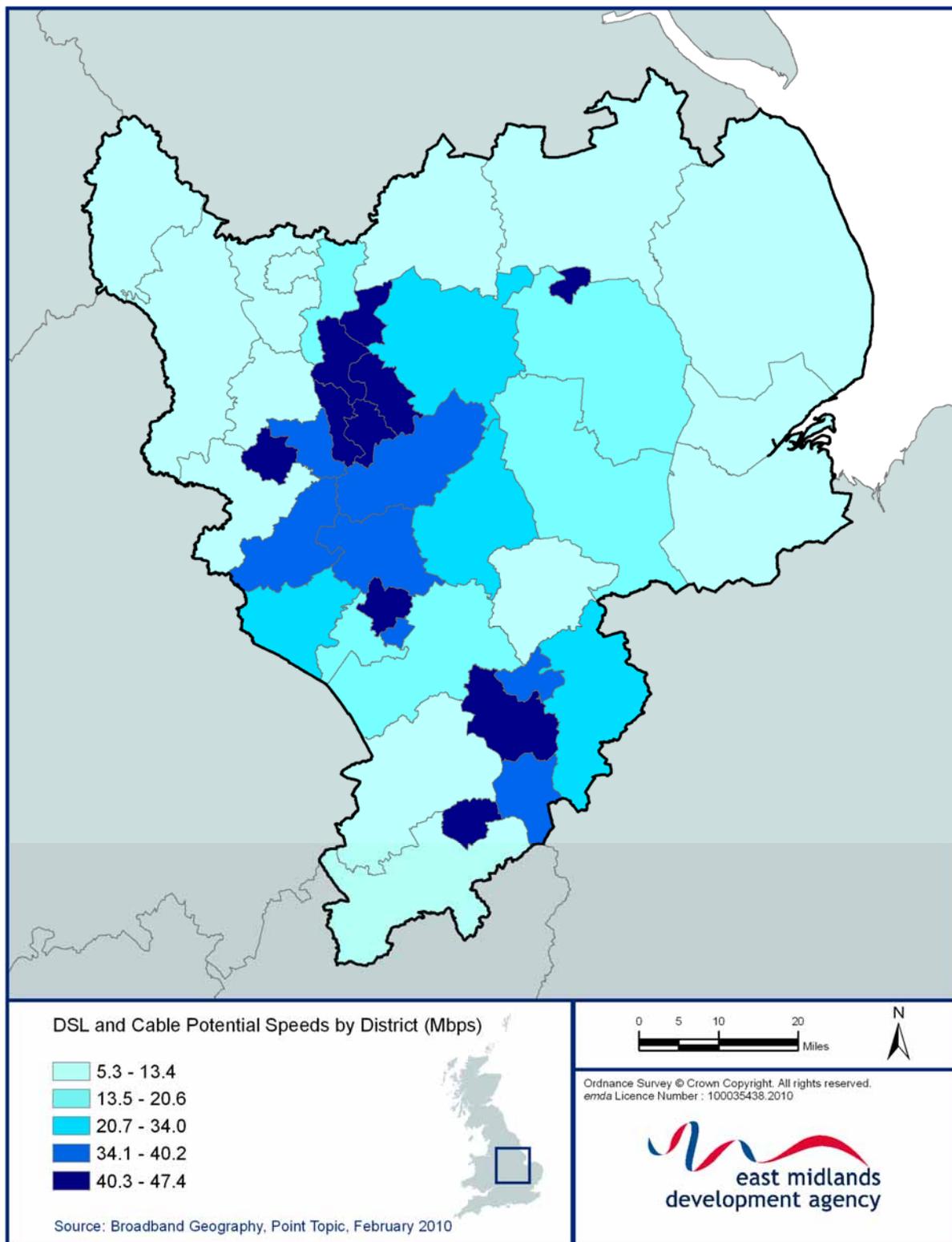
<sup>53</sup> Ofcom, UK broadband speeds 2009, Consumers' experience of fixed-line broadband performance, July 2009.

Whilst there is competition between BT and Virgin both providers have largely targeted their investment in faster broadband to broadly the same 40-50% of the population, which is predominantly located in urban locations.

Beyond a limited number of pilots nationally there are no published plans from any of the major telecoms providers to support a widespread roll-out programme of fibre optic point-to-point connections (i.e. a dedicated optical fibre connection that runs all the way to an end user's premises).

Map 2 shows broadband speed across the East Midlands. The data should, however, be treated with some caution given that they reflect 'potential' and not 'actual' speeds experienced by end users. Nevertheless, the analysis does provide a useful guide, highlighting the districts in the East Midlands which appear to suffer from relatively slower broadband provision. Note also that Map 2 does not differentiate the underlying broadband delivery technology and simply shows the average potential speeds derived from data drawn from both the DSL and cable networks.

**Map 2: Potential maximum speeds of DSL and cable broadband in the East Midlands, by district, June 2009**

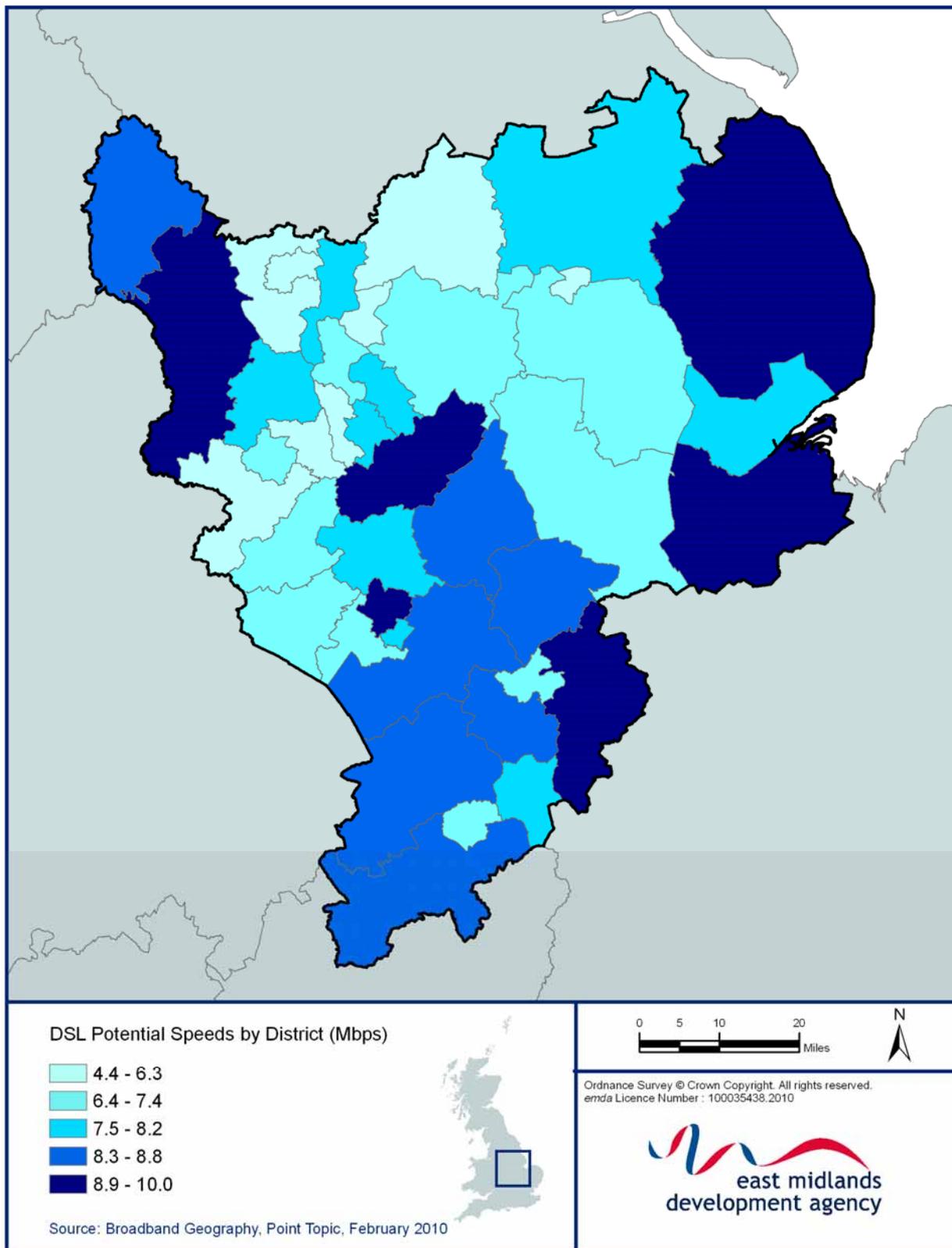


Map 2 shows that there is a clear pattern between the maximum speeds available in the region, which seems to largely reflect the rurality of districts.

- Large urban districts such as Nottingham, Leicester, Derby, Lincoln and Northampton experience the highest potential speeds. This is driven in part by the availability of cable broadband in these areas.
- Rural 80 districts such as East and West Lindsey, Derbyshire Dales, Daventry and South Northamptonshire experience amongst the lowest average potential speeds.

It appears that in locations where an alternative cable infrastructure exists we see significantly higher broadband provision being made available. However, if the cable infrastructure is removed from the analysis a much more complex, nuanced picture of broadband provision emerges.

Map 3: DSL speeds by district, June 2009



By removing the impact of the cable network Map 3 illustrates the state of broadband provided by the DSL network, based on the existing telephone network. A cursory examination of the map suggests that rurality has only a negligible effect on potential DSL speeds available to households. A critical difference in Map 3 is that peak DSL speeds are considerably lower at 8.9-10.00Mbit/sec (contrast this with the 40Mbit/sec in Map 2). Although the map suggests that some rural locations achieve quite high speeds the pattern is highly variable. The reason for this apparent diversity in provision is likely to be explained by the physical distribution of properties around exchanges. Where rural exchanges are located in the centre of small nucleated settlements we might expect to see a high proportion of households physically located relatively close to their exchange and so can achieve relatively high broadband speeds. In other locations the geography of a settlement may not be so benign, i.e. properties are not located concentrically around a nucleated settlement, the exchange is not centrally located, or worse, the exchange is sited at one end of an extended settlement. In both instances the geography of a location will determine the line length of the phone network – between exchange and property – and this will directly influence the quality of broadband available at any one location.

The OECD has also highlighted the growing demand for mobile broadband, accessed via 3G<sup>54</sup> networks. Mobile internet, available via most modern mobile phones and increasingly through dedicated peripherals for computers, currently accounts for around 40% of all telecommunications revenues in OECD countries. As prices fall and availability increases this figure is likely to rise over the next decade.

### 6.5.2 Ability to work from home

The option to work from home is becoming increasingly attractive. Research<sup>55</sup> has shown there are a number of benefits to this practice for both the employer and employee. For the employer benefits include reductions in office space requirements, reduced need for business travel, lower absenteeism as well as productivity gains – flexible workers often work longer hours and with fewer distractions. Individuals can experience benefits that include improved work/life balance, reduced commuting and new opportunities to work for the previously excluded. This research has estimated that income associated with flexible working (of which working from home is a substantial part) contributes between 5% and 12% of GVA in the East Midlands economy.

Developments in ICT have reduced the costs associated with working from home. Working from home is now a realistic possibility for many workers in the service sector. Chart 12 shows that 18% of the workforce resident in the East Midlands had the ability to work from home if required in 2007, slightly below the national average of 19%. The South East is the leading region where 26% of the resident population has the ability to work from home, closely followed by London, with 22%. It should be noted that the South East and London

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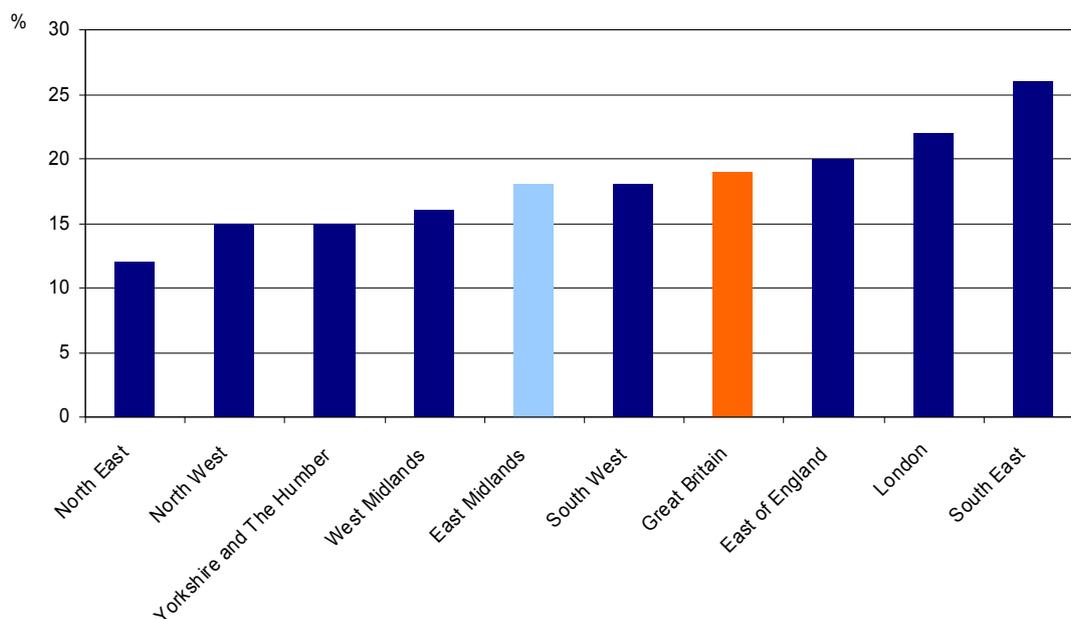
<sup>54</sup> Third generation telecommunication hardware.

<sup>55</sup> Atypical Working Practices in the East Midlands, Experian, September 2007.

have higher average travel to work times and have a larger share of service sector industries relative to other regions.

The National Travel Survey indicates that of the 18% of the workforce in the East Midlands that have the ability to work from home, 3% always work at home, 5% worked at home on at least one day in the previous week and 10% did not work at home in the previous week but it is possible for them to work at home.

**Chart 12: Possibility of working from home if required by region of residence (%), 2006-2007**



Source: Combined National Travel Survey, published in Regional Travel Statistics 2008, Department for Transport, March 2009.

### **Key Points: Communications**

- First generation broadband access to the internet is now available to 99% of all homes and businesses in the UK.
- There are approximately 379 BT exchanges in the East Midlands. BT, as part of a national next generation broadband programme, has announced 16 exchanges where they intend to take fibre to the cabinet to provide faster broadband.
- No telecom provider has announced any plans to provide fibre point-to-point connections in the region.
- In the East Midlands 94% of businesses who have a computer have an internet connection. Of these, 96% are connected to the internet via broadband.
- The region has experienced rapid progress in the roll-out of first generation broadband providing near universal availability. However, there is little evidence that future investment in next generation broadband is being considered beyond the urban cores with more remote and rural communities likely to be disadvantaged the most by delayed investment.
- The highest bandwidth is available in the region's urban centres where competition with a cable alternative significantly increases the potential bandwidth.
- In the East Midlands the proportion of the resident workforce with the ability to work from home is similar to the national average.

## 6.6 Land

### 6.6.1 Land use

There is little up to date information providing a comprehensive regional analysis of employment land, an area where there is a clear requirement for further work. In contrast to the absence of recent region-wide studies of employment land quality and provision, there have been a considerable number at sub-regional and district level. *emda* is currently undertaking a study that will map the coverage of these local and sub-regional studies and identify gaps that exist.

In 2006, *emda* commissioned the East Midlands Strategic Distribution Study to consider future land needs of the strategic distribution sector in the region. This found that a total of 386 hectares of land would be required up to 2026, and that 308 hectares of this total would need to be on sites which could be rail linked if the Regional Freight Strategy's target of 30 additional freight trains per day was to be achieved. The Study's findings informed policy development in the East Midlands Regional Spatial Strategy resulting in a new policy which sets out preferred broad locations and site selection criteria.

#### 6.6.1.1 Monitoring of employment land development

According to the Regional Spatial Strategy Monitoring Report 2009, in 2007-2008 the region had committed 2,793 hectares of land for employment purposes. This figure was widely distributed across the region with the largest amounts in Lincolnshire (702 ha) followed by Nottinghamshire (555 ha) and Derbyshire (523 ha).

In 2007-2008, a total of 187 hectares of employment land had been completed (fully developed/re-developed) which is a significant fall from 259 hectares in 2006-2007. In addition, a further 130 hectares were under construction at the time of the survey.

Just 38.1% of employment land completed or under construction in 2007-2008 was on brownfield land, which is a reduction from 45.2% in 2006-2007. The percentages varied widely across the region, from 78.7% in Derby, to just 18.4% in Northamptonshire. The biggest change since 2006-2007 was in Leicestershire where the percentage had fallen from 81.9% in 2006-2007 to just 23.2% in 2007-2008. Only in Derby, Nottinghamshire and the Peak District were the percentages greater in 2007-2008 than in 2006-2007.

The total amount of floorspace completed in 2007-2008 was 732,444 square metres. The majority of this floorspace was new build, which comprised 561,259 square metres. Redevelopment and extensions amounted to 97,760 and 73,424 square metres respectively. Northamptonshire had the largest amount of floorspace completed, at 225,697 square metres, of which 181,288 square metres was new build, 36,098 square metres was redevelopment and 8,311 square metres were extensions. In 2007-2008, there was little or no floorspace completed in Nottingham, Rutland or the Peak District.

## 6.6.2 Land values

The cost of industrial or commercial sites has a direct impact on a firm's ability to locate to the East Midlands. Whilst the cost of industrial land reflects relative demand, it can also act as a barrier to firms locating in the region. Table 8 shows how industrial land values in the major urban centres of the East Midlands compare to that of the East Midlands and England and Wales averages. The 'minimum' and 'maximum' values shown in the table reflect the difference between particular locations and characteristics of sites within each urban centre. For this reason 'typical' values will be used for comparison. The latest data indicates that the recession has had a significant negative impact on demand for industrial land which has impacted on land values in all English regions:

- Every sub region in the East Midlands has experienced a reduction in land values since the start of the recession. Leicester has experienced a fall of around a third between 2007 and 2009, whilst Northampton, Lincoln and Derby have experienced falls of around a quarter;
- Nottingham has experienced the smallest reduction in land values over the same period, of 18%. This is only marginally less than the regional average of 24%;
- With the exception of Mansfield, every sub-region of the East Midlands has experienced reductions in industrial land values greater than the England and Wales (excluding London) average, of -17%;
- Nottingham has the highest typical land values per hectare of all major urban areas in the East Midlands, at around £450,000. This is higher than the East Midlands average (of £343,000), but remains around a quarter lower than the typical values in England and Wales (excluding London). It should be noted that the England and Wales average is buoyed by relatively strong performance in the South East and East of England; and
- As well as Nottingham, typical land values per hectare in Leicester, Northampton and Derby remain significantly higher than the other urban areas of the East Midlands.

Although there are signs that the economic conditions are stabilising it remains too early to say whether industrial land values have any further to fall before a recovery raises demand for land.

**Table 8: Industrial land values per hectare: East Midlands, 2009 (£s)**

	Minimum	Maximum	Typical	Typical in 2007
Lincoln	225,000	275,000	250,000	325,000
Mansfield	180,000	270,000	230,000	275,000
Nottingham 385,	000	510,000	450,000	550,000
Derby 300,	000	400,000	350,000	450,000
Leicester 330,	000	470,000	400,000	600,000
Northampton	300,000	450,000	375,000	500,000
East Midlands	180,000	510,000	343,000	450,000
England and Wales (excluding London)	80,000	2,475,000	600,000	720,000

Source: Valuation Office Agency (VOA), Property Market Report, July 2009 and July 2007.

#### **Key Points: Land**

- There is little up-to-date region wide evidence on employment land. The RSS Annual Monitoring report suggests that there was nearly 2,800 hectares of land committed for employment purposes in 2007-2008.
- The highest land values are to be found in Leicester, Nottingham and Derby.
- The East Midlands has experienced significantly less growth in land values compared to the English average.

## 6.7 Property

The size, quality and availability of property are all substantial contributing factors to the decision of businesses to invest in a region. The property market is highly responsive to demand and reflects the changing needs of industry. The clearest illustration of this has been the steady decline in demand for manufacturing units in the East Midlands over the last two decades. In contrast, demand has increased for units accommodating the service and distribution sectors.

### 6.7.1 Premises and floorspace

In 2008, there were 109,525 commercial and industrial premises in the East Midlands. This is lower than any other Government Office Region (GOR) with the exception of the North East. In contrast, the average size of commercial and industrial premises in the East Midlands, as measured by floorspace, was 520m<sup>2</sup>. This is the largest of any GOR. Data shows there has been little change in either the number or average size of property in the region between 2005<sup>56</sup> and 2008. Analysing data on floorspace broken down by use (office, retail, factory and warehouse<sup>57</sup>) offers a number of further insights:

- Table 9 shows that in 2008, 37% of premises in the East Midlands were designated as retail, the largest of the four sectors. The average floorspace occupied by retail premises was 201m<sup>2</sup>, the smallest average premises size of the three uses; and
- In the same period factories accounted for 26% of premises, whilst offices accounted for 21% of premises. Unsurprisingly, factories have a large average floorspace, at 880m<sup>2</sup>, whilst offices have an average floorspace of 255m<sup>2</sup>. Factories account for a much smaller proportion of the total floorspace in England, at 12.3%.

The previous section highlighted the importance of distribution activity in the East Midlands. In 2008, the number of warehouse premises, as measured as a proportion of all premises, was higher in the East Midlands, at 16.2%, than the national average (15.1%), reflecting the size of the distribution sector in the region. The average size of warehouse premises in the East Midlands, at 1,067m<sup>2</sup>, was higher than any other GOR. Warehouse floorspace in the East Midlands accounts for 11.8% of the total floorspace in England.

### 6.7.2 Rateable values

This section provides details of the rateable values of floorspace in the East Midlands, compared with those for England as a whole. Annual rateable values are given to all non-domestic properties and are based on a professional assessment of the value of property if it was available to be let to an open market on a specific date. It is used in the calculation of individual business rates bills.

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<sup>56</sup> In 2005 there was a revaluation of this data making comparison with previous years statistically unreliable.

<sup>57</sup> Data omits the 'other' premises, which is a relatively small proportion of total floorspace.

Table 10 illustrates that the rateable values of retail and office floorspace in the East Midlands are significantly below the England average, at £105m<sup>2</sup> and £72 m<sup>2</sup> compared to £130m<sup>2</sup> and £121m<sup>2</sup> respectively. The rateable values of factories and warehouses in the East Midlands are comparable with the England average, a reflection of the region's relative strength in industries which demand these premises.

**Table 9: Number of premises (with percentage of England total) and floorspace occupation by premises type, England and East Midlands, 2008**

	Retail			Office			Factories			Warehouses					
	East Midlands	East Midlands share of England total (%)	England	East Midlands	East Midlands share of England total (%)	England	East Midlands	East Midlands share of England total (%)	England	East Midlands	East Midlands share of England total (%)	England			
Premises	38,887	7.5	516,809	21,860	6.5	334,713	26,837	10.9	245,263	16.9	42	8.7	194,572		
Floorspace (000m <sup>2</sup> )	7,829	7.8	100,208	5,581	5.7	97,566	23,606	2.3	192,322	11	18,083	.8	152,485		
Average floorspace m(sq)	201	103	.7	194	255	87.6	291	88	0	112.2	784	1,06	7	135.4	784

Source: Department for Communities and Local Government, Live Tables on Commercial and Industrial Floorspace and Rateable Value Statistics, 2008, accessed January 2010.

Note – The table does not contain information on ‘other’ premises.

**Table 10: Rateable values of premises in the East Midlands and England, 2008**

	Retail			Office			Factories			Warehouses			
	East Midlands	East Midlands share of England total (%)	England	East Midlands	East Midlands share of England total (%)	England	East Midlands	East Midlands share of England total (%)	England	East Midlands	East Midlands share of England total (%)	England	
Rateable value (£000s)	823,952	6.3	13,021,037	399,718	3.4	11,773,032	647,807	11.6	5,586,670	638,356	10.6	6,037,134	
Rateable value per m(sq) (£/m(SQ))	105	80.8	130	72	59.5	121	27	93.1	29	3	5	87.5	40

Source: Department for Communities and Local Government, Live Tables on Commercial and Industrial Floorspace and Rateable Value Statistics, 2008, accessed January 2009.

Note – The table does not contain information on ‘other’ premises.

### 6.7.3 Property types

The type of property available in a region is largely a factor of the demand generated from industry. To complement the previous section on floorspace this sub-section analyses the types of property and associated rentals available in the East Midlands. Data on property rentals is available from the Property Market Reports produced by the Valuation Office Agency. The reports provide a breakdown of rental statistics by industry and use for the major urban centres of the East Midlands.

#### 6.7.3.1 Industrial premises

The Property Market Report provides information on five types of industrial property.<sup>58</sup>

**Type 1:** Small starter units, 25sq.m-75sq.m.

**Type 2:** Nursery units, 150sq.m-200sq.m.

**Type 3:** Industrial/warehouse units, circa 500sq.m.

**Type 4:** Industrial/warehouse units, circa 1,000sq.m.

**Type 5:** Converted ex-mill units.

Table 11 shows rental values for these five types of industrial building together with the magnitude of change since July 2004. The data shows that rentals in most types of industrial building have increased during this period. The most notable increases have been in the three cities of Nottingham, Leicester and Derby for type 3 premises, and in Leicester for type 4 premises. It is interesting to note that there has been no change in the rental values for any industrial premises type in Northampton.

**Table 11: Rental value for industry in the East Midlands (£ per sq m per annum), July 2008**

East Midlands	Type 1		Type 2		Type 3		Type 4		Type 5	
	Jul-08	Growth Rate 2004-08 (%)								
Lincoln	62 24	.0	52 15	.6	47 17	.5	45	28.6	-	-
Ashfield and Mansfield	55 1	0.0	50 1	3.6	45 1	2.5	40	5.3	-	-
Nottingham	75 1	0.3	75 2	5.0	70 4	0.0	55	14.6	20	0.0
Derby	75 15	.4	70 20	.7	64 33	.3	48	20.0	-	-
Leicester	66 10	.0	63 26	.0	56 40	.0	54	35.0	-	-
Northampton	85 0.	0	65 0.	0	55 0.0		50	0.0	-	-

Source: Valuation Office Agency (VOA), Property Market Report, July 2008 and July 2004.

<sup>58</sup> The latest report which contains detailed data on rental charges by property type is: Valuation Office Agency (VOA), Property Market Report, July 2008. Property type 1-4 are assumed to be located on industrial estates. The July 2009 VOA Property Market Report has been scaled back and no longer includes detailed data for rental charges by property types.

### 6.7.3.2 Office

High quality office space, which is easily accessible to the workforce and customers, is essential to support the majority of business activities in the service sector. The Valuation Office Agency (VOA) surveys office rentals and gives information on three types of office space.

- **Type 1:** Town centre location. Self contained suite, over 1,000 sq.m, in office block erected in last 10 years.
- **Type 2:** As type 1 but suite size in range of 150 sq.m-400 sq.m.
- **Type 3:** Converted former house usually just off town centre. Good quality conversion of Georgian/Victorian or similar house of character, 50 sq.m-150 sq.m.

Office space rentals vary across the East Midlands although a general preference for town centre locations is reflected in the rental values. Table 12 shows that:

- Nottingham has the highest rentals for all types of office premises whilst Derby has the lowest. Rentals in Derby are approximately two thirds the value of Nottingham;
- Between 2004 and 2008, the highest growth in rental values has been reported for type 2 premises in Leicester and type 3 premises in Nottingham; and
- Northampton has experienced a reduction in rentals for type 2 space and no change in the rentals for type 3 premises.

**Table 12: Rental value for offices in the East Midlands (£ per sq m per annum), July 2008**

	Type 1		Type 2		Type 3	
	July 08	Growth Rate 2004-08 (%)	July 08	Growth Rate 2004-08 (%)	July 08	Growth Rate 2004-08 (%)
Lincoln	110	10.0	120	33.3	85	6.3
Mansfield	-	-	100	11.1	90	20.0
Nottingham	150	7.1 16	0	6.7 14	0	40.0
Derby	95	14.5	105	10.5	110	4.8
Leicester	145	3.6	150	50.0	115	15.0
Northampton (type 1 and 2 edge of town)	150	7.1	110	-21.4	135	0.0

Source: Valuation Office Agency (VOA), Property Market Report, July 2008 and July 2004.

### 6.7.3.3 Retail

The location and quality of retail premises can have a more direct impact on business turnover than offices or warehouses, due to the direct customer facing role these premises perform. As such, rentals in this market are considerably higher than offices or warehouses. The three types of retail premises surveyed are:

- **Type 1:** Prime position in principal shopping centre;
- **Type 2:** Good secondary off peak position in principal shopping centre; and
- **Type 3:** Modern, purpose built, non-food, warehouse unit, circa 2,500sq.m-5,000sq.m. Edge of town location.

There is much greater disparity between the three types of premises in retail compared with other premises, which reflects the high level of competition amongst businesses for prime sites. Table 13 shows that:

- The highest rentals for all three types of premises are charged in Nottingham, although there has been a slight reduction in the rentals charged for type 1 premises between 2004 and 2008;
- Leicester has experienced the largest growth in rentals for type 1 premises over the same time period. This reflects the completion of a substantial development of retail space in the area, increasing the attractiveness of the areas shopping experience;
- Mansfield has the lowest rental values for the three types of retail premises. This is a product of its lower resident population relative to other urban centres and lack of sizeable retail locations; and
- Rental values for prime locations in Nottingham and Derby have fallen slightly between 2004 and 2008.

**Table 13: Rental value for retail in the East Midlands (£ per sq m per annum), July 2008**

	Type 1		Type 2		Type 3	
	July 08	Growth Rate 2004-08 (%)	July 08	Growth Rate 2004-08 (%)	July 08	Growth Rate 2004-08 (%)
Lincoln	1500	11.1	600	20.0	170	13.3
Mansfield	1250	13.6	375	17.2	150	30.4
Nottingham	2300	-4.2	1100	10.0	275	10.0
Derby	1500	-6.3	750	-3.2	175	16.7
Leicester	2300	15.0	900	0.0	200	42.9
Northampton	1350	-3.6	800	6.7	215	-10.4

Source: Valuation Office Agency (VOA), Property Market Report, July 2008 and July 2004.

### Key Points: Property

- The East Midlands has the one of the lowest numbers of commercial and industrial premises (109,525) but the largest average size (520m<sup>2</sup>) of any Government Office Region.
- Retail accounts for the largest percentage of premises in the East Midlands, at 37%, followed by factories (26%), offices (21%) and warehouses (16%).
- The values of retail and office floorspace are lower in the East Midlands than nationally.
- Rental values for prime retail sites are significantly higher in Nottingham and Leicester than other areas of the East Midlands.

## 6.8 Conclusions

The East Midlands has developed and maintained its transport infrastructure over the last decade, which has helped to support growth in the resident population and business stock. The East Midlands remains well connected to surrounding regions facilitating personal travel as well as trade. Key infrastructure, such as East Midlands Airport and strategic road and rail links, have ensured the East Midlands remains linked to the UK and wider global economy.

The East Midlands experiences net out commuting with around 198,000 people commuting out of the region to work, greater than the estimated 108,000 people who commute into the region. The region continues to experience a relatively low use of public transport compared to other regions and a relatively high dependency on private transport (mainly private car). The dependency on private vehicles, although creating many disbenefits, is largely a function of the region's rural nature.

Although commuting accounts for just 16% of all trips by purpose in the East Midlands, the concentration of these journeys causes many of the disbenefits associated with congestion. It is estimated that congestion costs the East Midlands £935 million per annum.<sup>59</sup> This research, corroborating national research,<sup>60</sup> highlights the significant costs that congestion creates in the regional economy. Whilst it is not economical to eliminate congestion there are substantial savings to be made through strategic planning and policy decisions increasing supply and influencing demand.

The East Midlands has amongst the highest levels of car ownership of any Government Office Region. Whilst this, in itself, is not particularly noteworthy it holds more significance when viewed in conjunction with the traffic increase on major roads. The region has experienced the third highest increase in traffic on major roads of any English region.

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<sup>59</sup> Economic costs of Congestion in the East Midlands, Atkins, May 2007.

<sup>60</sup> The Economic Costs of Road Traffic Congestion, ESRC Transport Studies Unit, University College London, Goodwin, P., May 2004.

This, together with the projected increase in population over the next decade, is likely to increase demand on the road network of the region further.

The freight industry continues to play an increasingly important role in the East Midlands economy, supported by a strong road, rail and air transport network. Whilst this brings many economic benefits, there are significant environmental impacts which arise from the freight industry.

East Midlands Airport (EMA) has developed its capacity in recent years, helping to support the regions freight industry and is now the UK's primary freight hub outside London. Developments at EMA have also supported the business and resident population of the region. EMA will continue to play a key role in the economy of the East Midlands.

Around four fifths of businesses in the East Midlands use computers and 94% of these have a broadband connection. This puts the East Midlands in a strong position to benefit from the economic potential that Information and Communications Technology (ICT) brings to both businesses and individuals. Developments in ICT have increased the opportunity of working from home, which, research<sup>61</sup> has shown, brings a number of economic benefits. Currently, around 18% of the population has the ability to work from home if required, the highest percentage of any northern or midlands region. The region, like the UK, has moved from almost no broadband to near universal availability of first generation broadband in less than five years. However, the situation regarding investment in Next Generation Access (broadband available through fibre optic cables) is much less clear with no firm plan for when this investment will take place.

There is little up-to-date regional data on utilisation of employment land and this is an area where further work is clearly required. There are wide discrepancies in land values and property rents across the region. These values are invariably higher in the region's major urban areas. The region is a key distribution centre, with a significant share of the country's warehouse space. This is a function of the region's location at the heart of the country's transport infrastructure.

Recent economic conditions will inevitably put pressure on funding for transport and infrastructure and it is likely that funding will be reduced and focused on key developments. This issue will affect all regions in the short to medium term.

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<sup>61</sup> Atypical working practices in the East Midlands, Experian, September 2007

## 7. The East Midlands Environment and Natural Resources

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# The East Midlands Environment and Natural Resources

## 7.1 Introduction

Economic growth affects, and is affected by, the state of the environment. The environment acts as a source of raw materials for economic activity and provides a network of ecosystem services, including the capture and storage of many by-products of economic activity (waste, emissions, etc). It also provides a source of recreation and well-being for its inhabitants. However, the environment poses hazards of its own, and can constrain economic growth in some areas, e.g. on floodplains or along the coast.

Parts of the East Midlands have a significantly degraded environment, which need careful rehabilitation and management to bring them up to the national standard in terms of biodiversity and landscape. Some of the region's already scarce natural assets are under growing stress, particularly from intensive agriculture and large scale mineral and aggregate extraction, whilst the implications of climate change will have significant consequences for the region, especially in coastal areas.

However, the region's environment also provides a range of assets for economic development, social cohesion and individual wellbeing. The Wash, much of which is in Lincolnshire, is the largest Site of Special Scientific Interest (SSSI) in England and the Peak District is one of the most visited National Parks, whilst the region has a range of heritage assets that generate tourism. The East Midlands has a rich geology which makes it the most important region in England for minerals and the production and export of aggregates.

There are parallels that need to be drawn between environmental challenges and the incentives and opportunities for enterprise, innovation and the development of new sectors, for example to take advantage of 'clean' fuel and to develop renewable energy sources.

This chapter provides context on some of these themes. Whilst the focus is on the East Midlands, these complex relationships exist at the global, national, regional and local level, and are rarely spatially and temporally specific. This chapter seeks to interpret these relationships, focusing on the way the environment is both affected by, and affects, economic growth.

The following section provides some broad context on the global relationships between economic growth and environmental impacts. It summarises some of the findings of the Stern Review on the likely future impacts of population and economic growth on emissions, water supply and food and energy security. It then introduces recent policy developments, including the outcomes of the international Copenhagen Summit on climate change in December 2009. This section then goes on to look at climate change in more

detail. It summarises some of the observed global and national climate trends and discusses the latest national climate change forecasts. These predict increasing temperatures across the UK but little changes in annual rainfall, although there will be increased seasonal variation. However, significant rises in sea levels are projected along with increased chances of coastal flooding. Progress is then assessed towards global and UK targets to reduce greenhouse gas emissions. In the East Midlands, although there has been a significant long-term reduction in emissions since 1990, there has been an increase since 1999. Analysis by sector reveals that the fuel and power production sector is responsible for the vast majority of emissions. In terms of end-user, the East Midlands has the third highest total CO<sub>2</sub> emissions per head of population, with an above average level attributable to road transport, and this has decreased less over the last three years than elsewhere in the UK. This can be linked to the East Midlands' relatively dispersed spatial pattern of development, with no single dominant centre and significant inter and intra-regional flows of commuters and goods.

The third section assesses other types of air pollution monitored by the Environment Agency. This demonstrates that pollution from particulates and sulphur oxides has fallen significantly in the region in recent years, due to technological improvements. However, nitrogen oxide emissions have been harder to control, and there has been little overall reduction in the region.

Section four provides an overview of the region's geology and mineral resources. The region has a rich geological character, and in terms of hazards, is relatively geologically benign. The East Midlands is an important producer of a wide range of minerals, and is the UK's major producer of gypsum and only producer of fluor spar. Overall, the region is the largest aggregate producer and exporter in the UK, and is responsible for a quarter of all primary aggregates supplied nationally.

Section five analyses regional energy production and consumption. The East Midlands is a key energy producer, accounting for a significant share of UK capacity, but most energy is produced through fossil fuels. The East Midlands also consumes the third largest amount of energy per capita, and again road transport accounts for a significant share of this. The region continues to have significant coal reserves, and its coal mining history provides a number of opportunities for clean coal energy extraction, such as through methane from abandoned mines. The East Midlands currently has a relatively low capacity for generating renewable energy overall, at around half the capacity of the leading region. However, there have been significant developments, notably in biomass capacity driven in part by the presence of large coal and biomass co-firing power stations in the region.

Section six discusses waste production and management. The East Midlands is responsible for just over 10% of waste arisings in England, with larger shares attributable to industry and commerce and construction and demolition than the national average. In terms of waste generated per unit of economic output, the East Midlands is less resource efficient than the national average. Moreover, an above average proportion of all waste (municipal, industrial and

construction) goes to landfill in the East Midlands. However, in the case of municipal and household waste, the East Midlands achieved has the highest rates of recycling and composting in England and has achieved the most significant increase in this over time.

Section seven looks at water resources, their condition and flood risk. Lincolnshire is one of the driest parts of the country, which contributes to water resource pressure in the region. Water abstractions from the Midlands region were amongst the highest in England. Water quality has improved significantly in the region in terms of both biological and chemical quality, with the highest percentage increase of any region in both between 1990 and 2007. The water industry and waste management sectors accounted for the largest proportion of water pollution incidents in the region. The East Midlands contains some of the most extensive flood-prone coastline in England, and is also prone to flooding from rivers and groundwater.

Section eight describes the region's biodiversity, landscapes and heritage. The East Midlands currently has the highest proportion of Sites of Special Scientific Interest (SSSIs) assessed as being in 'favourable' or 'recovering' condition of any English region, and has exceeded the Government's PSA target in this respect. On indicators of biodiversity outside designated sites, the East Midlands performs less well. Populations of farmland bird species have declined and the region has the lowest proportion of land designated as Areas of Outstanding Natural Beauty of the nine English regions. The East Midlands also has a very low proportion of its land area covered by forests or woodland, with only London having a lower proportion. Additionally, a relatively low proportion of this woodland is accessible to the public compared to regions in the North of England. More positively, of the large number of heritage sites in the region, there is a relatively low proportion of historic monuments in the region that are assessed as being at risk. Conversely, the East Midlands has an above average proportion of listed buildings at risk, and this proportion has not fallen as much as in other regions in recent years.

Finally, this chapter addresses land use in the region, especially with respect to agriculture. The East Midlands accounts for a significant proportion of total national agricultural land, with the second largest share of arable land in England. Soil is generally of good quality and lead levels in soils and streams are generally low.

## **7.2 Climate change**

### **7.2.1 Evidence for climate change**

It is now without doubt that average global atmospheric and sea surface temperatures are rising. Ten of the warmest summers on record (going back to 1860) have occurred in the last decade, with 2005 being the second warmest year on record. Arctic sea ice is declining significantly faster than

predicted by the general circulation models<sup>1</sup> (known as Global Climate Models, or GCMs) in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (IPCC AR4).<sup>2</sup> Since 1900 mean global temperatures have risen by nearly 0.8°C, much of it over the past 50 years. The IPCC concluded in 2007 that: “it is very likely that anthropogenic greenhouse gas increases caused most of the observed increase in global average temperatures since the mid-20th century.” Other indicators include:

- Overall, land-based ice caps on the world’s mountain ranges are receding, with an average reduction in thickness of 8m over the last 30 years;
- Recent analyses show that sea levels, which have been rising at ~3.4 mm/year during the 20th century, are projected to rise up to ~1.4 metres above 1990 levels by 2100;<sup>3</sup> and
- Rising sea temperatures have a direct influence on the energy dissipated through tropical storms and hurricanes. In the last 50 years energy dissipated through such weather systems has increased by 50%. The 2005 North Atlantic hurricane season caused significant damage.<sup>4</sup>

In July 2005, the Government asked Sir Nicholas Stern to lead a review into the economics of climate change. Specifically, the review team was asked to examine: the implications of economic growth on energy demand and emissions; the economic, social and environmental consequences of climate change; the costs and benefits of actions to reduce greenhouse gas emissions; and the impact and effectiveness of national and international initiatives to reduce emissions. The review team reported its findings in autumn 2006 and key points were as follows:

- By 2050, global energy demand could double as populations rise and developing countries expand their economies;
- The current stock of greenhouse gases in the atmosphere is estimated to be equivalent to around 430 parts per million (ppm) of CO<sub>2</sub> compared to only 280 ppm before the Industrial Revolution. Even if emissions did not increase beyond the current rate, the stock of greenhouse gases would reach double pre-industrial levels by 2050, at around 550 ppm of CO<sub>2</sub> equivalent. At this level there would be at least a 75% probability that average global temperatures would increase by 2°C;
- Global warming will have several impacts, many of which will be related to impacts on water. Melting glaciers will initially increase flood risk and then rapidly reduce water supplies, potentially threatening a sixth of the world’s population. Since 1950, global water use has more than tripled;
- Ecosystems will be particularly vulnerable to climate change, with around 15-40% of species potentially facing extinction in the eventuality of a warming of 2°C;

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<sup>1</sup> Stroeve, J., ‘Arctic sea ice decline: Faster than forecast’, in ‘Geophysical Research Letters’, DOI 10.1029/2007GL029703, 2007.

<sup>2</sup> Intergovernmental Panel on Climate Change, Fourth Assessment Report, 2007.

<sup>3</sup> Rahmstorf, S., ‘A semi-empirical approach to projecting future sea level rise’, in ‘Science’, 315:368-370, 2007.

<sup>4</sup> NOAA magazine, ‘Noteworthy records of the 2005 Atlantic Hurricane Season’, 2005, at: <http://www.noaanews.noaa.gov/stories2005/s2540b.htm>

- However, power production remains the principal source of global emissions. The Stern Review estimated that the power sector around the world will have to become at least 60%, if not 75%, decarbonised by 2050 to stabilise emissions at or below 550 ppm of CO<sub>2</sub> equivalent;
- The expected cost of this stabilisation is estimated to be around 1% of Gross Domestic Product (GDP) in the UK;
- The cost of making new buildings and infrastructure resilient to the impacts of climate change is estimated to be around \$15-150 billion for OECD countries per year (between 0.05 and 0.5% of national GDP); and
- However, there are also economic opportunities in tackling climate change. Markets for low carbon energy products are estimated to be worth at least \$500 billion per year by 2050. Energy diversification and efficiency of supplies could also assist in stabilising market fluctuations.<sup>5</sup>

Recent UK statistics on the impacts of climate change show that:

- After a period of relative stability through the first half of the 20th century, the Central England Temperature (CET) has increased by about 1°C since the 1970s;
- The three warmest years on record have all occurred since 1998 and 19 of the warmest 20 since 1980;
- Sea levels around the UK have risen by about 1mm per year in the 20th century. The rate of rise since the 1990 has been higher than this; and
- Although annual precipitation has not changed hugely since records began in the 18th century, seasonal variations have increased significantly. All regions in the UK have experienced increases in winter rainfall over the past 45 years whilst most regions (except for the North East) have experienced decreases in summer precipitation. Severe windstorms have also become more frequent over the last three decades.<sup>6</sup>

The economic impacts of climate change have been felt around the world, demonstrating that in a global economy, local extreme weather and climate change has implications for us all.<sup>7</sup> For instance, in 2005 energy prices in the UK rose as a result of refinery and oil production interruption by hurricanes in the Gulf of Mexico.

To combat climate change, the United Nations Framework Convention on Climate Change (UNFCCC, 1992) agreed that each participating developed country would reduce its greenhouse gas emissions to 1990 levels by 2000. The Kyoto Protocol to the United Nations Framework Convention on Climate Change (Intergovernmental Panel on Climate Change, 1997) made these reductions legally binding and reduced emission targets further.

In December 2009, the United Nations held a conference on climate change at Copenhagen, known as the Copenhagen Summit, which aimed to update

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<sup>5</sup> HM Treasury, 'The Stern Review: The Economics of Climate Change', 2006.

<sup>6</sup> Jenkins, GJ, Murphy, JM, Sexton, DS, Lowe, JA, Jones, P, and Kilsby, CG, 'UK Climate Projections: Briefing Report', Met Office Hadley Centre, Exeter, UK, June 2009.

<sup>7</sup> The Stern Review, 'The Economics of Climate Change', 2006.

and strengthen the Kyoto targets for 2012. Negotiations between Annex I<sup>8</sup> and developing nations proved difficult, and the Copenhagen Accord was not legally binding. Delegates did endorse the scientific advice, recognising that "deep cuts in global emissions are required according to science" and agreed to cooperate in stopping the rise of global and national greenhouse gas emissions. Annex I countries agreed to submit "economy-wide emissions targets for 2020" by 31st January 2010. Non-Annex I countries would "implement mitigation actions" to slow growth in their carbon emissions, and would be provided with incentives to continue to develop on a low emission pathway. The Accord included a "goal" for the world to raise \$100 billion per year by 2020 to help developing countries cut carbon emissions and established a Copenhagen Green Climate Fund "to support projects, programmes, policies and other activities in developing countries related to mitigation". Although it potentially mobilised significant funding for both adaptation and mitigation, the Copenhagen Accord included no agreement on how much individual countries should either contribute to or benefit from any funds.

However, despite the Copenhagen Conference's limited progress towards international legally binding targets, significant recent progress has been made in the UK through a programme of legislation between 2008 and 2010. The UK Climate Change Act of 2008 included the following key provisions:<sup>9</sup>

- Legally binding targets: Greenhouse gas emission reductions of at least 80% by 2050, and reductions in CO<sub>2</sub> emissions of at least 26% by 2020, against a 1990 baseline; and
- A carbon budgeting system which caps emissions over five year periods, with three budgets set at a time, to set out our trajectory to 2050. The first three carbon budgets will run from 2008-2012, 2013-2017 and 2018-2022, and must be set by 1st June 2009.

In July 2009, the UK Government published its Low Carbon Transition Plan, which outlines how the UK will cut emissions by 34% on 1990 levels by 2020. The plan sets objectives for households, industry and power generation. It aims for the creation of an additional 1.2 million 'green' jobs by 2020, a large increase in pay-as-you-save home energy schemes, and support for households to produce their own clean energy (e.g. solar panels etc.). In terms of power generation, 40% should be from renewable sources, nuclear and clean coal by 2020, whilst gas imports will need to be halved. Finally, with road transport increasing its share of greenhouse gas emissions in many parts of the UK, the plan set an objective for the average car to emit 40% less

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<sup>8</sup> In the UNFCCC, developed countries were known as 'Annex I countries' ("industrialised countries and economies in transition"). A sub-group of these, 'Annex II countries', describes those developed countries who are members of the OECD and had agreed to financial contributions assisting developing countries ('non Annex I countries') to meet climate change objectives. Annex II countries include the UK and other EU member states and the USA.

<sup>9</sup> The Climate Change Act can be found here:

[http://www.decc.gov.uk/en/content/cms/legislation/en/content/cms/legislation/cc\\_act\\_08/cc\\_act\\_08.aspx](http://www.decc.gov.uk/en/content/cms/legislation/en/content/cms/legislation/cc_act_08/cc_act_08.aspx)

carbon by 2020. In summary, the Transition Plan aims to improve energy security objectives as well as achieving financial benefits for both industrial and domestic users, both of which will contribute towards the ‘moral challenge’ of tackling climate change.<sup>10</sup>

Following the publication of the Low Carbon Transition Plan, two pieces of further legislation have recently been passed. In November 2009, the Green Energy (Definition and Promotion) Act was passed, to promote the “development, installation and usage” of green energy.<sup>11</sup> It aims to facilitate the development of green energy through planning and fiscal incentives such as:

- Changing permitted development rights in planning law to facilitate the installation of domestic scale wind turbines or air source heat pumps; and
- Ensuring that any increase in the value of a domestic property caused by the installation of energy efficiency measures or micro-generation systems will not result in higher council tax or, similarly, in higher rates bills for non-domestic properties.

A second piece of legislation, the Energy Act, received Royal Assent in early April 2010. This implements some of the key measures of the Low Carbon Transition Plan, and includes the following elements:

- A carbon capture and storage (CCS) incentive, which will deliver a financial support mechanism that will bring forward demonstration projects;
- A mandatory social price support programme, aiming to reduce the energy bills of the most vulnerable households and giving suppliers greater guidance on the types of households eligible for future support; and
- Clarification of Ofgem’s<sup>12</sup> remit and tackling market power exploitation, in order to incentivise the regulator to act to reduce emissions and improve energy security as matters of consumer interest.

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<sup>10</sup> The Department for Energy and Climate Change, ‘The UK Low Carbon Transition Plan’, July 2009.

<sup>11</sup> This legislation defines green energy as “the generation of electricity or heat from renewable or low carbon sources by the use of any equipment”, which does not exceed a capacity of 5 megawatts of heat or electricity.

<sup>12</sup> The Office of Gas and Electricity Markets (Ofgem), working for the Gas and Electricity Markets Authority (GEMA), is the government regulator for the electricity and downstream natural gas markets in Great Britain. It was formed by the merger of the Office of Electricity Regulation (OFFER) and Office of Gas Supply (Ofgas) in 1999. Its primary duty is to “promote choice and value for all gas and electricity customers”. Its main powers derive from the Gas Act 1986, the Electricity Act 1989, the Competition Act 1998, the Utilities Act 2000, the Enterprise Act 2002 and the Energy Act 2004.

## 7.2.2 European and UK progress towards greenhouse gas emissions targets

Under the Kyoto Protocol, the EU has agreed to an 8% reduction in its greenhouse gas emissions by 2008-2012, compared to the Kyoto base year. The reductions for each of the EU15 countries have been agreed under the so called EU Burden Sharing Agreement, which allows some countries to increase emissions, provided these are offset by reductions in other Member States.

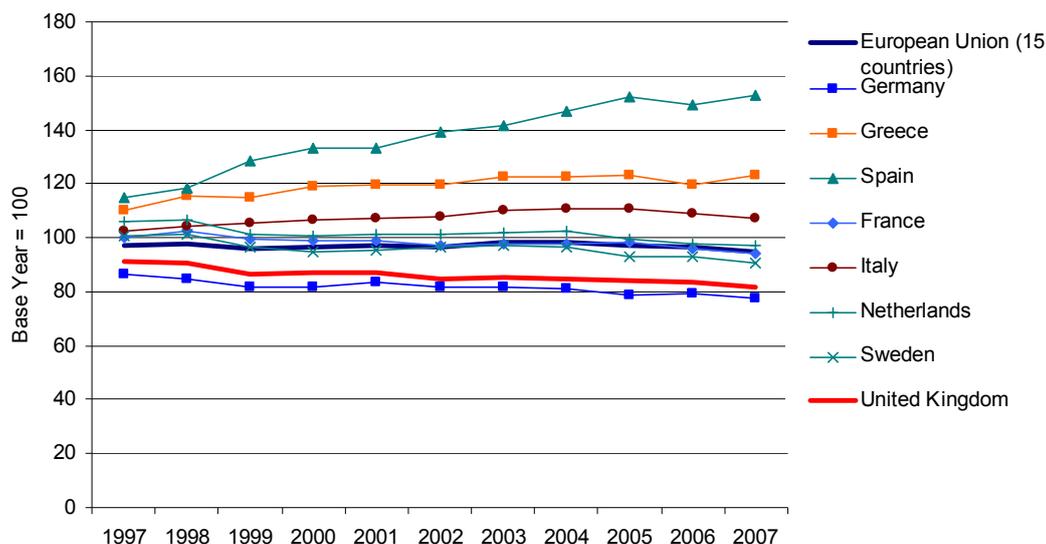
Chart 1 illustrates trends in greenhouse gas emissions across the EU15 as a whole and for several Member States, including the UK, against the emissions measures set by the Kyoto Protocol.<sup>13</sup> This shows that average EU emissions have remained fairly stable, but there have been substantial variations in performance between Member States:

- Germany had the lowest emissions relative to 1990 throughout the period, with emissions falling to 77.6% of the 1990 level by 2007;
- The UK also has relatively low and falling emissions compared to other countries in Europe. In 2007, greenhouse gas emissions in the UK were 82% of the Kyoto baseline year. This shows that the UK, along with Germany, has a good chance of meeting the Kyoto targets by 2012, although subsequent milestones may be more challenging; and
- Emissions of greenhouse gases were highest in Spain, where they significantly exceed the 1990 baseline. They have continued to increase over time, to 152.6% of the baseline in 2007. In fact, all southern European countries experienced a similar increase in emissions.

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<sup>13</sup> Emissions of the six greenhouse gases covered by the Kyoto Protocol are weighted by their global warming potentials (GWPs) and aggregated to give total emissions in CO<sub>2</sub> equivalents. The total emissions are presented as indices, with the base year = 100. In general, the base year is 1990 for the non-fluorinated gases (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O), and 1995 for the fluorinated gases (HFC, PFC and SF<sub>6</sub>).

**Chart 1: Index of total greenhouse gas emissions from a selection of EU countries, and the EU as a whole (base year = 100)**



Source: Eurostat, Greenhouse gas emissions – Index of greenhouse gas emissions and targets – In CO<sub>2</sub> equivalents (actual base year = 100), 1996-2006. Last updated July 2009, downloaded 16th March 2010.

### 7.2.3 Greenhouse gas emissions in the East Midlands

The UK Climate Change Act and subsequent legislation will have potentially profound impacts on the economic development of the East Midlands.

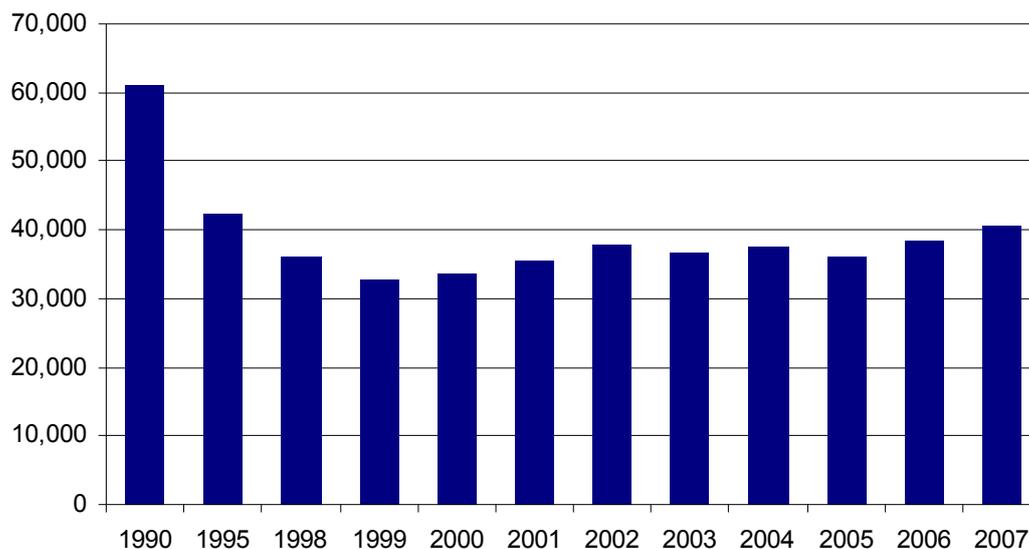
CO<sub>2</sub> is the main greenhouse gas emitted in the East Midlands, with smaller contributions from methane and nitrous oxide. An analysis of total 'Global Warming Potential' (GWP) emissions in the East Midlands from all Environment Agency regulated processes<sup>14</sup> from 1990-2007 is shown in Chart 2. This shows that, after the initial significant fall in emissions from 1990 to 1999, there has been a steady rising trend in total GWP emissions from regulated processes reaching levels similar to those in 1995:

- In 1990 total GWP emissions totalled more than 60,000 kilotonnes<sup>15</sup> of CO<sub>2</sub> equivalent. During the 1990s this fell to around 33,000 kilotonnes of CO<sub>2</sub> equivalent; and
- Between 1999 and 2007 there was an upward trend, from 32,800 kilotonnes of CO<sub>2</sub> equivalent in 1999 to 40,700 in 2007.

<sup>14</sup> The Environment Agency regulates about 1,600 of the most potentially polluting industrial processes including large combustion plants, metals, minerals, chemicals and incineration. These activities are then aggregated to broad industrial group for reporting purposes.

<sup>15</sup> A kilotonne is equivalent to a thousand tonnes, or a million kg.

**Chart 2: Total emissions from Environment Agency regulated processes in the East Midlands, 1990-2007 (million kg CO<sub>2</sub> equivalent)**

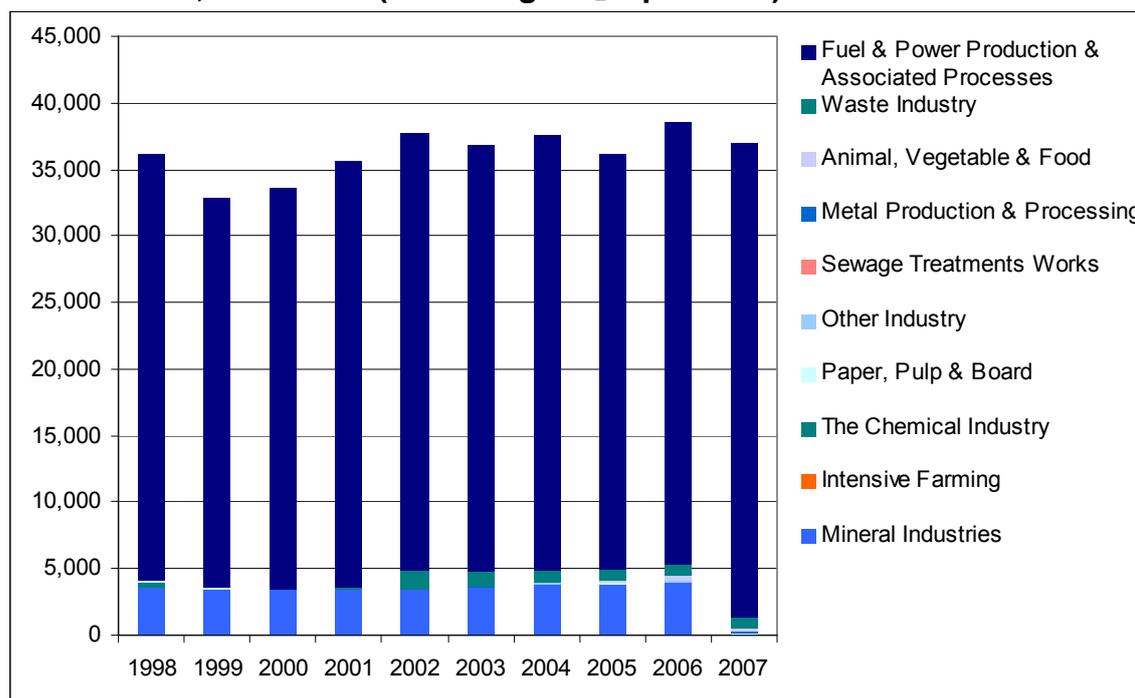


Source: Environment Agency, 2009.

Chart 3 shows these emissions with a breakdown by broad sector between 1998 and 2007. The key points to note are:

- Fuel & Power Production accounts for the vast majority of emissions from regulated processes. In 2007, 35,500 kilotonnes of CO<sub>2</sub> equivalent was attributed to activities in this sector, which was 87.2% of total emissions that year;
- Fluctuations in total emissions year-on-year are thus largely driven by changes in emissions from activities associated with Fuel & Power Production; and
- The next largest sector is the Mineral Industry, which accounted for 9.4% of total emissions in 2007. This is followed by the Waste Industry, which accounted for 2.2% of the 2007 total. However, the chart shows that emissions from Waste have increased significantly since 2001 (when activities associated with Waste only accounted for 0.2% of total emissions in the East Midlands). This is largely a function of additional reporting requirements imposed on the industry from 2002 onwards.

**Chart 3: Emissions from Environment Agency regulated processes by broad sector, 1998-2007 (million kg CO<sub>2</sub> equivalent)**



Source: Environment Agency, 2009.

Map 1 illustrates the point sources of emissions from regulated sources and the relative volume of these emissions (in kilotonnes of CO<sub>2</sub> equivalent per year). This shows that emissions from sites associated with the Fuel & Power Production and Associated Processes sector are mainly from the Trent Valley power stations.<sup>16</sup>

Indeed the East Midlands has some of the largest point sources of CO<sub>2</sub> emissions in the UK, such as Ratcliffe Power Station, south of Nottingham, which has a capacity of 2,000 Megawatts and generates between 8,000 and 10,000 kilotonnes of CO<sub>2</sub> equivalent per year. Other than Ratcliffe, the other two major point sources of emissions shown in Map 1 are the West Burton and Cottam power stations, both in north Nottinghamshire, near Retford, with generating capacities of 1,932 and 1,970 Megawatts respectively.

However, it should be noted that this production serves demand from consumers and industrial users from the East Midlands and beyond. As well as point sources, there are a number of 'mobile' sources of CO<sub>2</sub> emissions, mainly from transport routes running through the region, such as the M1. Emissions attributed to these 'end users' will be explored later in section 2.4.

<sup>16</sup> Emissions from power stations result from both the burning of fossil fuels and from flue gas desulphurisation (FGD) equipment, which reduces sulphur emissions, but increases CO<sub>2</sub> emissions.

**Map 1: Major point sources of carbon dioxide emissions in the East Midlands, 2007**

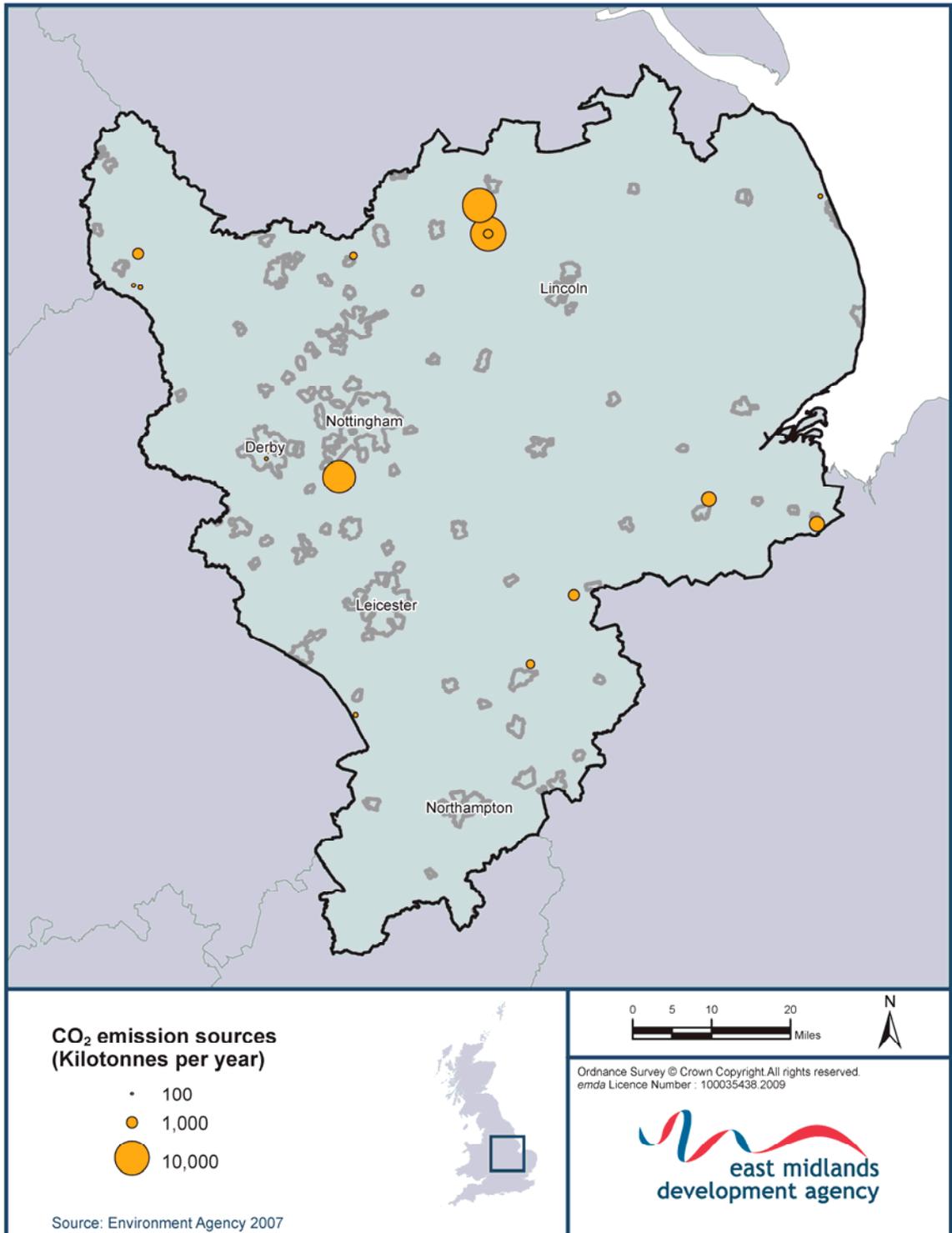


Chart 3 and Map 1 also illustrate that activities associated with mineral industries account for significant emissions of CO<sub>2</sub> equivalent. The main downstream mineral processes with greenhouse gas emission implications are:

- Aggregate processing: This accounts for the bulk of mineral production in the region, and has significant energy requirements, although gaseous emissions are largely of steam;
- Lime production: Where limestone is heated to produce lime, carbon dioxide is emitted into the atmosphere. The East Midlands is by far the largest producer of lime. Total UK tonnage of limestone, dolomite and chalk for conversion to lime was 2.9 million tonnes in 2004 (producing c. 1.3 million tonnes of CO<sub>2</sub> equivalent), of which a substantial proportion (at least two thirds) was carried out in the East Midlands at three Derbyshire sites;<sup>17</sup> and
- Cement production: In 2006, 3.5 million tonnes of limestone were used for cement making in the East Midlands, producing a similar amount of carbon dioxide to the lime industry.

Future projections for emissions of CO<sub>2</sub> equivalent in the UK in 2020 range between 144.6 million tonnes and 147.3 million tonnes.<sup>18</sup> The UK Government target is for emissions to be reduced by at least 60% by 2050. Increasing global transport flows, along with rapid population and economic growth in developing countries, will mean that emissions from industry will have to be reduced by more than 60% if the global targets are to be reached. CO<sub>2</sub> emissions in the UK were projected to have fallen by as much as 21% by 2010, although the Government has now conceded that it is unlikely to meet this target, and is aiming for a 15-18% cut in emissions from 1990 levels (though CO<sub>2</sub> emissions have in fact increased over the past three years), with cuts of 34% on 1990 levels by 2020 recently announced in the Low Carbon Transition Plan. It is not clear how much the East Midlands will contribute to any such reduction.<sup>19</sup>

#### 7.2.4 CO<sub>2</sub> emissions by end user

The discussion so far has focused on emissions associated with the activities of source producers regulated by the Environment Agency. As well as improving the safety, efficiency and regulation of such processes, policy aimed at climate change mitigation also needs to change the consumption of the outputs associated with these processes. This section therefore looks at emissions attributed to the end user of the product or process – i.e. the consumer.

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<sup>17</sup> United Kingdom Minerals Yearbook 2004, Keyworth, British Geological Survey, available for download from [http://www.bgs.ac.uk/mineralsuk/free\\_downloads/downloads.html](http://www.bgs.ac.uk/mineralsuk/free_downloads/downloads.html)

<sup>18</sup> HMSO, Climate Change: The UK Programme 2006, March 2006.

<sup>19</sup> East Midlands Regional Assembly, England's East Midlands Integrated Regional Strategy – Our Sustainable Development Framework, 2005.

The main difference between source and end user emissions comes from the treatment of emissions from combustion of fossil fuels, the largest source of CO<sub>2</sub> in most countries. To derive emissions by end user, emissions from power stations and other fuel processing industries have been re-allocated to end users on an approximate basis according to their use of the fuel. Regional allocation excludes emissions from domestic aviation and shipping and the offshore oil and gas industry, which cannot readily be attributed to regions. Emissions by end user are subject to more uncertainty than emissions by source and should only be used to give a broad indication of emissions by sector.

Emissions attributed to end users are grouped into three categories:

- Industrial and commercial;
- Domestic; and
- Road transport.

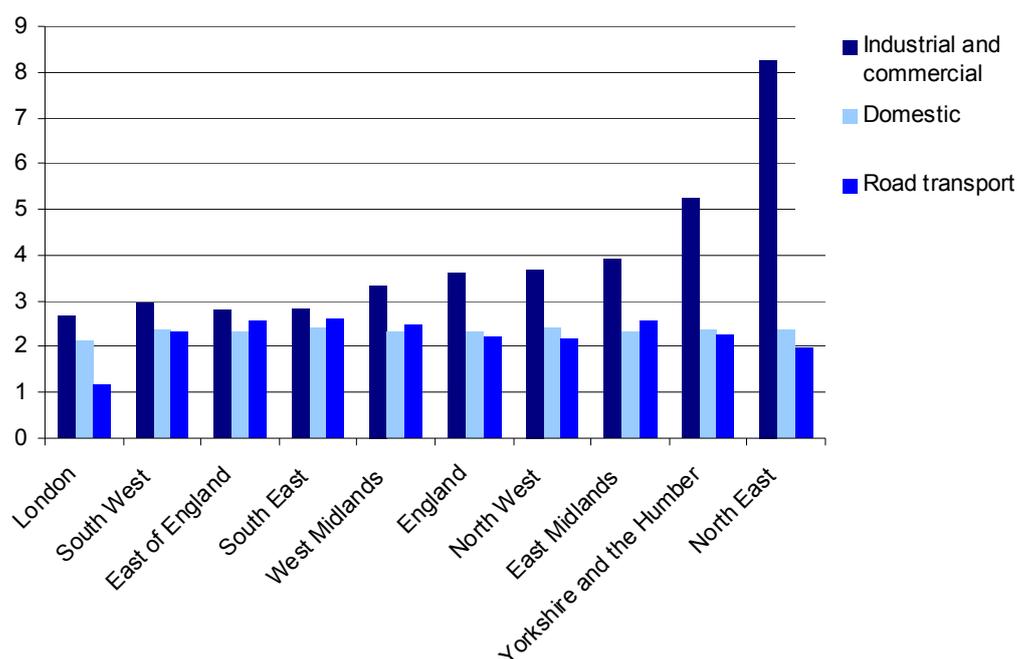
In the UK as a whole the total volume of CO<sub>2</sub> emissions attributed to end users has fallen, by 1.8% between 2005 and 2007. Over the longer term, falling emissions from the industrial and commercial sector, due to cleaner processes and continued changes in the industrial structure, have been the principal drivers of the total decline in emissions attributed to UK end users. Falls in emissions from domestic users have made a more significant impact in recent years. Between 2005 and 2007, emissions from industrial and commercial end users in the UK fell by 2.1% whilst domestic emissions fell by 2.6%. However, emissions from road transport have not fallen at a comparable rate, decreasing by only 0.6% between 2005 and 2007.<sup>20</sup>

Chart 4 illustrates CO<sub>2</sub> emissions per resident for 2007 by English region. This shows that the East Midlands had the third largest emissions per head of the nine regions, at 8.8 tonnes of CO<sub>2</sub> equivalent per capita (a total of 39,000 kilotonnes of CO<sub>2</sub>, 9.3% of total emissions attributed to end users in England). This exceeds the average for England, of 8.1 tonnes per capita. The North East had the highest emissions, at 12.6 tonnes per capita in 2007.

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<sup>20</sup> Detailed data from Department of Energy and Climate Change (DECC) and AEA Technology, 'Local and Regional CO<sub>2</sub> Emissions Estimates for 2005-2007', November 2009. This is derived from Local Authority data and from the National Atmospheric Emissions Inventory (NAEI), which is maintained by AEA. This data is the primary sources for the summary 'Regional Sustainable Development Indicators' published by Defra.

**Chart 4: CO<sub>2</sub> emissions by end user by region (tonnes per capita), 2007**



Source: Defra, 'Regional Sustainable Development Indicators 2009': Sustainable Consumption and Production Datasets – Carbon dioxide emissions by end user, 2007. Downloaded 17th March, 2010.

Looking at the categories of end user, the North East exceeds the other English regions because of the large volume of emissions attributable to industrial and commercial users, at 8.2 tonnes per capita in 2007, compared to 3.9 in the East Midlands.

In the East Midlands, the division of emissions between the three end user categories are as follows:

- Industrial and commercial users accounted for 44.5% of end user emissions (closely in line with the national average) in 2007;
- Domestic users accounted for 26.5% of all end user emissions, which was below the share in the England overall, at 28.7%; and
- Road transport accounted for a larger share of end user emissions in the region, at 11,200 kilotonnes, or 29% of total emissions. This is two percentage points higher than the national share.

In per capita terms, road transport end user emissions in the East Midlands also exceeded the national average, at 2.5 compared to 2.2 tonnes in 2007. Road transport emissions in the East Midlands also decreased at a slower rate than the national average between 2005 and 2007, by only -0.2% compared to -0.6%. This can be linked to the East Midlands' relatively dispersed spatial pattern of development, with no single dominant centre and significant inter and intra-regional flows of commuters and goods.

### 7.2.5 Impact of climate change

In June 2009, the UK Climate Projections 2009 (UKCP09) were published on behalf of the Department for Environment and Rural Affairs (Defra) and the Department for Energy and Climate Change (DECC).

UKCP09 differs from previous projections in that they are 'probabilistic', i.e. they take into account the uncertainty of projecting climate change due to natural variability and our incomplete understanding of the phenomena, by reporting a range of possible outcomes for each scenario. UKCIP09 is reported in 30 year intervals (up to the 2020s, the 2050s, and the 2080s) for three scenarios of emissions (low, medium, and high) based on work published by the IPCC. As trend based projections, they do not account for any possible future policy interventions to reduce or mitigate the effect of emissions.

For the UK as a whole, the medium emissions scenario from UKCP09 suggests that:

- All areas of the UK will get warmer, more so in the summer than in the winter. According to the 'medium emissions'<sup>21</sup> scenario, there will be a 50% probability (known as the 'central estimate of change') that in the 2080s mean temperatures across the UK will have increased by between 1.8 and 3.1°C in the winter and 2.5 and 4.2°C in the summer. The greatest increases will be in southern England whilst the smallest increases will be in northern Scotland;
- Under the medium emissions scenario for the 2080s, winter precipitation could increase by as much as 33% in some parts of the UK whilst summer precipitation could decrease by -40% in other areas; and
- Sea levels around the UK could rise by between 12 and 76cm between 1990 and 2095 under the medium emissions scenario.

### 7.2.6 Climate Change in the East Midlands

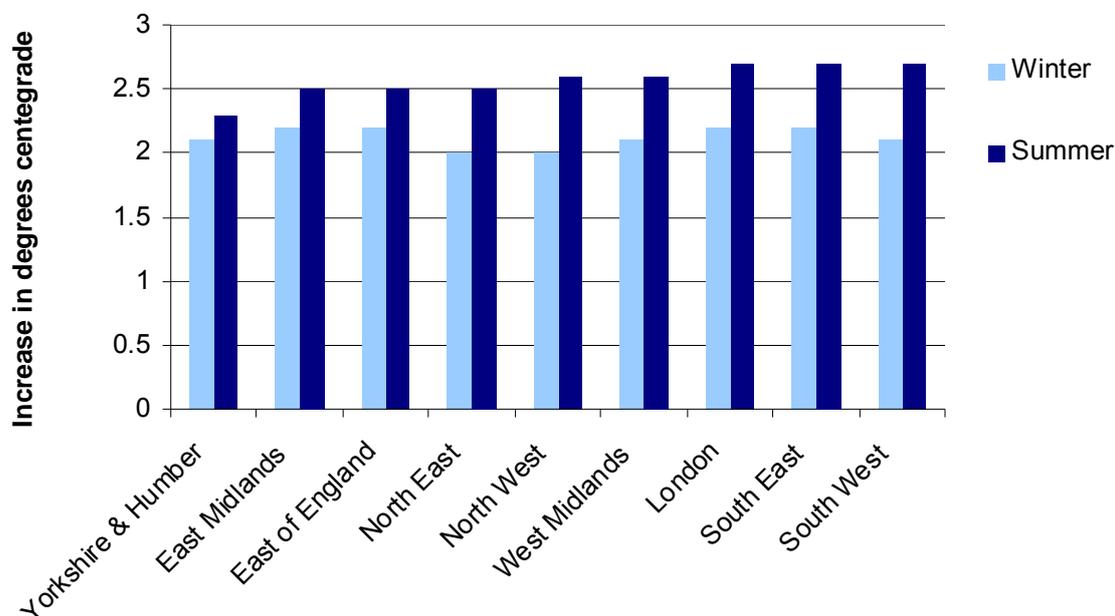
The UKCP09 model provides climate forecasts for the English regions. Chart 5 shows temperature changes for the medium-term (the 2050s) for each of the English regions under the medium emissions scenario. This shows that summer temperatures in the East Midlands are expected to increase by the second smallest amount compared to the English regions, by an additional

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<sup>21</sup> The scenarios used in UKCP09 are based on three storylines used in the IPCC 'Special Report on Emissions Scenarios' (SRES). These varied climate change emissions according to three possible pathways in which the world could develop. The high, medium and low emissions scenarios are all non-interventionist – i.e. they assume no political action. Differences are purely based on different assumptions about future socioeconomic change, such as population growth, energy intensity and land use. The medium emissions scenario assumes the same high level of economic and population growth as the high emissions scenario, but assumes a higher use of non-fossil energy sources.

2.5°C, compared to 2.3°C in Yorkshire and the Humber and 2.7°C in the South West. Winter temperatures are projected to increase by 2.2°C in the East Midlands, which is one of the larger changes of the English regions.

**Chart 5: Temperature change by the 2050s by English region, medium emissions scenario, at the 50% probability (°C)**



Source: UKCP09.

In the shorter term, under the medium emissions scenario, winter temperatures in the East Midlands could increase by between 0.5°C and 2.2°C by the 2020s. In the summer, temperatures could increase by between 0.4°C and 2.5°C. By the 2020s, there is a 50% probability that precipitation in the East Midlands will increase by 5% in the winter and decrease by -6% in the summer.

The social, economic and environmental effects brought about by climate change in the East Midlands could include:

- Greater damage to buildings through subsidence, and consequent economic impact due to increases in insurance claims;
- More flooding on the Lincolnshire coast and around rivers. Much of the East Midlands is low lying and vulnerable to flooding, while coastal areas will also be exposed to increased coastal erosion and landslip risk due to rising sea levels, more intense storm activity and increased incidence of wet/dry extremes. For example, a sea level rise could lead to erosion on the East Coast with the likely loss of coastal habitats;
- Higher temperatures, leading to deterioration in working conditions and potential disruption to transport;

- Less water available for domestic, industrial and agricultural purposes; and
- A mixture of effects on crop production – some beneficial (such as reduced frost damage and accelerated growth encouraged by warmer temperatures), others detrimental (such as spread of crop diseases, pests and increased water stress reducing crop yields). Periods of dry or very wet weather coupled with poor germination could lead to significant soil erosion due to wind, especially in spring.

There could be changes in the sorts of plant and animal species found in the region. Species that are temperature or water sensitive are likely to suffer stress and this could lead to local extinctions, while species preferring warmer conditions could become more prevalent.

#### **Key Points: Climate Change**

- Even if current green house gas emissions are stabilised there is a high probability that global temperatures will increase by 2°C by 2050. This level of warming will increase flood risk and threaten biodiversity. However, tackling climate change with low-carbon products could be worth at least \$500 billion per year by 2050.
- In recent years the UK has had low emissions of greenhouse gases compared to other European countries.
- Over the long-term, emissions in the East Midlands have fallen, from 61,100 kilotonnes of CO<sub>2</sub> equivalent in 1990 to 40.7 billion kg in 2007.
- Fuel and power production accounts for the largest share of emissions in the East Midlands. The East Midlands also has some of the largest point sources of emissions in the UK, principally from power stations such as Ratcliffe.
- The East Midlands has the third largest CO<sub>2</sub> emissions per head attributed to end users of the English regions and had a significantly higher than average proportion of emissions attributed to road transport.
- In the future, all regions in the UK are projected to get warmer. By the 2050s, the East Midlands could see a 2.5°C increase in summer temperatures and a 2.2°C increase in winter temperatures.
- This could threaten water availability for domestic, industrial and agricultural uses and damage crops.

### **7.3 Air Pollution**

Historically in developed industrialised countries, the major component of air pollution has been high levels of smoke and sulphur dioxide arising from the combustion of sulphur-containing fossil fuels such as coal for domestic and industrial purposes. Now however, with significant changes in industrial structure and improved environmental processes, the major threat to air quality in developed countries is now posed by traffic emissions. Petrol and

diesel engine motor vehicles emit a wide variety of pollutants, principally carbon monoxide (CO), nitrogen oxide (NOx), volatile organic compounds (VOCs) and particulates (PM10s). In addition, photochemical reactions resulting from the action of sunlight on nitrogen dioxide (NO<sub>2</sub>) and VOCs from vehicles leads to the formation of ozone, a secondary long range pollutant, which affects areas often far from the original emission site. Acid rain is another long range pollutant influenced by vehicle NOx emissions.

In all except worst case situations, industrial and domestic pollutant sources, together with their impact on air quality, tend to be steady state or improving over time. However, despite improvements in engine technology and fuel additives, worldwide traffic pollution problems are worsening (due to increased volume and density).

The East Midlands has experienced the third highest rate of road traffic growth of all English regions between 1998 and 2008, with the level of road traffic on motorways and A-roads increasing by almost 11% compared to just over 8% in England overall. The East Midlands is one of the most car-dependent regions, and had the highest proportion of workers citing travel by car and the lowest proportion using of public transport as a means of getting to work out of the nine regions.<sup>22</sup>

### 7.3.1 Air quality strategy substances in the East Midlands

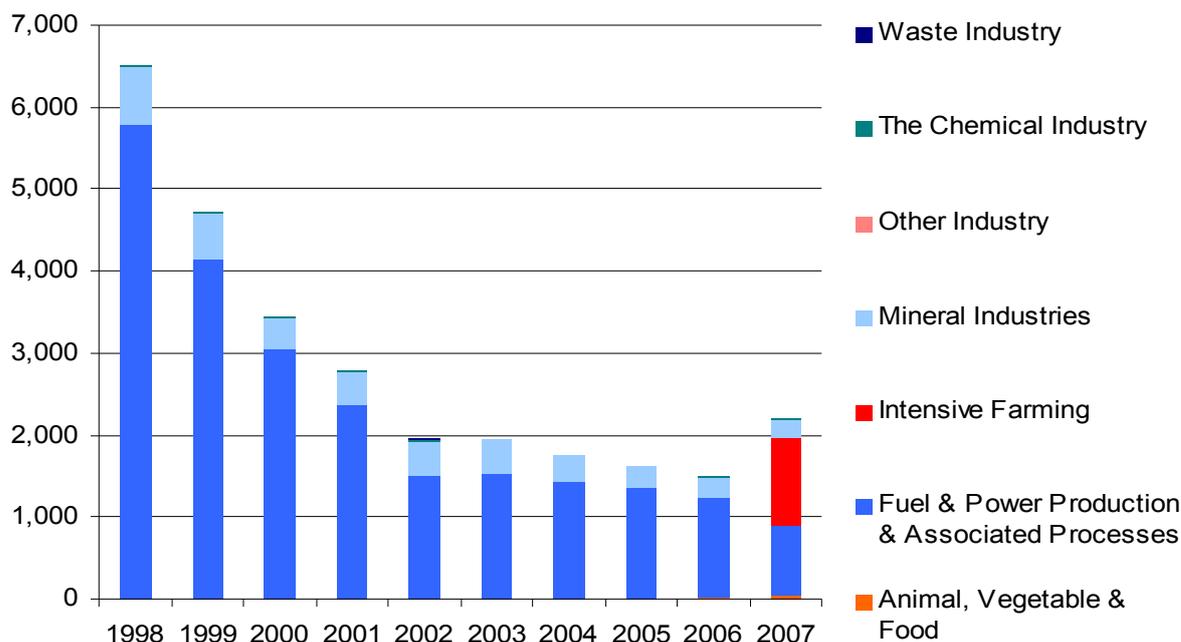
In the UK, a number of substances are monitored as part of the Government's Air Quality Strategy (AQS Substances). Among these are benzene, carbon monoxide, lead, sulphur, nitrogen oxides and particulate matter.

Air quality in the East Midlands is generally better than the national average, although less good along the main road routes. Chart 6 shows data on emissions of particulates (PM10s) by Environment Agency regulated processes sourced in the East Midlands. This shows significant decreases in PM10s over the period 1998 to 2007, from 6,508 to 2,190 tonnes. Until 2007, fuel and power production and associated processes accounted for the majority of emissions. In 2007 the trend in total PM10 emissions increased because of the inclusion of intensive farming, accounting for 1,073 tonnes (49% of the 2007 total), which had not previously been required to report releases to the Pollution Inventory.

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<sup>22</sup> See Chapter 8: Transport and Infrastructure.

**Chart 6: Releases of particulates (PM10s) by Environment Agency regulated processes in the East Midlands by sector, 1998-2007 (tonnes)**

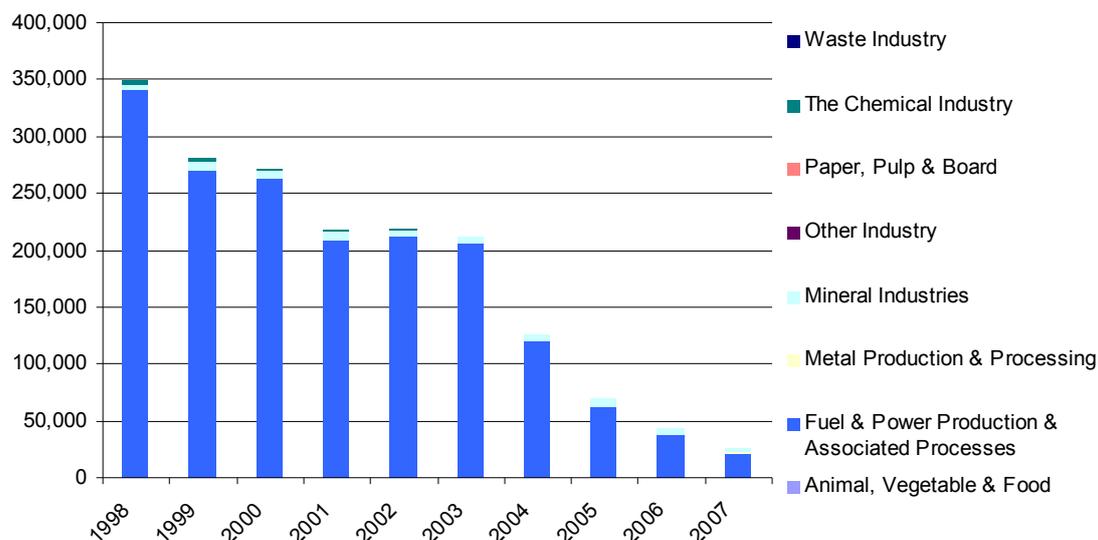


Source: Environment Agency, 2009.

Chart 7 shows emissions of sulphur oxide. As in the case of PM10s, the chart shows that emissions have decreased significantly over time and also that fuel and power production and associated processes have consistently accounted for the vast majority of emissions, accounting for 84.7% in 2007. In 1998, regulated processes in the East Midlands emitted 348,661 tonnes of sulphur oxide. By 2007, this had decreased very significantly, to 25,757 tonnes. This demonstrates the impact of flue gas desulphurisation (FGD) techniques, which use limestone to remove around 90% of sulphur from the exhaust flue gases of fossil fuel power plants. FGD generates gypsum as a by-product, which is then sold for use in plasterboard. Although large proportions of the region's limestone output is sourced from areas around the Peak District National Park, Government guidance and local planning frameworks make it very clear that limestone cannot be extracted from national parks for use in FGD processes, avoiding the trade off between emissions reduction and damage to protected areas.<sup>23</sup>

<sup>23</sup> Extraction of limestone for flue gas desulphurisation is no longer permitted according to the Structure Plan for the Peak District National Park.

**Chart 7: Releases of sulphur oxides by Environment Agency regulated processes in the East Midlands by sector, 1998-2007 (tonnes)**

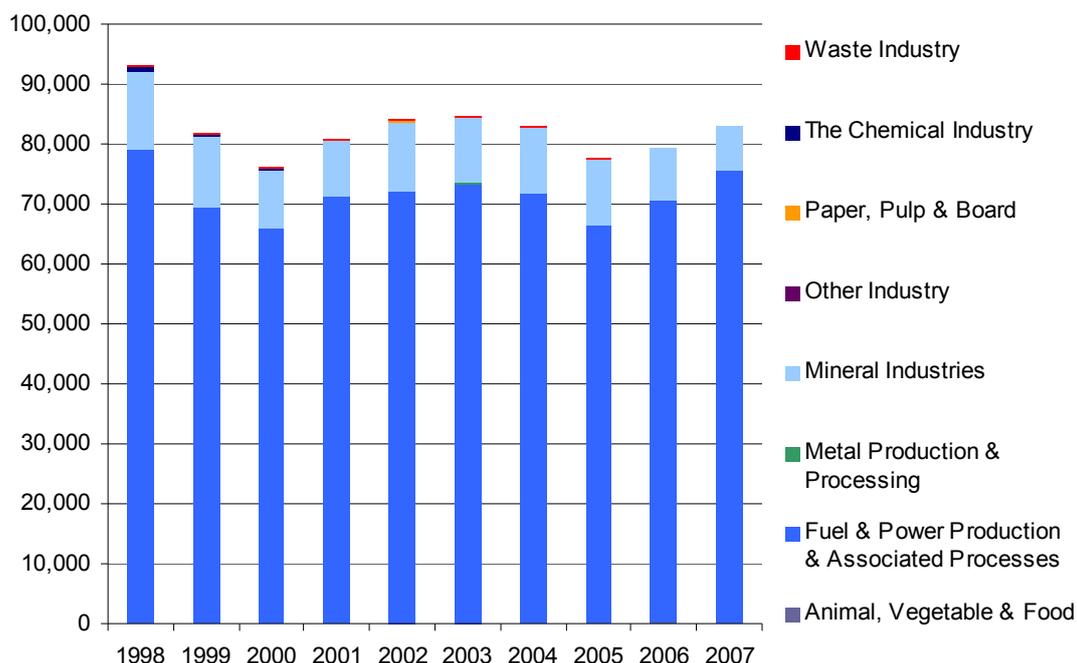


Source: Environment Agency submission, 2009.

Charts 6 and 7 show the strong positive impact of new technologies on environmental emissions. Both PM10 and sulphur oxide emissions have been considerably reduced by the application of cleaner technologies and fuels in the power industry – again the dominant source of releases in the sectors regulated by the Environment Agency. However, Chart 8 shows releases of nitrogen oxide, which have remained far more stable over time. In 1998, regulated processes in the region were estimated to have emitted 93,240 tonnes of nitrogen oxide. In 2007, this was estimated to have been reduced to 82,812 tonnes. As in the case of other emissions, fuel and power and associated processes has consistently accounted for the largest share (91.3% in 2007).

The relative stability of nitrogen oxide emissions over time is because it is much harder to control with technological fixes, so emissions have not dropped significantly since 1998.

**Chart 8: Releases of nitrogen oxides by Environment Agency regulated processes in the East Midlands by sector, 1998-2007 (kg)**



Source: Environment Agency, 2009.

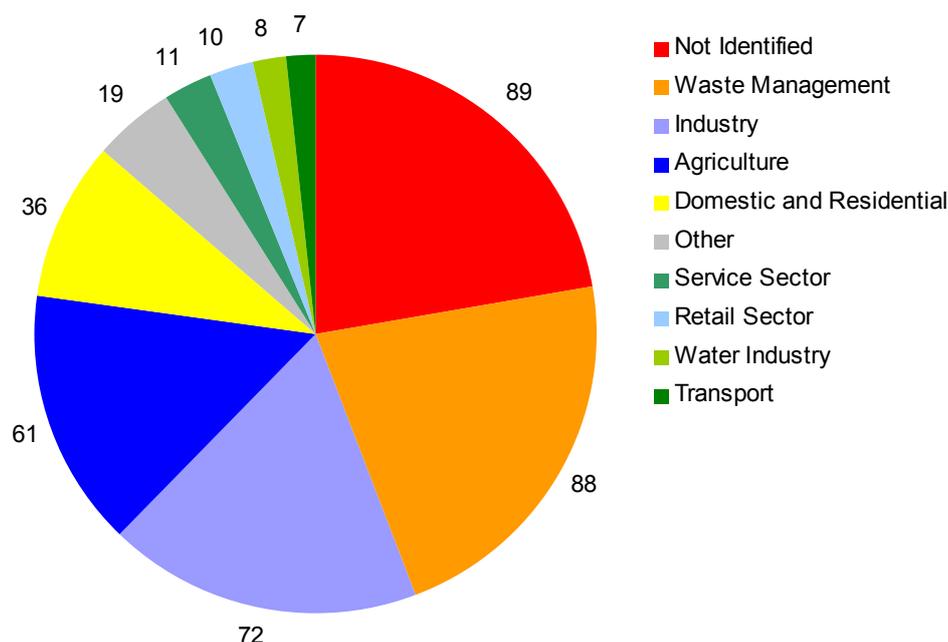
### 7.3.2 Air pollution incidents

The Environment Agency records all complaints and reported incidents of pollution. Each individual incident is then logged and categorised according to its severity. The category describes the impact of each incident on our water, land and air. The impact of an incident on each medium is considered and reported separately.

Category 1 incidents are the most serious, and result in persistent and extensive effects on air, water or soil quality along with major damage to ecosystems, properties, agriculture and associated commerce. If no impact has occurred for a particular media, the incident is reported as a Category 4. In 2007, there were 151 pollution incidents nationally that had a serious impact on air quality. This is a 6.2% decrease on 2006. The waste industry caused two thirds of all serious (Category 1 and 2) pollution incidents that affected air quality in 2007. Most of these incidents related to landfill sites and composting facilities. Generally the number of air pollution incidents has decreased since 2002.

Chart 9 shows data provided by the Environment Agency for incidents reported in the East Midlands in 2008.

**Chart 9: Pollution incidents with impact to air in the East Midlands, 2008**



Source: Environment Agency, March 2009.

In 2008, a total of 401 incidents (of all categories) were reported on premises in the East Midlands. Of these, 22% (88 incidents) were associated with waste management. This share is down from 2003, when 32% of all incidents were associated with waste management sites. The broad 'industry' sector was also associated with a significant number of incidents in 2008, at 20% of the total (similar to 2003, where industry accounted for 18% of all incidents in the region).

**Key Points: Air pollution**

- Air quality in the East Midlands is generally better than the national average, although less good along the main road routes.
- Airborne substances monitored under the Government's Air Quality Strategy have been decreasing in the East Midlands, with the exception of nitrogen oxides.
- Particulate emissions from regulated processes have decreased from 6,508 to 2,190 tonnes between 1998 and 2007 whilst sulphur oxide emissions have decreased from 348,661 to 25,757 tonnes over the same period.
- However, emissions of nitrogen oxides have remained relatively stable and above 80,000 tonnes throughout the period.
- This is because technological improvements have enabled industries like fuel and power production to significantly reduce emissions. Nitrogen oxide emissions have so far proved harder to control through technological fixes.
- Incidents reported to the Environment Agency with a serious impact on air quality fell between 2007 and 2006. Waste management accounted for the largest share of these incidents in both years.

## 7.4 Geology and natural resources

### 7.4.1 Geology

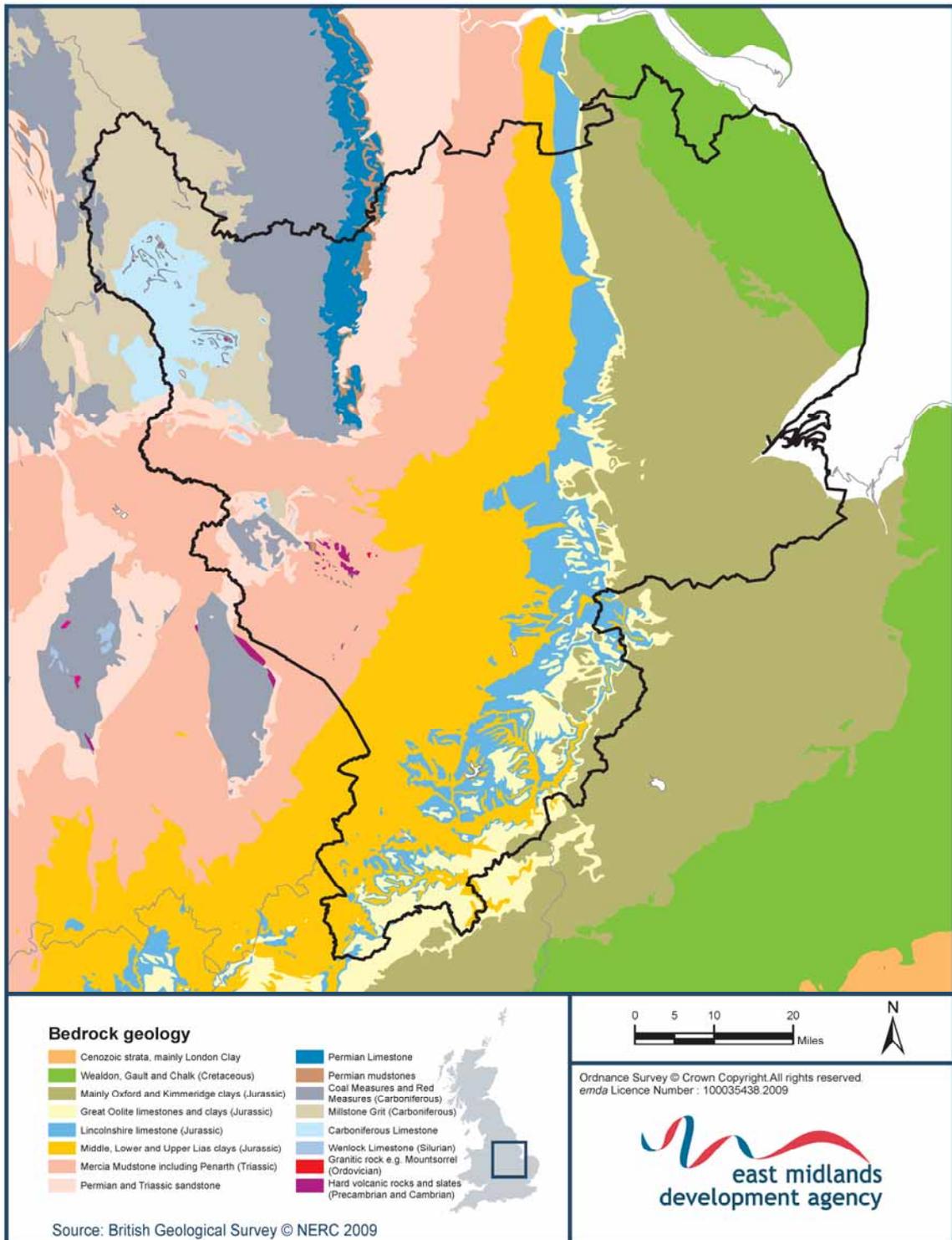
The geology of the region has exerted an important impact upon industrial development, energy resources, minerals economy and rural land use, and will continue to do so. It can also outline areas with potentially adverse ground conditions ('geohazards'), caused by certain physical properties of the substrate. Allied to these factors is the possibility of minor earthquake damage, and changes to the land surface or subsurface brought about by human activities such as mining, quarrying and landfill.

The geology of the East Midlands region<sup>24</sup> is arguably without parallel elsewhere in the south and midlands in terms of the diversity of the rocks and periods of time that are represented. In its simplest terms, the geology of a region can be broken down into two principal geological components – the solid substrate, or bedrock, and the overlying and generally much thinner superficial deposits.

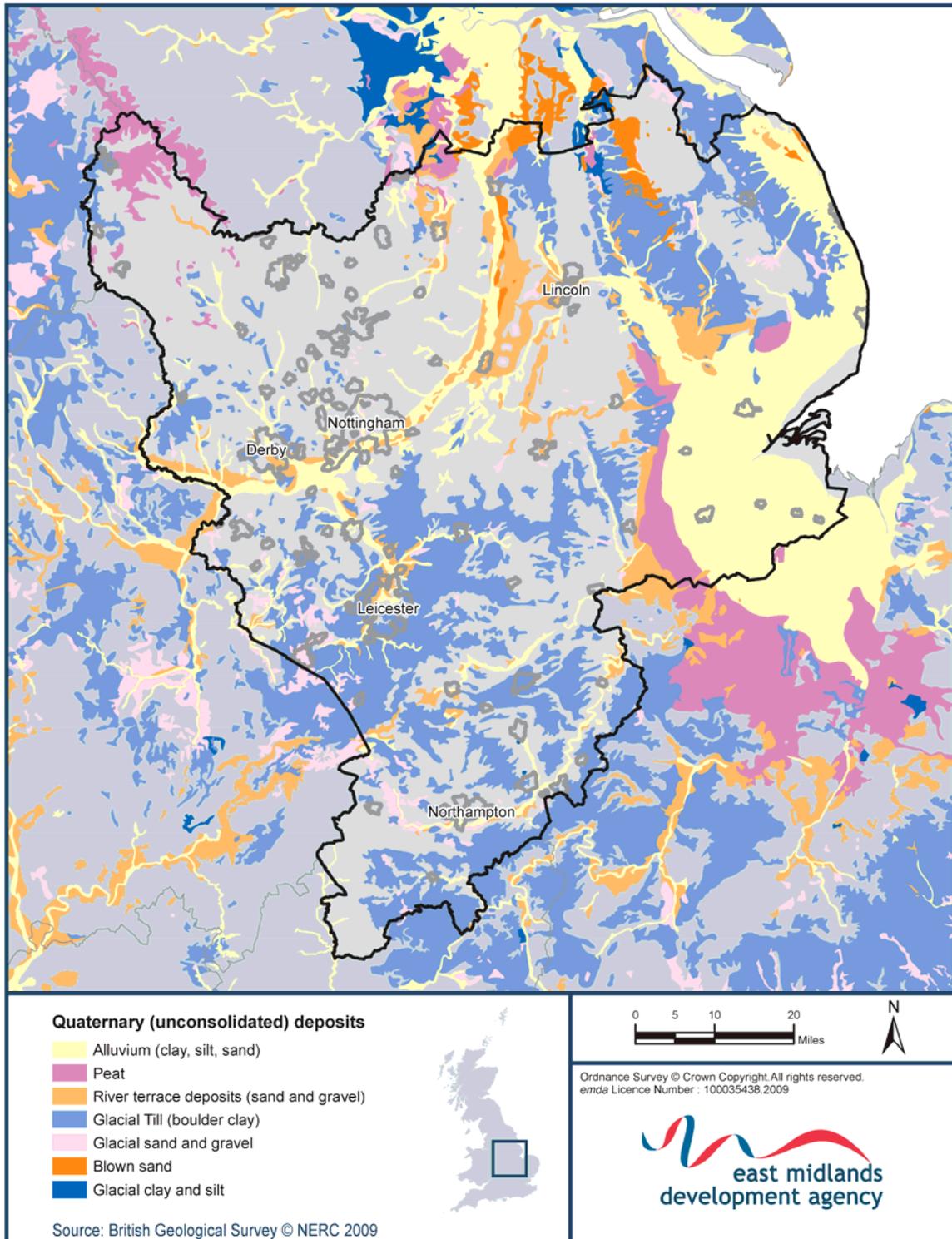
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<sup>24</sup> Hains, B. A. and Horton, A., 1969, 'British Regional Geology. Central England' (3<sup>rd</sup> Edition). (Keyworth: British Geological Survey).

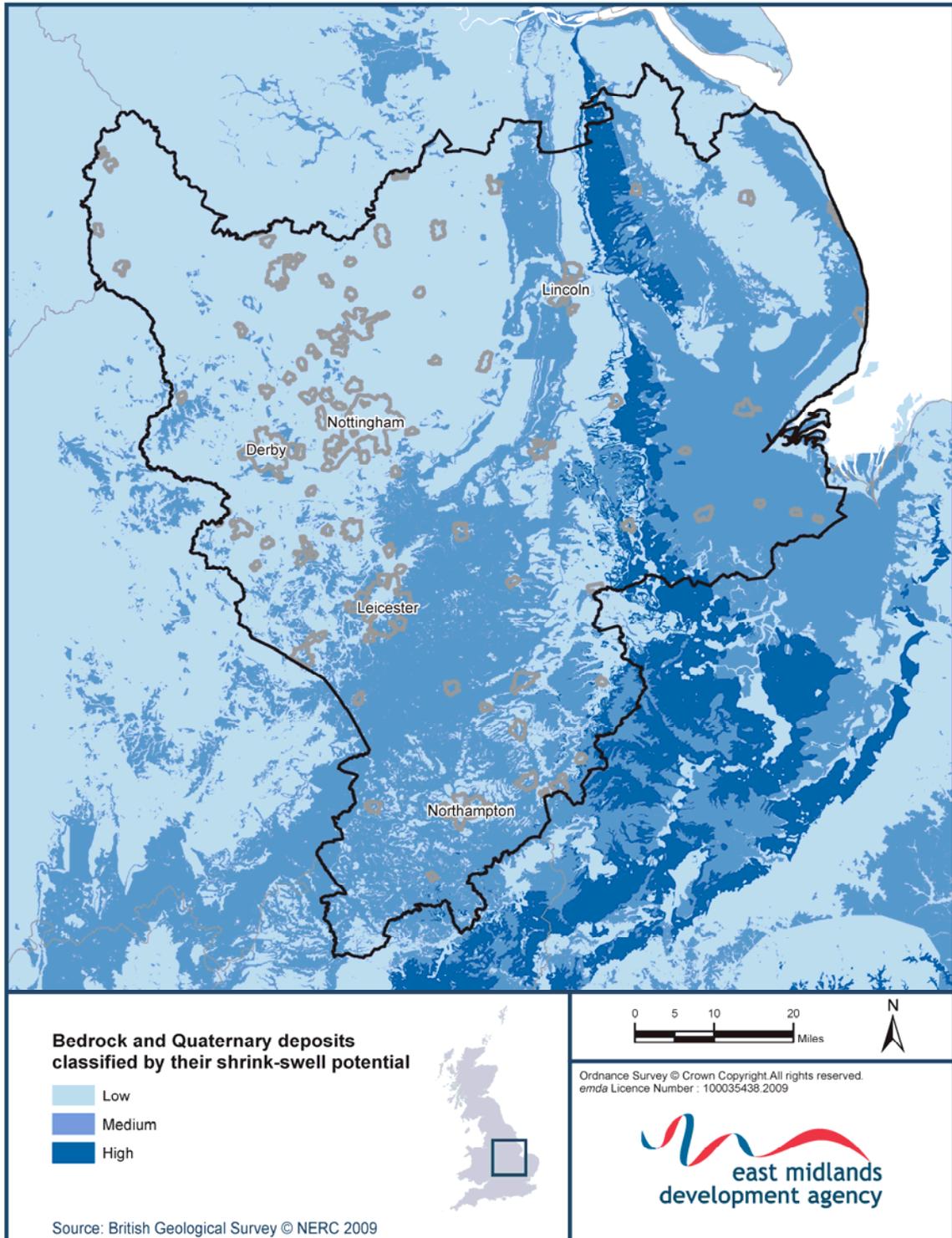
**Map 2: Bedrock geology of the East Midlands (based on British Geological Survey digital geological map data at the 1:625,000 scale)**



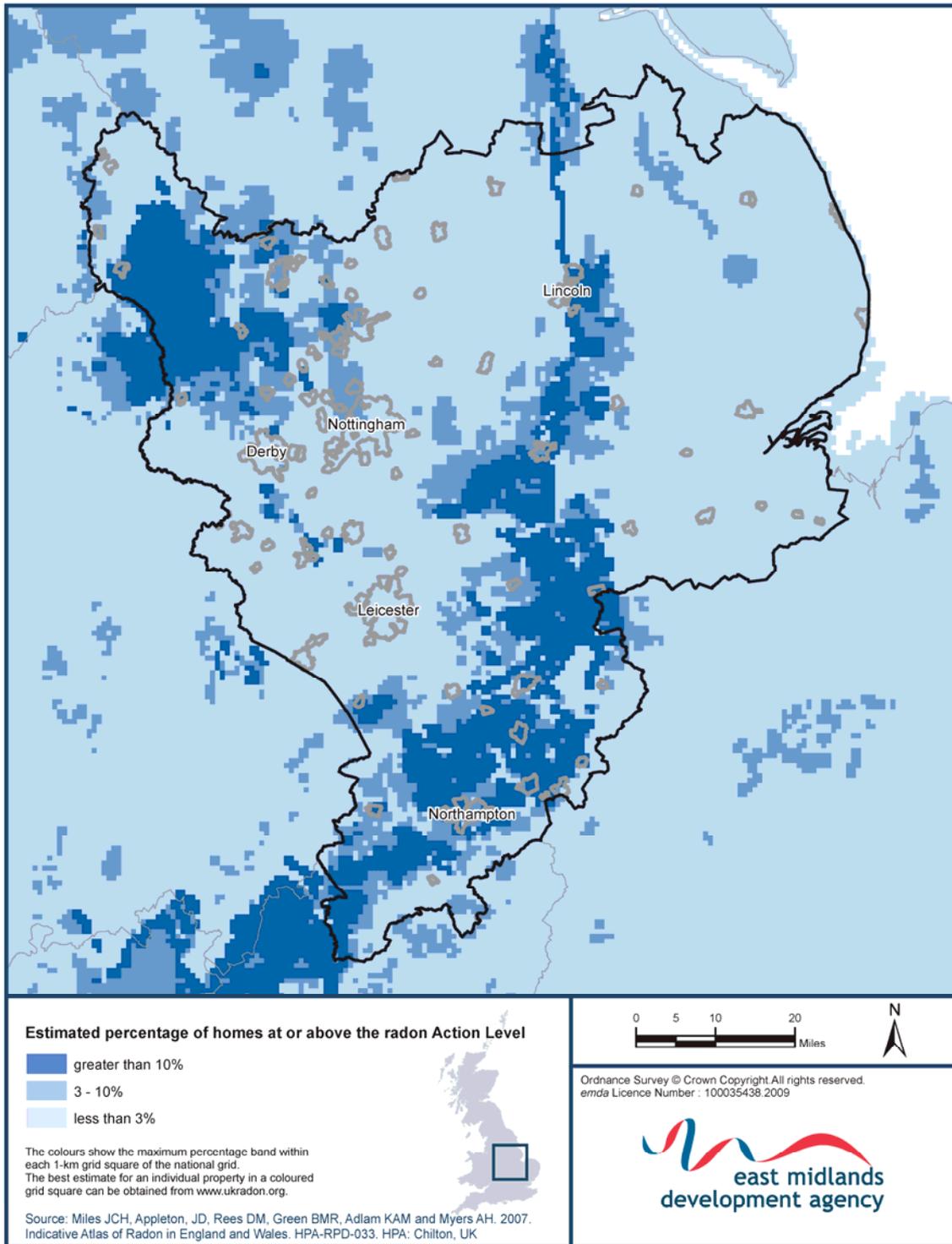
**Map 3: Quaternary (superficial) geology of the East Midlands (based on British Geological Survey digital geological map data at the 1:625,000 scale)**



**Map 4: Shrink-swell clay potential for the East Midland (based on British Geological Survey “Geosure” digital data at the 1:50,000 scale)**



**Map 5: Areas of the East Midlands requiring radon protective measures to be installed in new buildings and extensions (based on British Geological Survey digital data at the 1:250,000 scale)**



#### 7.4.1.1 Bedrocks

The diversity of the bedrocks in the East Midlands (Map 2) has had a major impact upon landscape character, type of vernacular building materials<sup>25</sup> and current or past mineral wealth:

- The oldest rocks are exposed in Charnwood Forest and date back to Precambrian time, about 560-600 million years. The diversity and exotic nature of these rocks, and the unique landscape and recreational opportunities they afford, are enhanced by their rich assemblage of fossils. All of these assets have ensured the international fame of Charnwood Forest, both for academic reasons and for 'geotourism'.<sup>26</sup> This area is also important commercially, having experienced a long history of quarrying;<sup>27</sup>
- Cambrian <sup>28</sup> rocks of the 'Swithland Slates', also found in Charnwood Forest, were an historically important local resource of roofing slate through the 17th to the 19th centuries.<sup>29</sup> Although no longer worked, they remain much in demand for restoration and new vernacular building projects;
- Ordovician <sup>30</sup> granitic rocks, about 450 million years old, form prominent although small, hilly areas around Mountsorrel and Croft in Leicestershire. They have an economic importance out of all proportion to their small outcrop area and have been exploited for road and building stone;
- Carboniferous<sup>31</sup> strata underpin the dramatic landscapes that make the Peak District National Park of Derbyshire one of the most visited regions in the UK. The fossil-rich limestones of the 'White Peak'<sup>32</sup> are hosts to a historically important lead and fluorspar mining industry<sup>33</sup> and currently an important resource for cement making in northern parts of Derbyshire, and for road aggregates around Breedon on the Hill in North-West Leicestershire;
- Permian <sup>34</sup> limestones and dolomitic limestones from Nottingham northwards to Worksop represent an important resource for building stone, cement, refractory material and roadstone;

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<sup>25</sup> Lott, G. 2001, Geology and building stones in the East Midlands, *Mercian Geologist*, Vol. 15, 97-122.

<sup>26</sup> Ambrose, K. et al., 2007, Exploring the Landscape of Charnwood Forest and Mountsorrel, British Geological Survey.

<sup>27</sup> McGrath, A., 2007, The rock quarries of Charnwood Forest, *Mercian Geologist*, Vol. 16, 241-262.

<sup>28</sup> A period of geological time between 542 and 488 million years ago.

<sup>29</sup> Ramsey, D. 2007, Early slate quarries North West Leicestershire, *Leicestershire Industrial History Society, Bulletin* 18.

<sup>30</sup> A period of geological time between 488 and 444 million years ago.

<sup>31</sup> A period of geological time between 359 and 299 million years ago.

<sup>32</sup> Dalton et al., 1988, Classic landforms of the White Peak, *The Geographical Association*.

<sup>33</sup> Ford, T.D. and Rieuwerts, J.H. 2000, Lead mining in the Peak District, *Peak District Mines Historical Society*.

<sup>34</sup> A period of geological time between 299 and 251 million years ago.

- Triassic<sup>35</sup> strata are host to locally thick beds of gypsum, which are currently being mined around Barrow-on-Soar and Tutbury;
- The Jurassic<sup>36</sup> strata in the east of the region include the Lincolnshire Limestone which continues to be worked as a resource for high quality building stone;
- In terms of volume of production, however, the cement works at Ketton Quarry is pre-eminent; and
- The youngest strata are Cretaceous<sup>37</sup> rocks of the Chalk Group, which were laid down about 140 million years ago. The outcrop forms the Lincolnshire Wolds Area of Outstanding Natural Beauty.

#### 7.4.1.2 Superficial deposits

The superficial deposits of the region (Map 3) are generally unconsolidated and because of this, and other physical properties, they can give rise to ground conditions that may be potentially hazardous to development. The extent of these deposits within the region is generally underestimated. They degrade rapidly, are in consequence seldom exposed, and may thus be confused with 'soils', particularly when disturbed by ploughing.

- Alluvium consists of clay, silt and sand forming the floodplains to the region's river systems. Similar deposits are also widespread across low-lying coastal tracts, where they include the former locations of tidal flats. The distribution of these deposits acts as a geological indicator of where flooding has occurred, or is likely to occur in the future. It also highlights ground that may pose problems for development.
- Peat deposits are accumulations of decayed and partially carbonised plant matter. They can occur in low-lying situations, such as coastal plain fens or in upland areas such as the Peak District. The physical properties of peat render it susceptible to shrink/swell behaviour, and it is also highly compressible when loaded with heavy structures.
- River terrace deposits represent the sands and gravels left behind by previous generations of the region's major river systems. These deposits are of significant economic importance to the East Midlands (see section 4.2.1).
- Glacial deposits include tills (boulder clays) left behind following the retreat of ice sheets that formerly covered large parts of the region. Sand and gravel deposits represent the outwash of melt waters that issued from within the ice sheets; they are less 'clean' than river terrace deposits, as

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<sup>35</sup> A period of geological time between 251 and 200 million years ago.

<sup>36</sup> A period of geological time between 200 and 145 million years ago.

<sup>37</sup> A period of geological time between 145 and 65.5 million years ago.

they contain varying proportions of clay, but are locally thick and thus represent a further potential resource of sand and gravel.

#### 7.4.1.3 Geology-induced hazards ('geohazards')

Compared to many parts of the world the East Midlands is geologically benign (for example, we do not have active volcanoes). Despite this, hazards posed by geology do exist and although they are generally subtle, their cost can be significant.<sup>38</sup> Engineering (geotechnical) ground conditions are related to the underlying geology and the key geotechnical issues (geohazards) in the region include:

- Swelling clays that will swell when wet and shrink as they dry out. This process can cause ground movement, particularly in the upper two metres of the ground that may enclose foundations, pipes or services. Clays with swelling properties are particularly widespread in the Jurassic bedrocks and Quaternary tills of the region (Map 4). Climate change models suggest that in future decades there will be an increasing incidence of predominantly dry, hot summers, followed by wet, stormy winters. Such predictions indicate that the economic consequences of ground movements caused by shrinkage and swelling is set to increase into the future;
- Radon is a radioactive gas that represents an unseen natural hazard to health and which is believed to cause more than 1,000 lung cancer deaths each year in the UK. Radon is quickly diluted in the atmosphere, so that concentrations in the open air are normally very low. However, radon that enters poorly ventilated buildings, caves, mines and tunnels can reach high concentrations. Radon in soil and rock under homes is the main source of radon in indoor air, and presents a greater risk of lung cancer than radon in drinking water. Map 5, extracted from the Indicative Atlas of Radon in England and Wales (Miles et al., 2007)<sup>39</sup> shows that areas with relatively high radon concentrations in homes are found across Northamptonshire, south Leicestershire, central Lincolnshire and much of Derbyshire. Basic radon protective measures are currently required in new buildings, extensions, conversions and refurbishments in areas where more than 3% of homes have radon concentrations above the Action Level (200 Bq m<sup>3</sup>) and full protective measures where more than 10% exceed the Action Level (Scivyer, 2007)<sup>40</sup>; and

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<sup>38</sup> Charsley, T. J. et al., 1990, Nottingham: A geological background for planning and development, British Geological Survey Technical Report, WA/90/1.

<sup>39</sup> Miles, J.C.H, Appleton, J.D, Rees, D.M, Green, B.M.R, Adlam, K.A.M and Myers, A.H. 2007, Indicative Atlas of Radon in England and Wales, Health Protection Agency and British Geological Survey, ISBN 978-0-85951-608-2, Chilton: HPA.

<sup>40</sup> Scivyer, C. 2007, Radon: guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishments), Building Research Establishment Report BR 211, ISBN 978-1-84806-013-5, Garston: BRE.

- Landslides are particularly common in the East Midlands, with Derbyshire, Leicestershire and Northamptonshire together having densities of reported landslides of 5.11 per 100km<sup>2</sup>, which is significantly above the average for the Midlands as a whole.<sup>41</sup> They constitute a potential hazard to buildings and infrastructure in hilly areas such as the Pennines and in the central and eastern parts of the region. The correlation between landslides and unusually wet weather is well known, and there has been a significant increase in landslide activity across the region after the succession of wet autumns and winters in the last decade. In general, climate change models predict an increasing rate of change of seasonal and inter-annual variations in precipitation and temperature during the next 100 years. In turn, this will lead to a change in the frequency, distribution and mode of landsliding across the region.

Human influence on the geology of the region can also have an important effect upon ground conditions, in particular, the often unpredictable nature of ground resulting from opencast coal or ironstone reinstatement, and the restoration of quarries and sand pits. More insidious are the effects of subsidence due to deep coal mining<sup>42</sup> and the potential for the ground to collapse above ancient shallow coal workings, such as bell-pits. Lead mining in the Peak District<sup>43</sup> has also resulted in a legacy of potentially hazardous ground above shallow workings, exemplified by the well documented 'crown holes' that appeared near Matlock. Those collapses followed a period of prolonged heavy rainfall<sup>44</sup>, and may point to a greater frequency of such events, should predictions of increasing climatic 'storminess' be fulfilled in future decades.

#### 7.4.1.4. Earthquake risk

Earthquake risk tends to be ignored in the East Midlands, and yet there is a small but not negligible hazard from earthquakes. There are many large geological faults in the region, and these are sometimes reactivated by stresses which are attributed to modern plate tectonic movements, such as the 'drift' caused by the progressive expansion of Atlantic Ocean crust.

Earthquake size in the UK is measured from seismographs using the local magnitude scale (ML). Local magnitude scales give a magnitude approximately equivalent to the Richter scale. Map 6 shows the distribution of earthquakes in the region based on more recent events measured by instruments, and those estimated from historical records.

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<sup>41</sup> Jones, D.k.C., 1999, Landsliding in the Midlands: a critical evaluation of the contribution of the National Landslide Survey. *East Midlands Geographer*, Vols. 21(2) & 22(1), 106-125.

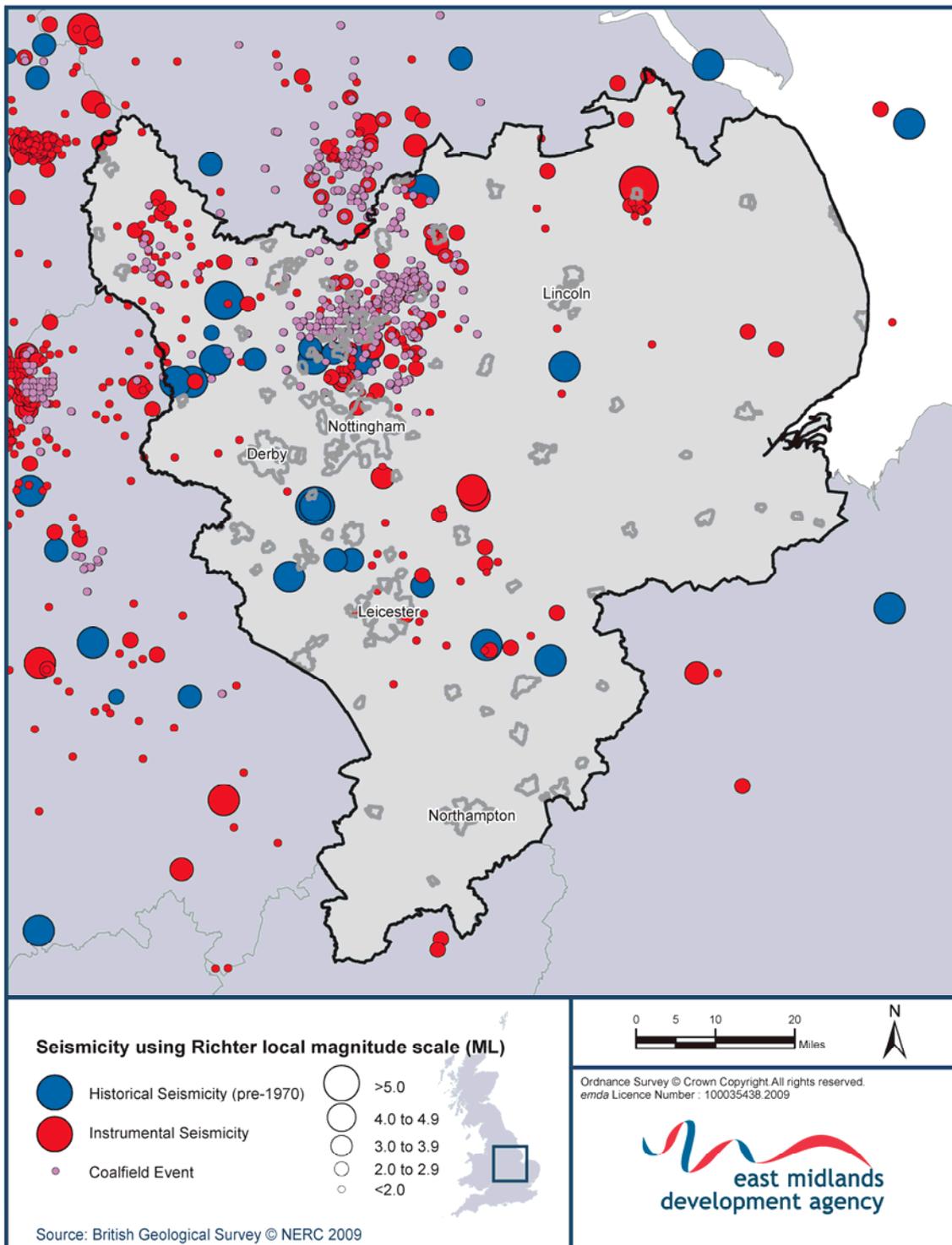
<sup>42</sup> Donnelly, L. 2000, Fault reactivation induced by mining in the East Midlands, *Mercian Geologist*, Vol. 15, 29-37.

<sup>43</sup> Ford, T.D. and Rieuwerts, J.H. 2000, 'Lead mining in the Peak District', 4th Edition; Peak District Mines Historical Society.

<sup>44</sup> Jones, J., 2008, The Big Hole of Starkholmes, *Mercian Geologist*, Vol. 17, 19-22.

- Small to moderate earthquakes (magnitude 3-4ML), capable of being felt, occur on average every 3-4 years in the region.
- At longer intervals of 50-100 years there have been earthquakes of magnitude in the range 5 - 5.3ML.
- The largest instrumentally measured earthquakes in the East Midlands occurred near Derby in 1957 (5.3 ML) and Market Rasen in 2008 (5.2 ML).

**Map 6: Seismicity of the East Midlands**



Over the last 500 years for which archive studies provide the historical seismicity shown in Map 6, it is apparent that 5+ ML events are rare. The recent Market Rasen earthquake (27th February 2008, 5.2 ML) was relatively deep (around 20 km) and was felt over much of the UK.<sup>45</sup> Reports of damage

<sup>45</sup> Carney, J.N., Waltham, A. and Aram, J., 2008, 'Two notable earthquakes in 2008', in *Mercian Geologist*, Vol.17, 43-47.

(mostly non-structural) were diffuse and were not concentrated at the epicentre. This is likely to be due to the depth of the earthquake, local site conditions and the unusual high energy release of the earthquake.

Mining for coal and other minerals can significantly alter the stresses and strength within rocks both at and above the mined depth. As a result of these changes, earthquakes may be generated by rock fracture and collapse, particularly in the vicinity of pre-existing natural fault-lines. These 'coalfield events' have produced the swarms of low-magnitude earthquakes shown on Map 6 in undermined areas to the north of Nottingham and south east of the Manchester conurbation. Their relatively shallow depth means that they can be felt more easily on the surface, and although they are associated in a general way with the processes that cause subsidence they cause little, if any, obvious damage apart from that produced by vibration. They can occur after a mine closes, though usually less frequently, due to the collapse of cavities.

The indications are that there is a 90% probability that intensity 6 on the European Macroseismic Scale (EMS) will not be exceeded in the next 50 years in the East Midlands.<sup>46</sup> However, the design of long lasting critical structures, such as power stations, must incorporate some allowance for earthquake hazard.

#### 7.4.2 Mineral resources

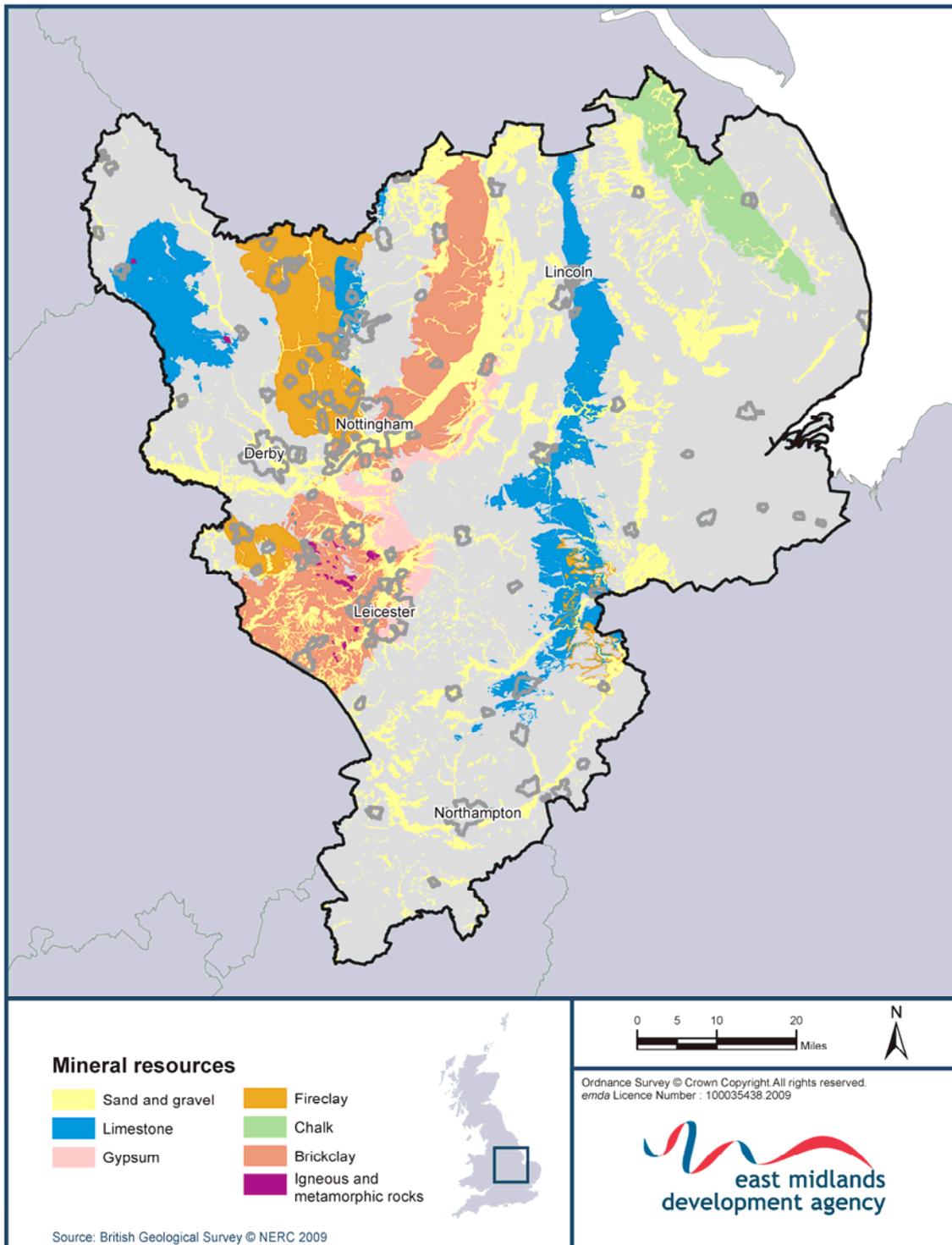
The East Midlands is an important producer of a wide range of minerals.<sup>47</sup> Mineral resources are shown in Map 7, with extraction sites shown in Map 8. Crushed rock aggregates, including limestone and igneous rock, satisfy local consumption and are exported in large amounts to other regions, especially the South East and North West. The region is Britain's major producer of gypsum and only producer of fluorspar. Manufactured goods from minerals, such as concrete blocks, plasterboard, ceramics, bricks and tiles are an important part of the region's economy, as are smaller uses of minerals for fillers and extenders. Historically the major coal and iron ore resources, as well as smaller amounts of lead and other mineral ores, have underpinned the region's development as a major industrial area. Despite the demise of significant sections of the minerals industry, not only is the region still the UK's leading minerals producer, it also hosts the national head offices of leading companies in production and related servicing industries, and of professional and research bodies. It also hosts the world's leading biennial trade fair for the industry. The East Midlands could thus rightly claim to be the "geocentre" of the UK.

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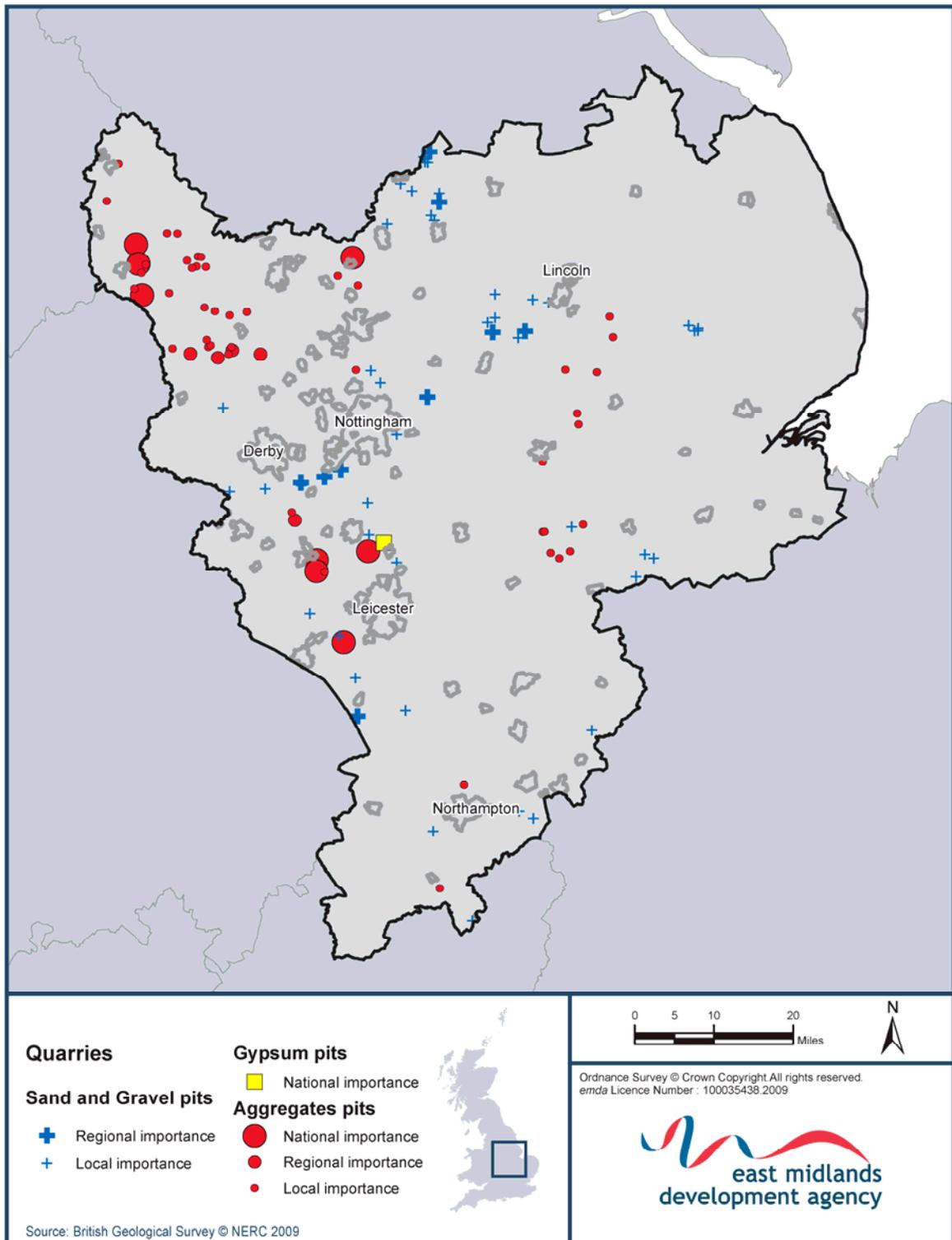
<sup>46</sup> Musson, R.M.W. and P.W. Winter (1996): Seismic Hazard of the UK, A report produced for the Department of Trade and Industry, Rep. GNSR(DTI) / P(96)196.

<sup>47</sup> Minerals-related information for the East Midlands region provided by the BGS can be accessed online at [http://www.bgs.ac.uk/mineralsuk/Web\\_GIS/min\\_arc\\_ims/home.html](http://www.bgs.ac.uk/mineralsuk/Web_GIS/min_arc_ims/home.html)

**Map 7: Mineral resources of the East Midlands (based on British Geological Survey digital mineral resource mapping at 1:50,000 scale)**



**Map 8: Mineral extraction sites in the East Midlands (created from BGS Britpits database)**

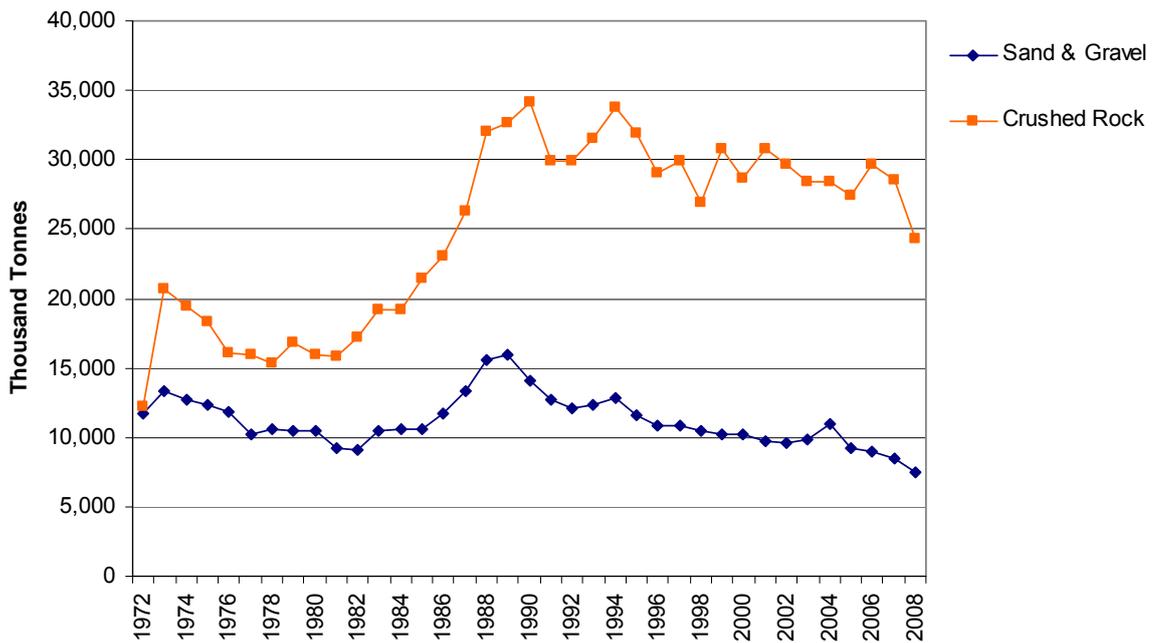


### 7.4.2.1 Aggregates

Aggregates include crushed rock, sand and gravel. The East Midlands is the largest aggregate producer in the UK, having increased its production of crushed rock substantially since the mid-1980s (Charts 10 and 11). In 2008, just under a quarter of all primary aggregate supplied from England (onshore and marine) was produced in the East Midlands. The key resources are:

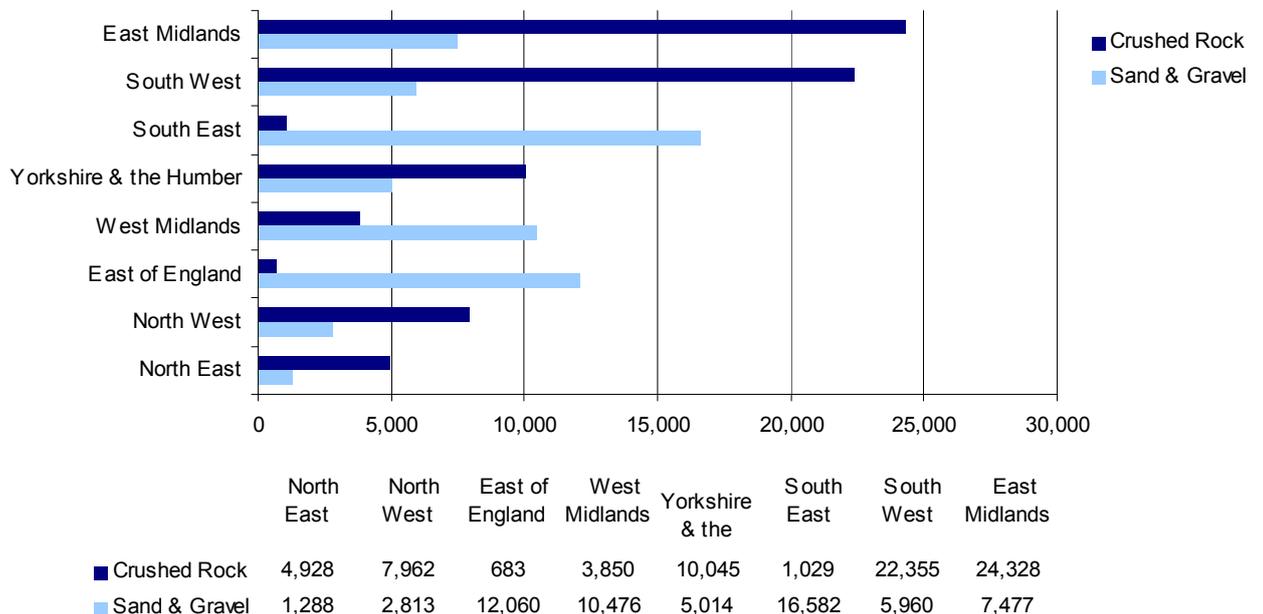
- The igneous and metamorphic rocks of Charnwood and south of Leicester in Leicestershire. Ninety nine percent of the region's igneous rock reserves are located in Leicestershire. The four igneous rock quarries in Leicestershire are some of the largest in Europe (in terms of tonnage extracted), each with annual outputs of over a million tonnes. In 2008, the region was the largest producer of igneous rock in England (with a regional total of 13.5 million tonnes, 64.1% of the national total);
- The Carboniferous Limestone of Derbyshire and the Peak District (extending westward into a small part of Staffordshire). The majority of the region's limestone extraction occurs in Derbyshire, particularly in the Peak District, mainly around the fringes of the National Park. Eighty one percent of the East Midlands' limestone reserves are located there. In 2008, the region was the largest producer of limestone in England (over 19 million tonnes – 25.6% of total for England), exceeding the South West (which produced just under 19 million tonnes);
- The region's sands and gravel resources principally come from the Trent and its tributary valleys (from near Burton-upon-Trent through Nottingham almost to Gainsborough). In 2008, the East Midlands region produced 7.5 million tonnes of sand and gravel, 12.1% of the total amount produced in England;
- However, as Chart 10 shows, this has decreased over time, from a high point of 15.9 million tonnes in 1989; and
- In the case of crushed rock, the trend in production in the East Midlands has increased over time, doubling from 12.2 million tonnes in 1972 to 24.3 million tonnes in 2008.

**Chart 10: East Midlands production of aggregates, 1972-2008**



Source: ONS Crown Copyright, 'Mineral Extraction in Great Britain', 2008.

**Chart 11: Aggregate production by region, 2008**



Source: ONS Crown Copyright, 'Mineral Extraction in Great Britain', 2008.

Chart 11 shows that the East Midlands accounts for the largest share of combined aggregate production in England, producing 23.2% of crushed rock and sand and gravel. Chart 11 also shows that the production of aggregate minerals is not uniformly distributed across England:

- Crushed rock aggregate output in the East Midlands accounted for 32.4% of English production in 2008. This is the largest share of the English regions. This reflects the availability of suitable hard rocks at or near the surface, coupled with the convenient geographical location of the region near the South East and London, which import much of their aggregates from the East Midlands; and
- Sand and gravel production is less dominant in the East Midlands. As the chart shows, the East Midlands is the fourth largest producer.

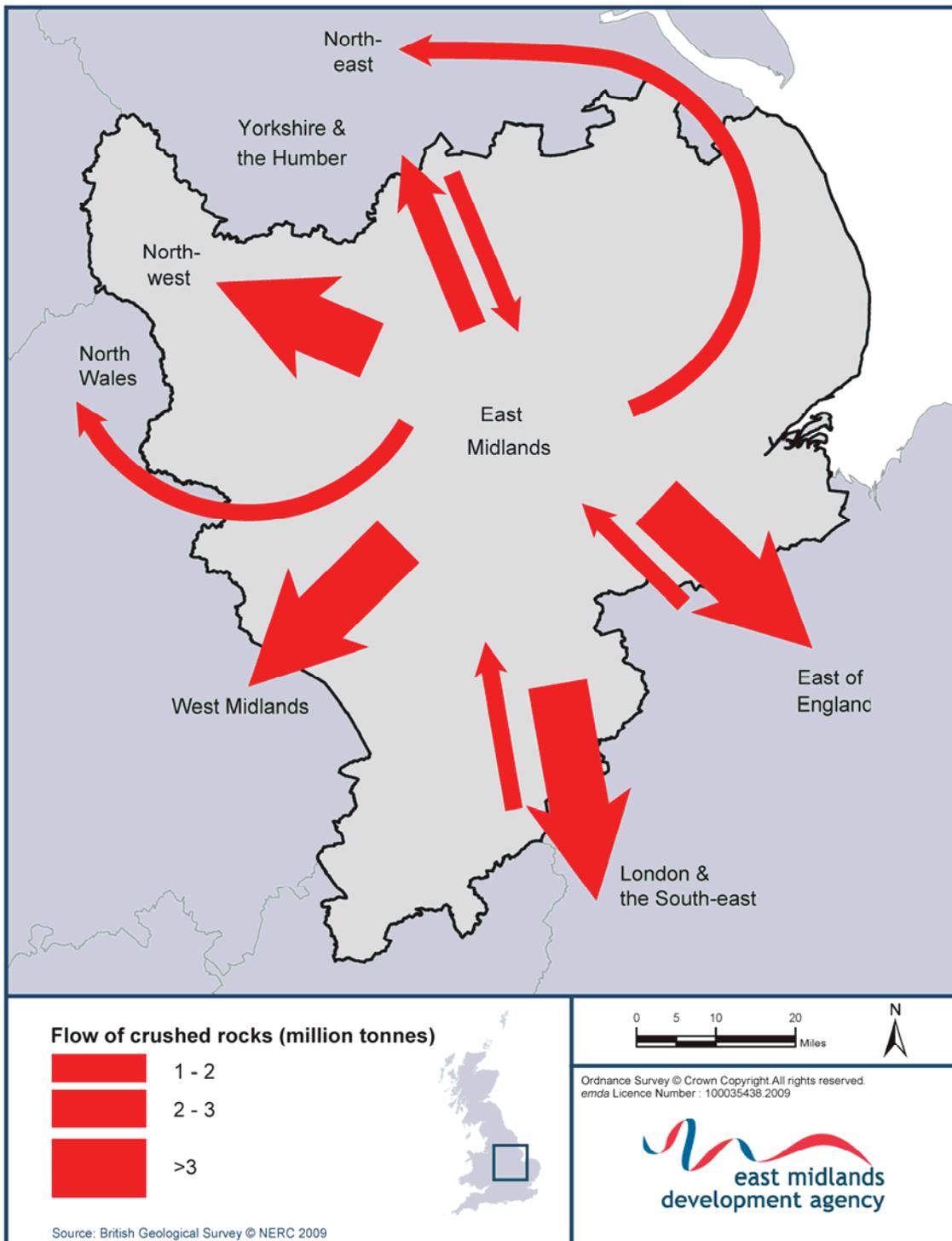
Not only is the region the largest producer of aggregates in the country, it is the largest aggregate exporter, dispatching 18 megatons, or 48% of the output to other regions in 2005 (Map 9).<sup>48</sup> By way of comparison, this is greater than the total production of aggregates in Wales and two and a half times the tonnage exported from the next largest producer, the South West. Substantial quantities of crushed rock are distributed to Yorkshire and the Humber (mainly limestone), the North West (mainly limestone) and the West Midlands (all types) – and to the South East, London and East of England (principally igneous rock plus some limestone).

In addition to large-scale exports, the region has consistently "consumed" a much higher than average tonnage of aggregates, mostly because of the use of aggregates as a feed to the concrete products industry. The region has some of the largest plants in this sector and its central location in the UK enables it to send these value-added products over considerable distances, as far as the south coast and southern Scotland.

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<sup>48</sup> For national versions of the figures shown on this map, see Collation of the Results of the 2001 Aggregates Minerals Survey, British Geological Survey report CR/03/53N, available to download at: [http://www.bgs.ac.uk/mineralsuk/free\\_downloads/downloads.html](http://www.bgs.ac.uk/mineralsuk/free_downloads/downloads.html)

**Map 9: Inter-regional flow of crushed rocks**



### 7.4.2.2 Other construction minerals

Total production of building stone in the UK is relatively modest but is of increasing significance as a contribution to the conservation of the built environment.<sup>49</sup> For building stone in 2008, the East Midlands was second to the South West in its output of limestone:<sup>50</sup>

- The most important sandstones for building occur extensively in Derbyshire and the Peak District within the Millstone Grit Group and Coal Measures. The region's sandstone building stone contribution is significant in that it serves a national market;
- The most important limestones for building are the oolitic and shelly limestones of the Lincolnshire Limestone from the Middle Jurassic age;
- The East Midlands is also an important brick-producing region with an output of 454 million bricks in 2006, accounting for about 20% of total brick production in England.<sup>51</sup> The Mercia Mudstone is the principal source of brick clay in the region. It has an extensive outcrop in the East Midlands most notably in Leicestershire, where it is used for brick making at five sites, and also in Nottinghamshire where it is worked at two. Carboniferous mudstones are worked in Derbyshire for brick making at one site;
- The East Midlands is an important cement-producing region accounting for approximately 26% of UK capacity. There are two large cement plants in the region located in Hope, near Castleton in the Peak District National Park, and in Ketton in Rutland. Capacity at a further plant in Buxton has just been greatly expanded (at a cost of £110 million);
- The East Midlands is also the principal source of high chemical purity (>97% CaCO<sub>3</sub>) limestone for industrial applications in the UK. It is estimated that the East Midlands produced about 4.7 Mt or just under 54% of the UK requirements for high purity limestone/dolomite in 2007,<sup>52</sup> almost all of which was extracted in the Buxton and Wirksworth areas of Derbyshire; and
- Flue gas desulphurisation (FGD) places an additional demand for high purity limestone on the region. About 0.7 tonnes of high purity limestone

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<sup>49</sup> BGS/CLG Mineral Planning Factsheet 'Building and Roofing Stone', available for download at [http://www.bgs.ac.uk/MineralsUK/free\\_downloads/home.html#MPF](http://www.bgs.ac.uk/MineralsUK/free_downloads/home.html#MPF)

<sup>50</sup> ONS Crown Copyright, 'PA1007 Mineral extraction in Great Britain 2007'.

<sup>51</sup> BGS/CLG Mineral Planning Factsheet 'Brick Clay', available for download at [http://www.bgs.ac.uk/MineralsUK/free\\_downloads/home.html#MPF](http://www.bgs.ac.uk/MineralsUK/free_downloads/home.html#MPF)

<sup>52</sup> National Stone Centre. In detail, this represents about a quarter of the UK materials for agriculture, 90% for specialist fillers (e.g. used in plastics, paper, paints, sealants), 100% for glass making and a substantial proportion (probably over 80%) of limestone utilised in the production of chemicals. The latter includes over a million tonnes annually destined for plants in Cheshire, the main one being the only works in the UK producing soda ash (sodium carbonate), the main alkali feedstock for the chemical industry.

are required for the production of 1 tonne of desulphogypsum.<sup>53</sup> All the large coal-fired power stations within the region and in neighbouring regions are now fitted with FGD plant. Ratcliffe-on-Soar power station in Nottinghamshire produced 253,000 tonnes of desulphogypsum in 2007, all of which was used for the manufacture of plasterboard at nearby East Leake.

#### 7.4.2.3 Other minerals

The East Midlands is one of the most important sources of gypsum in Britain.<sup>54</sup> Production occurs in both Nottinghamshire and Leicestershire, the latter now being the most important source. The large Barrow Mine in Leicestershire has an output approaching 1 million tonnes per year. Total UK annual output of natural gypsum was approximately 1.7 million tonnes in 2007. Synthetic gypsum output is now estimated to be 0.9 million tonnes per annum.

Fluorspar production in the UK is now confined to the Peak District National Park.<sup>55</sup> Fluorspar occurs mainly as vein infillings in faults that cut limestones of Carboniferous age. Production is mainly by open pit methods. Fluorspar ore is processed at the Cavendish Mill, near Stoney Middleton to produce a high purity acid-grade fluorspar (>97% CaF<sub>2</sub>) product. Barytes, a lead concentrate, and limestone are by-products of the process. The Cavendish Mill is the only source of barytes in England.<sup>56</sup>

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<sup>53</sup> British Geological Survey, 'UK Minerals Yearbook 2007'.

<sup>54</sup> BGS/CLG Mineral Planning Factsheet 'Gypsum', available for download at [http://www.bgs.ac.uk/MineralsUK/free\\_downloads/home.html#MPF](http://www.bgs.ac.uk/MineralsUK/free_downloads/home.html#MPF)

<sup>55</sup> BGS/CLG Mineral Planning Factsheet 'Fluorspar', available for download at [http://www.bgs.ac.uk/MineralsUK/free\\_downloads/home.html#MPF](http://www.bgs.ac.uk/MineralsUK/free_downloads/home.html#MPF)

<sup>56</sup> BGS/CLG Mineral Planning Factsheet 'Construction Aggregates', available for download at [http://www.bgs.ac.uk/MineralsUK/free\\_downloads/home.html#MPF](http://www.bgs.ac.uk/MineralsUK/free_downloads/home.html#MPF)

### **Key Points: Geology and natural resources**

- The East Midlands has a rich geology, with a diverse variety of rock formations which makes it an important region for both quarrying and for sites of natural beauty, such as the Peak District National Park.
- The geology of the region is relatively benign. However, shrink-swell clay formations pose issues for development in some parts of the region and landslides are particularly common in Derbyshire, Leicestershire and Northamptonshire. Radon levels are relatively low and there is a relatively small earthquake risk in the region.
- The East Midlands is the most important producer of aggregates in England. In 2008, the region was responsible for just under a quarter of all national primary aggregate production. It was the largest producer of igneous rock (64.1% of the national total) and limestone (25.6% of the total for England). Sand and gravel production is less dominant compared to other regions.
- The East Midlands is also the most important exporter of aggregates in England, exporting 48% of output to other regions in 2005. This is equivalent to two and a half times the tonnage of the next largest exporter, the South West.
- In addition, the East Midlands has consistently 'consumed' a much larger tonnage of aggregates than other regions, principally to supply the concrete products industry. The region is responsible for 26% of the UK's concrete capacity.

## **7.5 Energy**

International Energy Authority (IEA) projections<sup>57</sup> show global energy demand increasing by 50% by 2030, with 90% of that energy being derived from fossil fuels. In recent years energy has been relatively expensive, driven by oil prices that reached almost \$150 per barrel in mid-2008 and energy is likely to be more expensive as demand recovers from the global recession.

Energy use will also become increasingly carbon-constrained, with CO<sub>2</sub> emissions from coal power stations and large industrial installations controlled under the EU Emissions Trading Scheme. This will bring significant challenges and opportunities to the region, which is well placed to develop and deploy new energy science, infrastructure and technology. To stimulate innovation, the Energy Technologies Institute (ETI), a major public-private partnership, was established in Loughborough in 2007. The UK Government forecasts that by 2020, 80% of our fuels are likely to come from overseas<sup>58</sup>,

<sup>57</sup> IEA 2006. 'World Energy Outlook 2006', <http://www.worldenergyoutlook.org>

<sup>58</sup> DTI, 'UK Energy and CO<sub>2</sub> Emissions Projections', May 2007, [www.dti.gov.uk/energy/whitepaper](http://www.dti.gov.uk/energy/whitepaper)

and has also committed to achieving 15% of the UK's energy from renewables by 2020.<sup>59</sup>

### 7.5.1 Energy production and resources in the East Midlands

In the East Midlands, the majority of energy is generated from fossil fuels,<sup>60</sup> traditionally based on the production of coal in Derbyshire, Leicestershire and Nottinghamshire. Coal has been a vital source of the region's wealth and industrial development over the past 250 years. This abundant energy source, coupled with local demand and the nearby River Trent for cooling, led to the development of numerous major (~2,000 Mega Watts - MW) power stations in the Trent valley. Three of these, Ratcliffe-on-Soar, Cottam and West Burton, are in the East Midlands. Ratcliffe (along with Drax in Yorkshire) is one of the two largest generating stations in the UK, and has been retro-fitted with flue gas desulphurisation (FGD) equipment and other clean technologies to reduce sulphur emissions by 97% (note the fall in emissions of sulphur oxides since 1998 in Chart 7). The region's coal-fired power stations account for approximately 10-15% of the UK's total generating capacity, and are also major national point sources of CO<sub>2</sub> and are thus possible future candidates for carbon capture and storage (CCS).

There are two gas-fired power stations, at Spalding and Sutton Bridge, both of which utilise North Sea gas. Staythorpe (formerly coal-fired) Power Station is being reconstructed as a gas-fired station. E-ON have successfully applied for consent to rebuild Drakelow station, a demolished former coal-fired power station near Burton-upon-Trent, as a 1,220MW combined cycle gas-fired power station, which is now scheduled for completion by 2017. There are also plans for a biomass-fired facility on this site.

#### 7.5.1.1 Coal

The region includes the Nottinghamshire-Derbyshire and Leicestershire Coalfields (Map 10). Two of the seven major deep coal mines still producing in the UK are located in the region (Thoresby and Welbeck).<sup>61</sup> Subject to market conditions and the viability of remaining coal seams, Harworth coal mine in Bassetlaw, north Nottinghamshire may be brought out of its current 'mothballed' state, pending decisions made by UK Coal.<sup>62</sup> A small drift mine still operates in North Derbyshire.

In December 2008, Long Moor (Leicestershire) and Lodge House (Derbyshire) were the only two operational opencast coal sites in the region,

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<sup>59</sup> BERR, 'UK Renewable Energy Strategy Consultation, June 2008. [www.berr.gov.uk/renewableconsultation](http://www.berr.gov.uk/renewableconsultation)

<sup>60</sup> Fossil fuels are coal, oil and gas, and are so called because they form over millions of years through the decay, burial and compaction of rotting vegetation on land (coal) and marine organisms on the sea floor (oil and gas).

<sup>61</sup> British Geological Survey, 'Directory of Mines and Quarries', 2008.

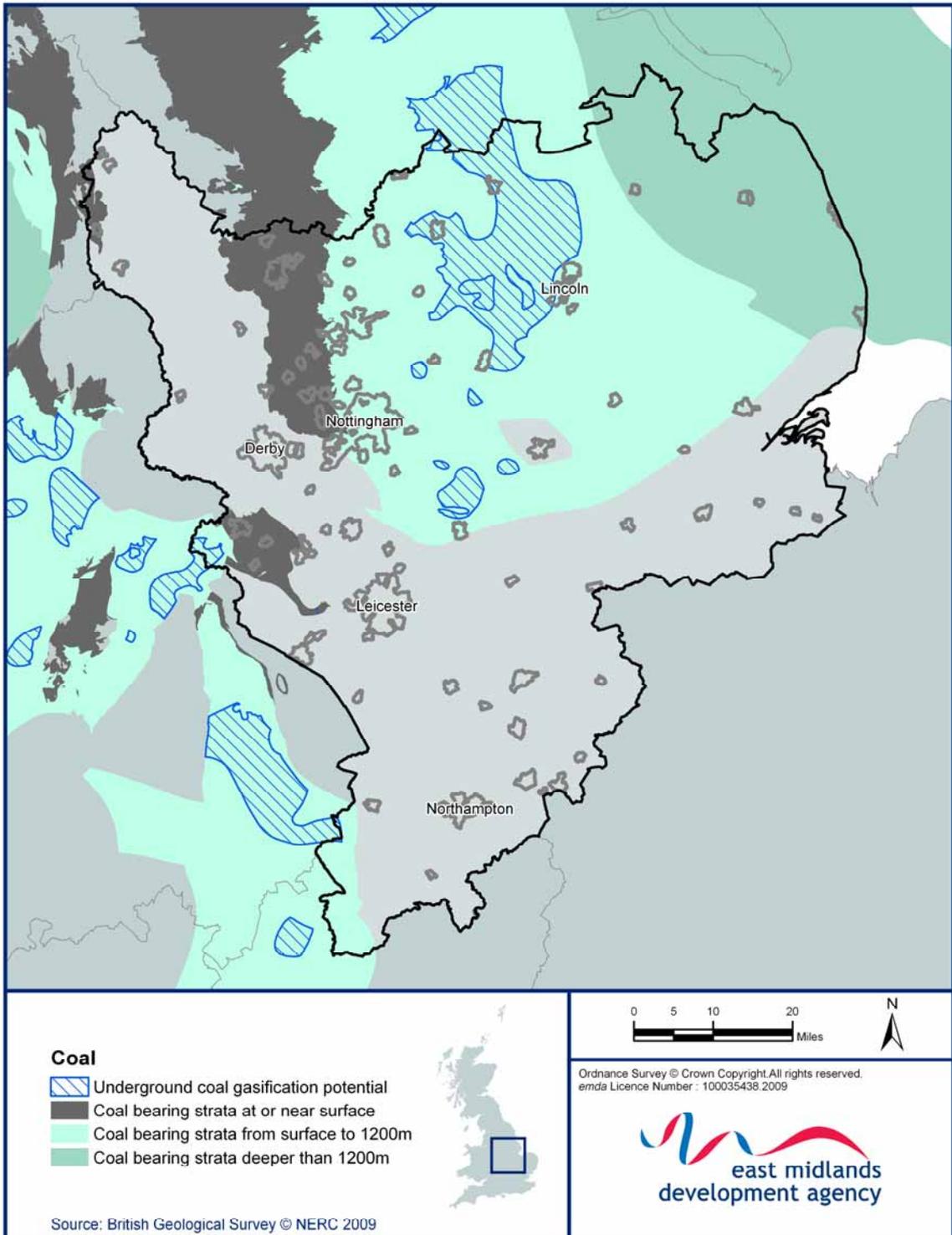
<sup>62</sup> UK Coal Ltd, 'Annual Report', 2007.

out of a total of 41 operational in the UK.<sup>63</sup> The bulk of existing accessible economic reserves are associated with the deep mines. Estimates of reserves and resources for deep mines and reserves at permitted opencast coal sites are given in Table 1.

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<sup>63</sup> British Geological Survey, 'Directory of Mines and Quarries', 2008.

**Map 10: Coal resources in the East Midlands (based on BGS digital data at the 1:100,000 scale)**



**Table 1: Estimates of coal reserves and resources in the East Midlands, 2007**

Deep mine	Production (million tonnes) 2007	Production (millions tonnes) 2008
Thoresby	1.4	0.9
Welbeck	1.0	0.9
Surface (opencast) mine	Reserves (million tonnes) 2007	Reserves (million tonnes) 2008
Long Moor (Leicestershire)	0.7	0.3
Lodge House (Derbyshire)	1.0	0.9

Source: UK Coal Ltd Annual Report, 2008

Output of coal from the region's deep mines was just less than 2 million tonnes in 2008, down from 2.4 million tonnes in 2007. This represents about a third of national deep mine coal production. Opencast coal production from the East Midlands was 127 thousand tonnes in 2007-2008, which represented only about 1.5% of UK output.<sup>64</sup> Moreover, coal reserves from open cast mining have fallen rapidly, halving at the Long Moor site between 2007 and 2008. Most of the coal produced in the region by both deep and surface mining is used to generate electricity.

Without new mine development it is likely that deep mine coal production will cease by 2030. Future deep mine prospect areas for which good exploration data exist include the Witham and Till Prospects on the Nottinghamshire/Lincolnshire border, and NE Leicestershire.<sup>65</sup> These sites represent the bulk of future deep mine prospects explored on the UK mainland. These would require major investment to access the resources, which are at depths of between 500 and 1200m. The total of reserves and resources estimated for the Witham prospect is 147 million tonnes.<sup>66</sup>

### 7.5.1.2 Clean coal extraction technologies

This is a portfolio of technologies that derive energy from coal without mining. Coal is present within the Pennine Coal Measures, which is preserved in the subsurface north of a line joining Melton Mowbray to the Wash. Coal is absent to the south of this line and in the far west of the region.

**Abandoned Mine Methane (AMM):** Most of the coal mines in the region have been abandoned. Gas derived from the coal accumulates in the voids created by mining. Abandoned Mine Methane can be an environmental and safety hazard because of the number of shafts, drifts and boreholes which reach the surface. Removing methane from abandoned mine workings

<sup>64</sup> British Geological Survey, 'UK Minerals Yearbook', 2007.

<sup>65</sup> The NE Leicestershire prospect was formerly worked from the Asfordby mine, which was forced to close in 1997 due to adverse geological conditions.

<sup>66</sup> International Mining Consultants, 'Review of Prospects for Coal Production in England, Scotland and Wales', 1999.

mitigates this potential hazard and has been used to generate electricity. Eight new AMM wells have now been drilled:

- Five are near former coal workings at Bevercotes, Whitwell, Steetley, Warsop, and Old Mill Lane (Sherwood); and
- Two wells are at Crown Farm (Mansfield) and Coalite Works (Bolsover). Markham Shaft 3 was left open by British Coal to vent gas from the abandoned colliery, which was then used to supply the Coalite Works (now closed) at Bolsover.

Shirebrook Colliery supplies AMM by Alkane Plc to Clarke Energy. Bentinck Colliery also supplies AMM to Stratagas and Warwick Energy (10.5 MW). All of these developments are used to generate electricity. Alkane plc has developed a modular generator that can be moved as and when the AMM diminishes.

**Coal Mine Methane (CMM):** This is the drainage and use of methane released from coal in active mines. It is widely practised and is currently used in colliery boilers, for generating electricity and some is flared, gaining carbon credits. The Harworth mine gas power station is rated at 7 MW, with 4.2 MW at Thoresby and 3 MW at Welbeck.

New licences were awarded in the 13th Onshore Licensing Round for additional developments and these would be increased, according to the Association of Coal Mine Methane Operators (ACMMO), if CMM and AMM were treated as renewable energy or encouraged in the way they are in Germany and France.

**Table 2: Alkane’s listed sites, generating capacity and estimates of CO<sub>2</sub> mitigation**

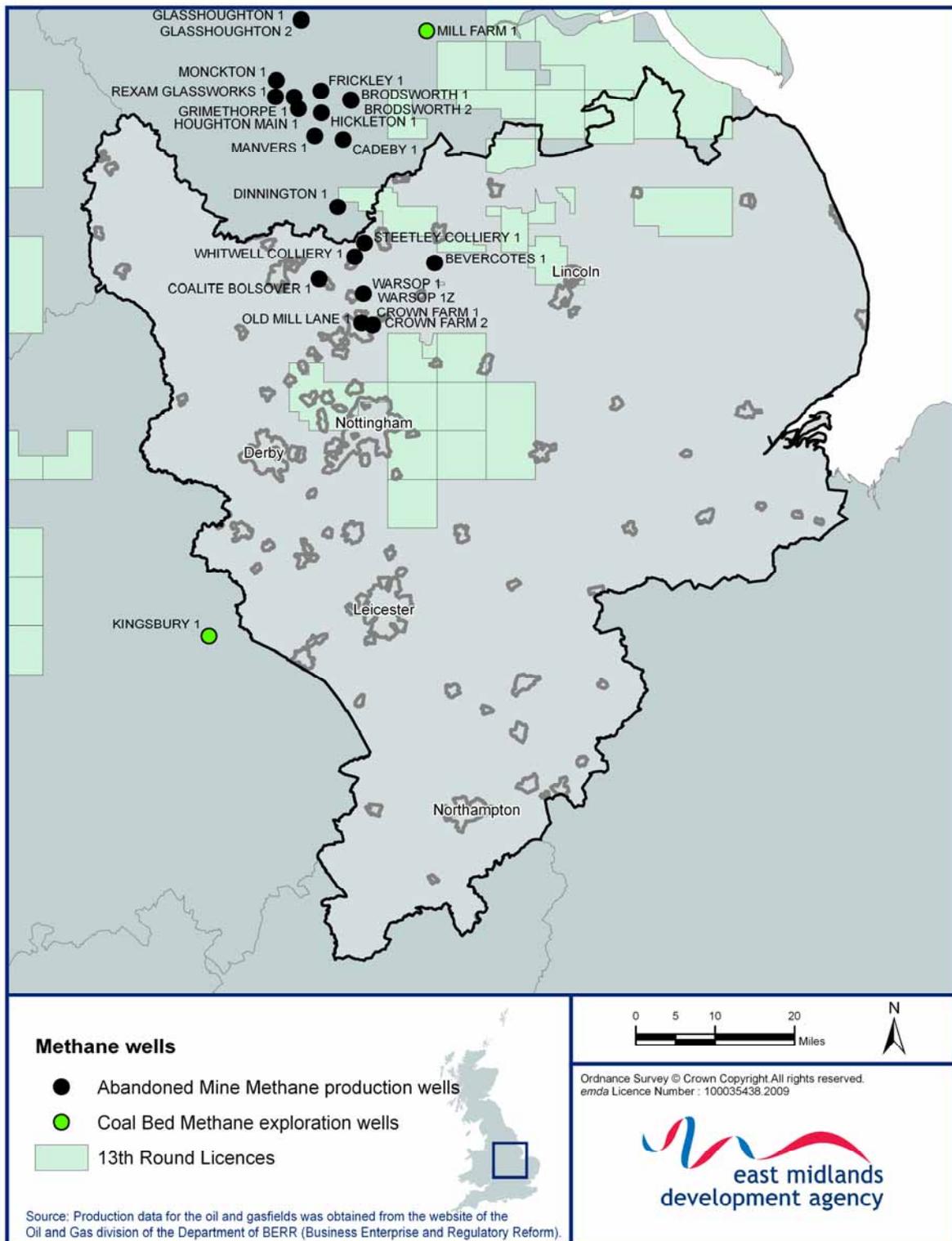
Site	Location	Capacity (MW)	Max CO <sub>2</sub> mitigation (tonnes)
Bevercotes	Nottinghamshire	4.05	138,155
Mansfield	Nottinghamshire	3.7	126,216
Sherwood	Nottinghamshire	0.66	20,467
Warsop	Nottinghamshire	1.35	46,052
Whitwell	Derbyshire	1.35	46,052

Source: [www.alkane.co.uk](http://www.alkane.co.uk)

**Coal Bed Methane (CBM):** Extraction of methane from un-mined coal seams is likely to be developed, using horizontal drilling and fracturing of coal seams east of the coalfield (Map 11). New licences were awarded in the 13th Onshore Licensing Round, in the north of the region where the coals have higher gas contents, to Composite Energy who have pioneered this type of exploration at Airth in Scotland. Although the gas contents of the coal seams are lower than in the west of the UK other factors such as permeability may be higher. Other companies are beginning to consider CBM exploration in tandem with conventional exploration. In future enhanced CBM exploration

could be attempted, using carbon dioxide to displace methane in the deeper seams. The potential gas resource in the East Midlands is over 400 billion m<sup>3</sup> which is about 150 times larger than the largest onshore gasfield (Saltfleetby). This figure is however lower than western coalfields of the UK because the seams there contain more gas. The resource may be even larger because these figures are based on the former NCB seam gas content measuring technique which probably under-estimated the amount of gas present. The new licence holders will be providing revised estimates to DECC.

**Map 11: Methane wells in the East Midlands, 2009**

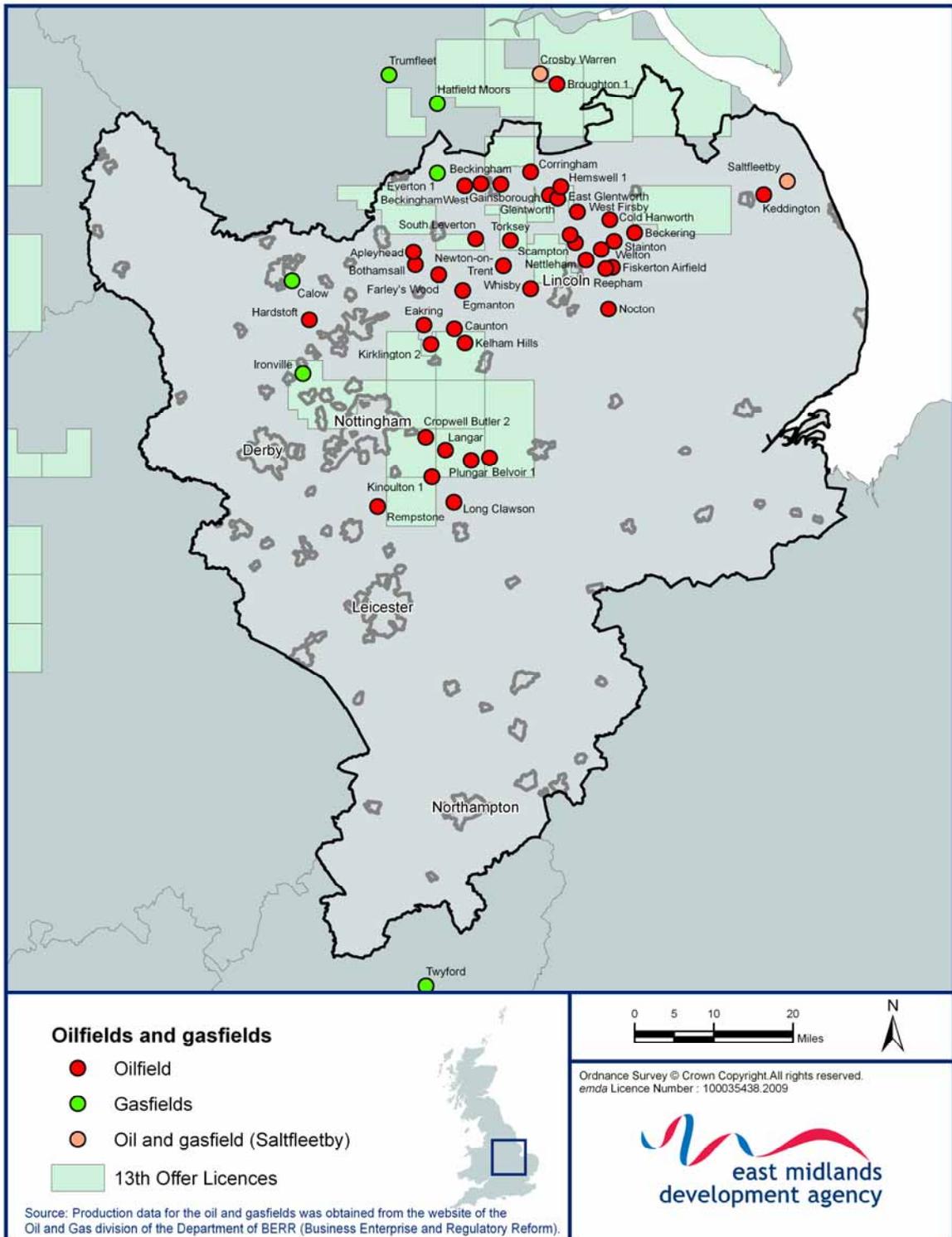


**Underground Coal Gasification (UCG):** Coal can be gasified in situ by burning it in a controlled way underground via boreholes, thus avoiding the high cost of mining. The gas is brought to the surface and used in electricity generation. UCG is potentially the most effective way of extracting energy from coal, but the technology is in its infancy and planning authorities are likely to require initial developments at least to be sited away from towns. The East Midlands has good prospects for the deployment of UCG. The most attractive prospects are coals at depths between 600 and 1200m. These include coals in and around the Till, Witham and parts of the NE Leicestershire exploration prospects. The volume of potentially suitable coal in the region is in excess of 2 billion m<sup>3</sup>. UCG prospects are shown in Map 11.

### 7.5.1.3 Oil and gas

The East Midlands remains an important region for UK onshore oil production. About 25 fields have been discovered within the region (Map 12), and over 40 million barrels so far produced (about 11% of total historic UK onshore oil production – 65% excluding the giant Wytch Farm field in Dorset). Economic reserves are about 15m barrels. Most fields are small with less than 1 million barrels but Long Clawson, Nettleham, Scampton North and West Firsby and some of the Mining Licence fields have produced over a million barrels. However, Welton is the second largest onshore field in the UK, with over 16.5 million barrels produced, amounting to about half the East Midlands total.

**Map 12: Oilfields and gasfields in the East Midlands, 2009**



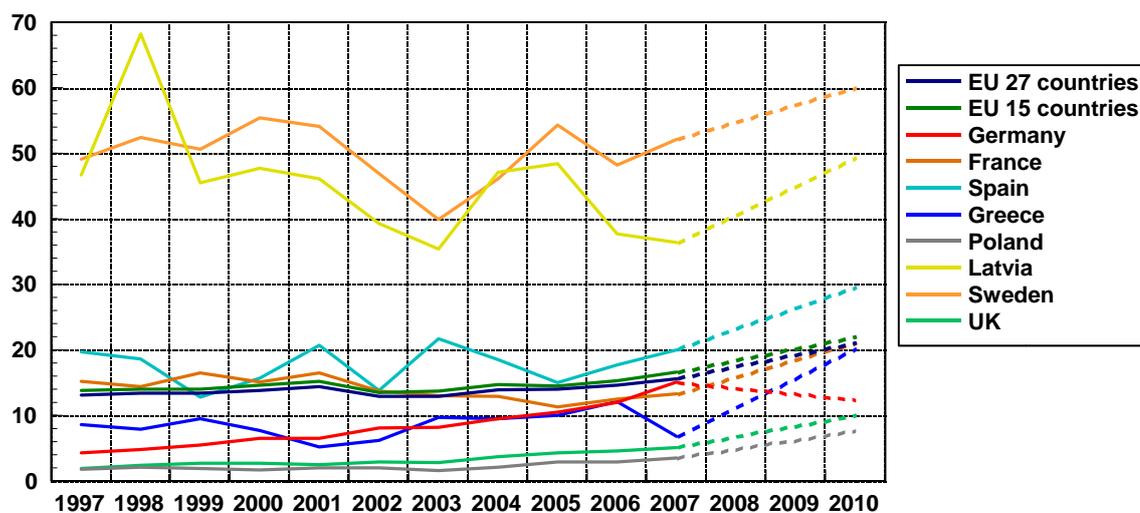
Exploration interest for oil and gas in the region fluctuates with the oil price, with high prices stimulating interest. It is likely that oil and gas prices will continue to rise over the coming decades. The Saltfleetby Gas Field is Britain's largest onshore gasfield. Since production started in 1999 it has produced 54 billion cubic feet (1.51 billion m<sup>3</sup>) of gas and a million barrels of condensate (petroleum gas). The original recoverable gas reserves were approximately 90 billion cubic feet (2.52 billion m<sup>3</sup>) of which about 30% are yet to be produced. Original condensate reserves were 1.26 million barrels of which about 20% are yet to be produced. This field has now been bought by Wingas for gas storage purposes and other depleting fields are likely to follow this path using the 1965 Gas Act. Depleted fields taken over by small companies may also contribute small production if energy prices rise again: Warwick Energy established brief production at Ironville to contribute gas to its Pye Bridge electricity generating site.

The region has potential for unconventional gas exploration and production known as shale gas, from fracturing relatively impermeable shale source rocks which supplied the hydrocarbons to the discovered conventional fields. This particular exploration and production technique has shown significant growth in the USA, and is poised to expand exploration effort in the East Midlands in the near future.

#### **7.5.1.4 Renewable energy resources**

The EU has set a renewables obligation that requires the UK to obtain 15% of the energy it consumes from renewable sources by 2020. As shown in Chart 12, the proportion in 2007 was only 5.1%, which is one of the lowest in the EU. Of this, biofuels provide the largest contribution, but wind energy is growing the most rapidly. This compares to an average for the EU27 Countries of 15.6% in 2007. Sweden and Latvia generate 40-50% of their electricity from renewables.

**Chart 12: Share of electricity generated from renewable energy sources in gross electricity consumption, for a selection of EU countries (%)**



Source: Eurostat sustainable development indicators, 2008.

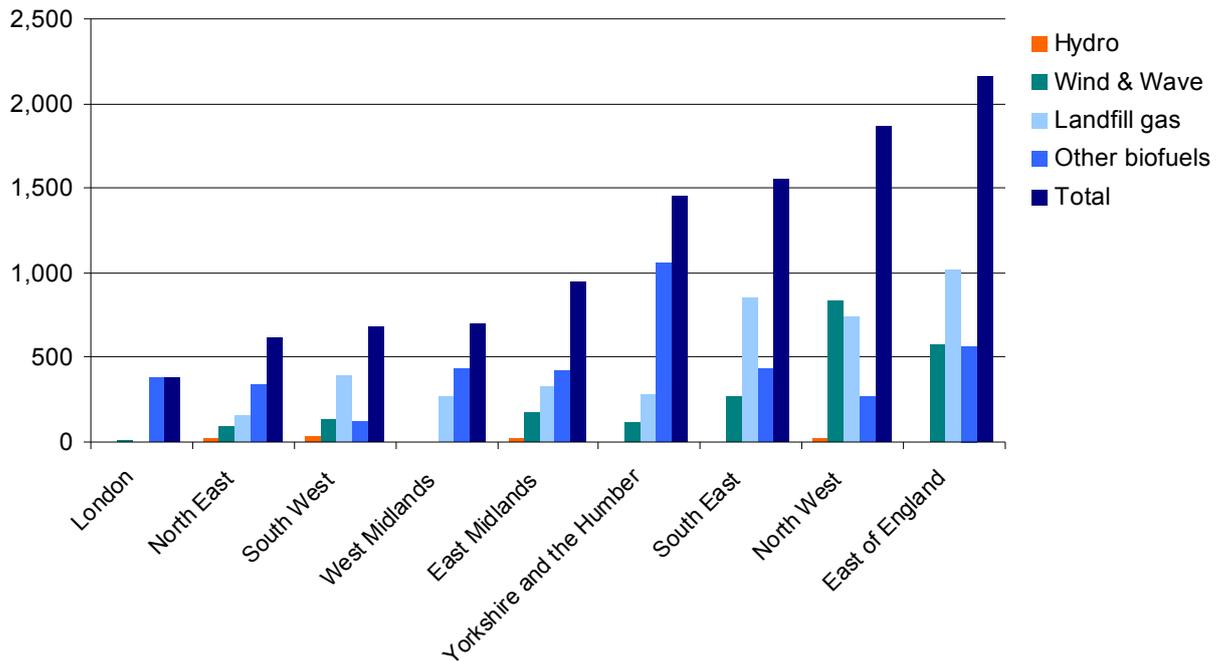
Note: data are only available up to 2007 and the dashed sections indicate estimated capacity to 2010.

In the East Midlands in 2008, there was approximately 180 MW of renewable electricity capacity in the region, 5.4 from hydro, 70.1 from wind, 60.8 from landfill gas and 43.5 MW from other renewable sources, including biofuels.<sup>67</sup> This is almost double the installed capacity in 2005. At present, 40 sites in the region generate a large share of renewable energy through the combustion of landfill gas. There are 17 hydropower plants, 18 wind or wave generation sites, and 24 biofuels and other renewable energy generation sites operating within the region.

From this capacity, East Midlands sites generated 946.8 Giga Watt hours of electricity in 2008 – 17.5 GWh from hydro, 176.5 from wind and wave, 333.5 from landfill gas, and 419.3 GWh from biofuels and other sources (see Chart 13 below).

<sup>67</sup> BIS Restats, 'Regional Renewable Energy Statistics 2008', 2009, see: <http://www.restats.org.uk>

**Chart 13: Generation of electricity by renewable sources (Giga Watt hours), 2008**



Source: Renewable Energy Statistics for the UK (ReStats), 'Regional Renewable Energy Statistics – 2008', 2009.

Chart 13 shows that the East Midlands accounts for the fifth lowest share of electricity generated from renewable sources of the nine regions, producing 9.2% of the total for England. The East of England accounted for the largest share, generating 2,164.1 GWh in 2008, 20.9% of total electricity generated from renewable sources in England. The East Midlands accounts for a larger share of hydro electric, generating 19.8% of the national total in 2008, the third largest share of the English regions. Generation from biofuels and other renewable sources accounts for the largest share of East Midlands electricity produced from renewable sources, whereas landfill gas accounts for the largest share in both the East of England and in England overall.

In 2000, there was 292 MW of combined heat and power (CHP) electricity generation capacity in the East Midlands (6.8% of UK CHP capacity). CHP systems involve the simultaneous generation of heat and power to achieve high overall efficiencies and to utilise heat that would otherwise be wasted in other electricity generation systems. A new CHP system has been installed at Queen's Medical Centre in Nottingham which generates 4.9 MW of electricity from a single gas turbine and the waste heat recovery boiler produces 12 tonnes of steam per hour. This is used for heating, cooling (via absorption chillers) and equipment sterilisation.

Renewable energy projects could bring many benefits to the region, not only for indigenous energy production, but also for reducing emissions of harmful greenhouse gases, with increased opportunities for the manufacturing, energy, agricultural, offshore supply and fisheries sectors. Potential renewable energy projects include:

- Offshore wind development consists of a 180 MW scheme offshore Skegness. Planned further developments offshore Lincolnshire have a potential of 1.25 GW with a potential offshore resource of 12.4 GW;<sup>68</sup>
- The East Midlands has a relatively poor onshore wind resource as westerly winds have travelled over a large land area before reaching the region. The majority of the current and planned capacity is in Lincolnshire. Onshore wind farms are currently restricted to a site at Mablethorpe in Lincolnshire that generates 6 MW<sup>69</sup> and a new site at Burton Wold in Northamptonshire, which has an installed capacity of 20 MW;
- The potential for hydroelectric is limited in the East Midlands due to the terrain;<sup>70</sup>
- The number of ground source heat pumps in the region continues to increase. Installations are currently estimated at 65-150 sites.<sup>71</sup> There is currently no exploitation of the heat resource contained within the deeper rocks of the region, although the potential resource at Cleethorpes has been investigated in the past with a deep borehole (Map 5);
- The utilisation of solar power with solar photovoltaics is confined to a number of small, but significant projects. It is estimated that there is 0.64 MW of energy generation capacity within the region;<sup>72</sup> and
- Biogas is already generated in the region from sewage sludge and food processing waste. Electricity is being generated using methane captured from landfill waste. Municipal and industrial waste is incinerated in Nottingham to generate 7 MW of electricity.

#### 7.5.1.5 Biofuels

Due to work undertaken on behalf of Natural England, it is possible to provide more detailed analysis of biomass capacity in the region. Biofuels or 'biomass' refers to biological material that can be used as fuel or for industrial production. Most commonly, biomass refers to plant matter grown for use as fuel. Biomass fuels, unlike fossil fuels, are considered renewable as they are carbon neutral. When they are burnt the carbon they release is equivalent to the carbon they fix from the atmosphere during their growth. As such when burnt there is no net gain of carbon in the atmosphere.<sup>73</sup>

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<sup>68</sup> East Midlands Regional Targets and Scenarios for Renewable Energy, Best Foot Forward Ltd, 2006.

<sup>69</sup> Ibid.

<sup>70</sup> Ibid.

<sup>71</sup> Ibid.

<sup>72</sup> Ibid.

<sup>73</sup> Wright, D., and Leivers, H, on behalf of Natural England, 'Regional Biomass Active Demand Mapping Project', 2007.

The Natural England assessment suggested that the East Midlands is particularly well placed in the UK biomass market, with approximately 5,500 hectares of energy crop planted, yielding 60,000 to 70,000 tonnes per annum of oven-dried biomass fuel. This regional asset is in part due to a legacy of projects in the 1990s which encouraged the growth of Short Rotation Coppice (SRC) Willow plants and also because of the importance of power generation in the region more widely, as identified earlier in this section. Legislation in 2002 introduced the Renewable Obligation Certificate (ROC), which requires all UK licensed electricity suppliers to obtain a proportion of the electricity they sell from a selection of eligible renewable sources. Every year the renewable obligation level increases, starting at 3% in 2002, increasing to 10% by 2010, and 15.4% in 2015/2016. Because of the number of large power generation sites in the East Midlands, the ROC regime creates a strong regional demand for biomass fuel.

A number of sites in the region are now 'co-firing' plants, generating significant proportions of energy from biomass as well as coal. Two examples are the West Burton and Cottam power stations, both owned by EDF Energy, and both located near Retford in Nottinghamshire. Their combined annual biomass consumption is in the region of 100,000 tonnes, estimated to produce approximately 150GWh of renewable energy per annum, with a roughly equal share between the two stations.

On a smaller scale, there are an increasing number of biomass boilers installed throughout the East Midlands across the entire range of scales, from domestic boilers to large industrial heating boilers. As Table 3 demonstrates, the capacity of biomass boiler installations in the region is expected to double between 2007 and 2010, from approximately 30,000kW to 60,000kW.<sup>74</sup>

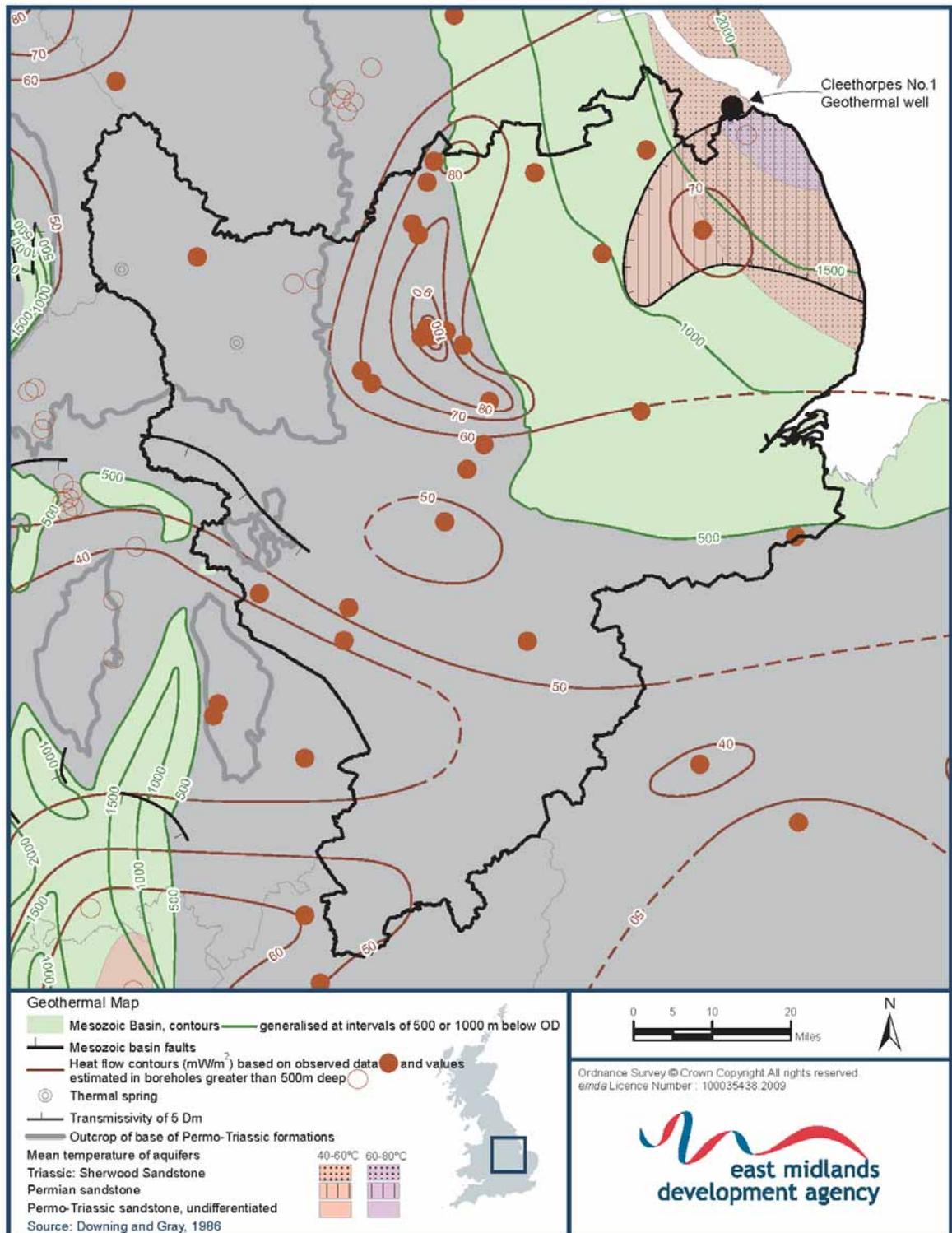
**Table 3: East Midlands installed capacity in biomass boilers (estimated 2007 capacity and 2010 projections)**

County	Currently Installed Boiler Capacity (kW)	Proposed Boiler Capacity by (kW)
	2007	2010
Lincolnshire	3740	15155
Nottinghamshire	11164	18902
Leicestershire	8798	10488
Northamptonshire	300	5300
Derbyshire	560	1460
Rutland	40	40
County Not Specified	2665	3790
<b>Total</b>	<b>27267</b>	<b>55135</b>

Source: Natural England, 'Regional Biomass Active Demand Mapping Project', 2007.

<sup>74</sup> Ibid.

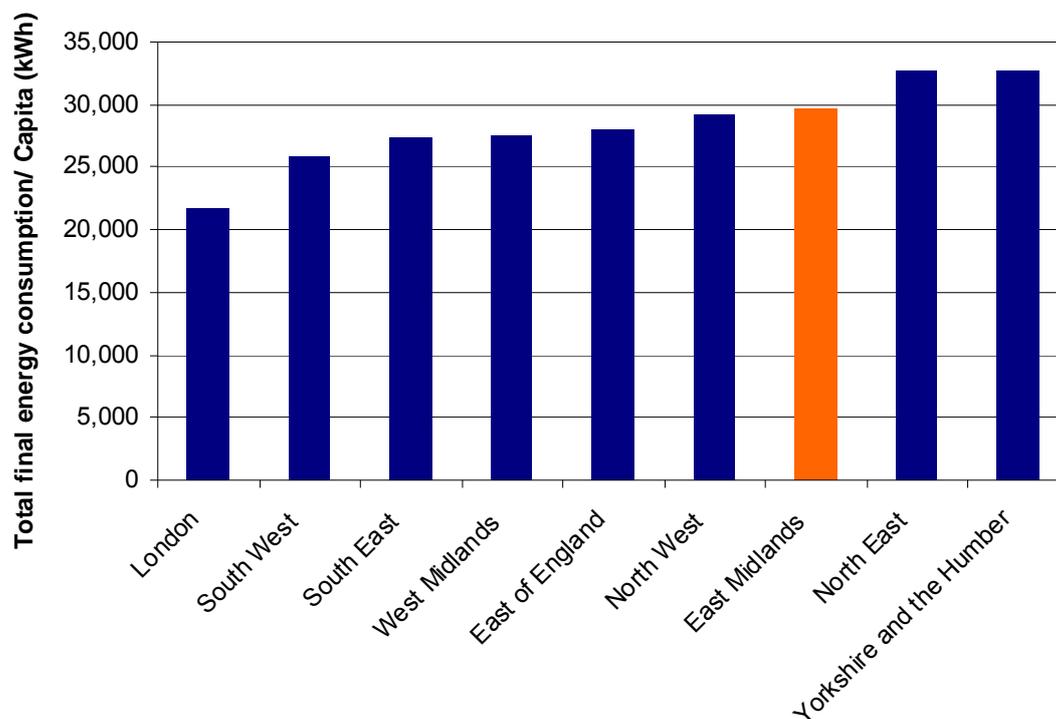
**Map 13: Geothermal energy potential in the East Midlands**



## 7.5.2 Energy consumption in the East Midlands

The Department for Energy and Climate Change (DECC) publish regional data on the estimated consumption of energy. This data is obtained through working with the power industry, which collects electricity consumption data for each customer meter or MPAN (meter point administration number). DECC has obtained this data for 2006, and has aggregated it up to Local Authority District and regional level. Data on gas consumption is sourced from National Grid estimates. This is combined with the electricity data alongside estimates of consumption of 'other fuels' (such as: domestic and industrial coal, solid fuels, non-road transport petroleum) and road transport petroleum consumption to produce total estimates of energy consumption by region. The data published in these tables does not cover the final consumption of energy in the UK, so regional estimates are not summed up to a national total.

**Chart 14: Total energy consumption per capita by region (kWh), 2006**



Source: Department for Energy and Climate Change, 'High Level Energy Indicators 2006', February 2009.

Chart 14 shows that the East Midlands has one of the highest levels of total energy consumption (electricity, gas, transport fuels and other fuels) of the nine English regions, at 29,700 kilo Watt hours ( kWh) per resident in 2006. This compares to a total of 32,700 kWh per resident in Yorkshire and the Humber, the region with the highest total energy consumption, and 21,700 kWh per resident in London, the region with the lowest consumption.

The DECC data provides estimates of this total consumption broken down by type of energy and by type of use (including domestic, industrial and road transport). The key points for the East Midlands are:

- As reflected in CO<sub>2</sub> emissions by end user in Chart 4, the East Midlands accounted for relatively high energy consumption due to vehicle fuel. In 2006, 9.3 tonnes of fuel per capita were used in transport in the East Midlands, the third highest of the nine regions. The North East had the highest consumption of vehicle fuel, at 12.7 tonnes per capita, whilst London had the lowest, at 6.6 tonnes per capita;
- The East Midlands had a lower relative consumption of energy for domestic purposes, at 9,310 kWh per capita in 2006. This is the fifth highest of the nine regions;
- When this consumption is split into electricity and gas, an estimated 18,490 kWh per meter point of gas was consumed by domestic users in 2006 in the East Midlands, the fourth highest of the English regions, whilst 4,410 kWh of electricity was consumed per meter point by domestic users, the fifth highest of the English regions;
- The East Midlands had the fourth highest consumption of energy for industrial and commercial purposes, at 25,600 kWh per employee in 2006. The North East had the highest, at 25,600 kWh, and London had the lowest, at 14,700 kWh per employee; and
- In the case of industrial and commercial users in the East Midlands, 9,400 kWh of gas was consumed per meter point, the fourth highest of the English regions, whilst 8,100 kWh of electricity was consumed per meter point, the second highest of the English regions.<sup>75</sup>

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<sup>75</sup> Department for Energy and Climate Change, 'High Level Energy Indicators 2006', February 2009

## Key Points: Energy

- The East Midlands is a major producer of energy. The majority of energy is generated from fossil fuels. Currently, the region's coal fired power stations account for 10-15% of the UK's total capacity.
- The region's coal mining history provides opportunities for energy through clean coal extraction. This can be obtained from Abandoned Mine Methane (AMM) and from drainage of methane from active mines (Coal Mine Methane – CMM) and from unmined coal seams (Coal Bed Methane). Coal can also be gasified in situ through a process of Underground Coal Gasification (UCG).
- The East Midlands is also an important region for onshore oil production, with around 25 oil fields (producing about 11% of the UK's onshore oil). The East Midlands also hosts the UK's largest onshore gas field, at Saltfleetby.
- The East Midlands has approximately 180 Megawatts of renewable energy capacity, from hydro, wind, landfill gas and other sources. However, power generated from this capacity is only equivalent to 9.2% of total output from renewable sources in England, the fifth lowest of the nine regions.
- However, the East Midlands is particularly well placed in the UK biomass market. The East Midlands has an increasing yield of energy crops combined with a growing demand for such fuels due to the presence of two large 'co-firing' power stations alongside a growing number of small scale biomass boilers across the region.
- The East Midlands has one of the highest levels of energy consumption of the English regions, at 29,700 kilo Watt hours per resident in 2006. Consumption of energy through fuel for road transport is a key contributor to this.

## 7.6 Waste

### 7.6.1 Waste production and disposal

The latest figure for total waste arising in the East Midlands is 24.3 million tonnes, 10.1% of the 241.7 million tonnes produced in England as a whole in 2006.<sup>76</sup> Chart 15 shows that:

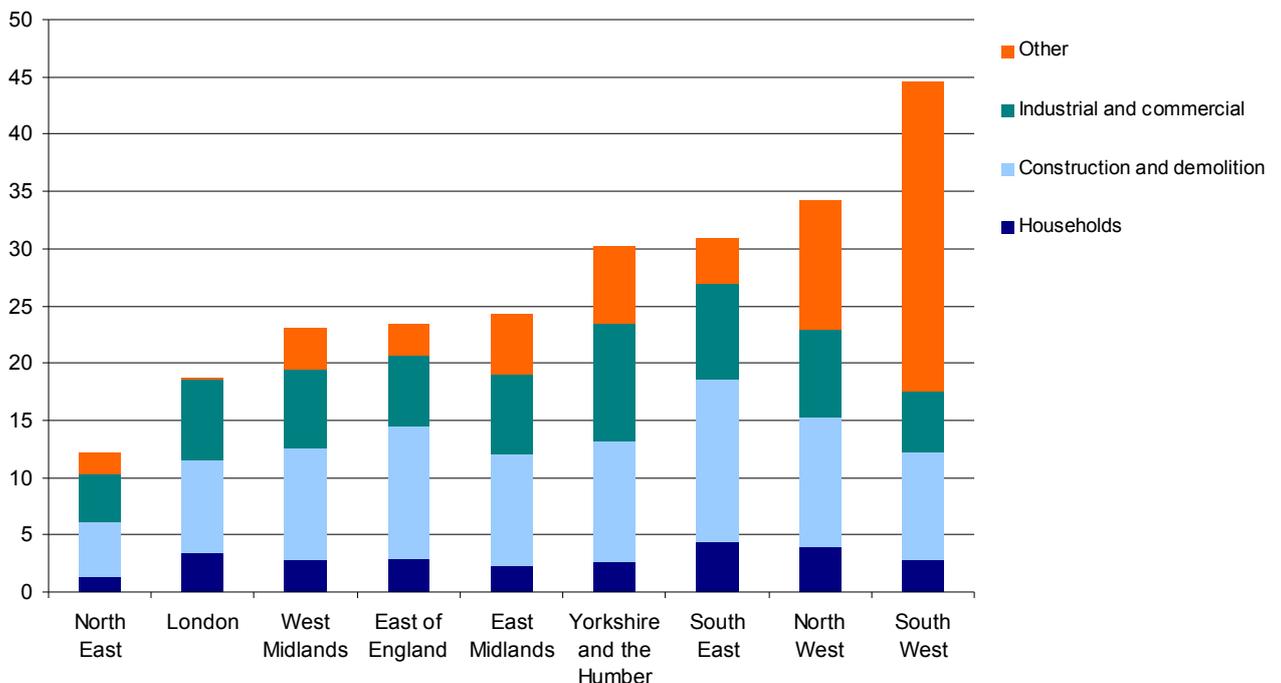
- Of this total, construction and demolition accounted for the largest proportion in the East Midlands, at 40.1% (above the average for England of 36.8%);

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<sup>76</sup> Defra, 'Sustainable Development Indicators 2009, Sustainable Consumption and Production Datasets', 2010.

- Industrial and commercial sources accounted for 28.6%, compared to 26.1% in England overall;
- Household (i.e. domestic) sources accounted for 9.5% of the total waste produced in the East Midlands in 2006, below the England average of 11.1%; and
- ‘Other’ sources, which is principally based on the geographical distribution of mineral working sites, mining and quarrying, accounted for 21.8% of the East Midlands’ total, compared to 26% in England overall. However, the national average is skewed by the very high contribution of ‘other’ sources in the South West (accounting for 60.8% of all waste arisings in that region). Because of the importance of minerals and aggregates extraction to the East Midlands, ‘other’ sources account for a higher share of total waste than most regions other than the South West.

**Chart 15: Waste arisings by sector, 2006 (million tonnes)**



Source: Defra Sustainable Development Indicators (2009), Environment Agency, Department for Communities and Local Government (CLG).

In 2006, Gross Value Added in the East Midlands totalled £73,614 million.<sup>77</sup> This means that 330.5 tonnes of waste were generated for every million pounds of GVA produced in the East Midlands, compared to 244.2 tonnes of waste per million pounds of GVA in England overall. Therefore the East Midlands is significantly less resource efficient than the national average according to this measure.

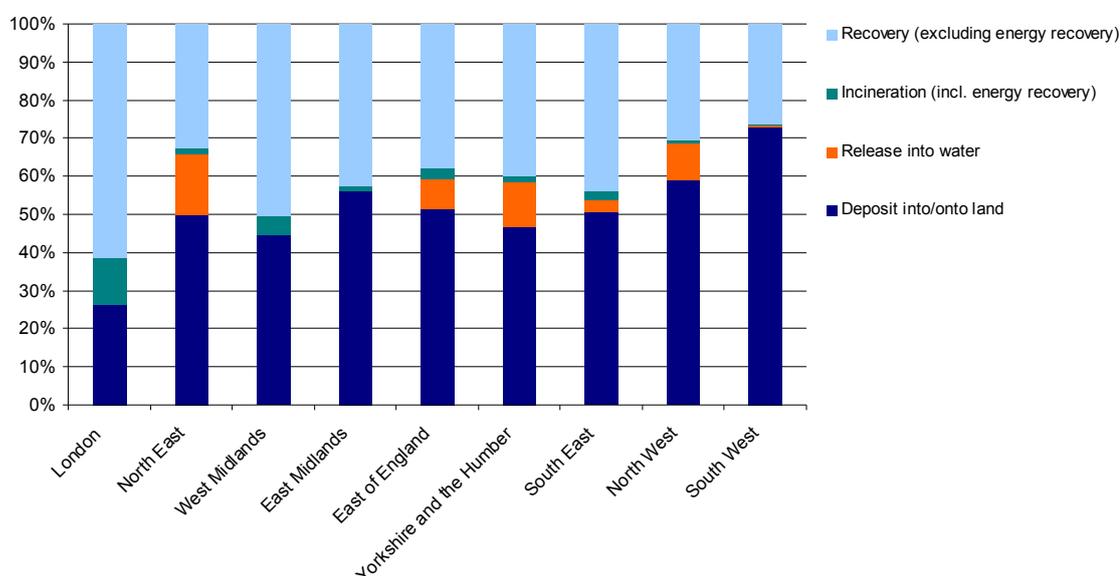
<sup>77</sup> ONS Crown Copyright, ‘Regional, Sub-Regional and Local Gross Value Added’, 9th December 2009.

Of the waste produced in the East Midlands in 2006, 42.6% was recovered or recycled, which was significantly higher than the average for England, of 37.5%. The highest proportion of waste recovery was in the West Midlands, at 50.3%, and the lowest was in the South West, at 26.2%.

As illustrated by Chart 16, disposal on to land – i.e. in landfill sites – remains the most prevalent method of waste disposal in most English regions. In 2006, 12.3 million tonnes of waste went to landfill in the East Midlands, 56.1% of the total, which is above the average for England of 55.0%.

More positively, no waste in the East Midlands was released into water, whereas in the North East, 15.8% of waste was disposed of in this way.

**Chart 16: Waste arisings by disposal, 2006 (%)**



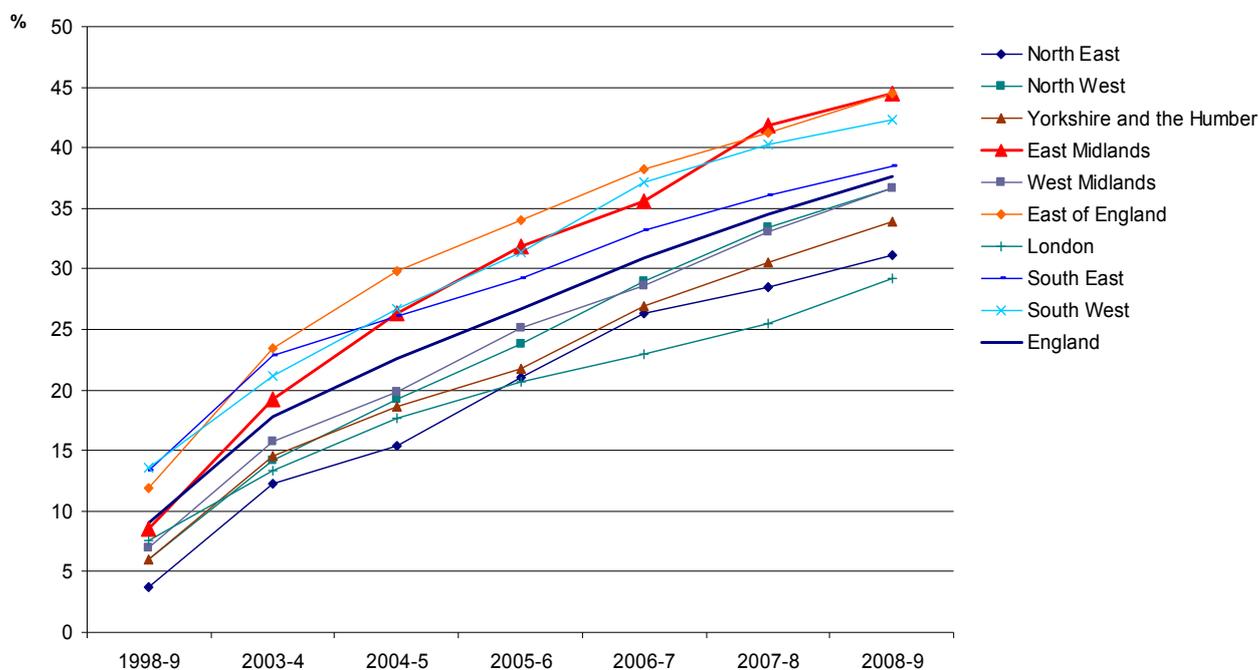
Source: Defra Sustainable Development Indicators (2009), Environment Agency, CLG.

Chart 17 shows trends in the proportion of household waste recycled or composted across the English regions:

- Of the 481 kg per capita of municipal waste produced in the region in 2008-2009, the East Midlands had the joint highest proportion (alongside the East of England) recycled or composted out of the nine English regions at 44.5%, compared to 37.6% in England;
- The lowest proportion of waste recycled or composted in 2008-2009 was in London, at 29.2%; and
- The proportion of household waste recycled or composted has increased across all regions since 1998-1999. However, the proportion has increased in the East Midlands more than any other region over the

decade, by 35.9 percentage points, compared to a 28.6 percentage point increase in England overall.

**Chart 17: Household waste recycled or composted by region, 1998-1999 to 2008-2009 (% of total household waste)**



Source: Defra Sustainable Development Indicators (2009), Environment Agency, CLG.

The cost of dealing with the total amount of waste produced by the region is estimated to be at least £400 million per year. Local Authorities are making steady progress to recover or recycle more of the municipal waste streams, as shown in Chart 17. However, this is still significantly below the East Midlands Regional Waste Strategy targets.

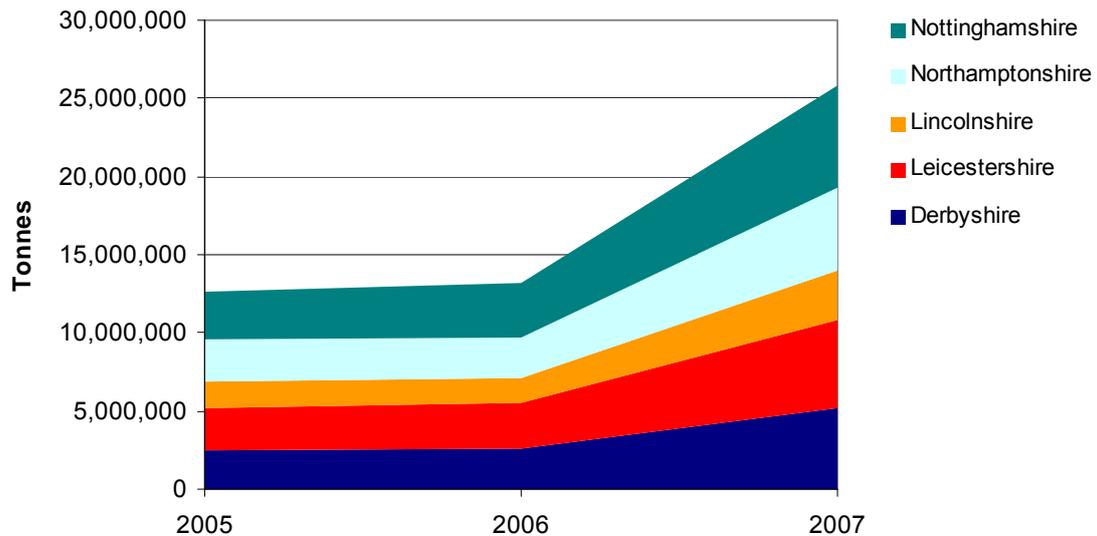
Categories of waste deposits reported to the Environment Agency are:<sup>78</sup>

- Inert / construction and demolition;
- Hazardous or special waste (including toxic and hazardous materials). This is waste considered as hazardous under current regulations, and includes waste such as lead acid batteries or fluorescent tubes. If a business creates hazardous waste, they have a duty to ensure that it is dealt with appropriately.
- Municipal waste; and
- Commercial and industrial waste (not including any special waste from these sources).

<sup>78</sup> Note: this data is not directly comparable to that presented in Charts 15 and 16, which attempt to estimate all waste arisings. The Environment Agency data in Chart 18 only presents data reported to the Environment Agency.

As Chart 18 shows, between 2005 and 2007, the total waste deposited into Environment Agency licensed waste management facilities in the East Midlands has risen from 12.7 million tonnes to 13.2 million tonnes. Management facilities in Nottinghamshire accounted for the largest share in 2007, at 27.6%, whilst facilities in Lincolnshire accounted for the smallest share, at 11.1% of the regional total.

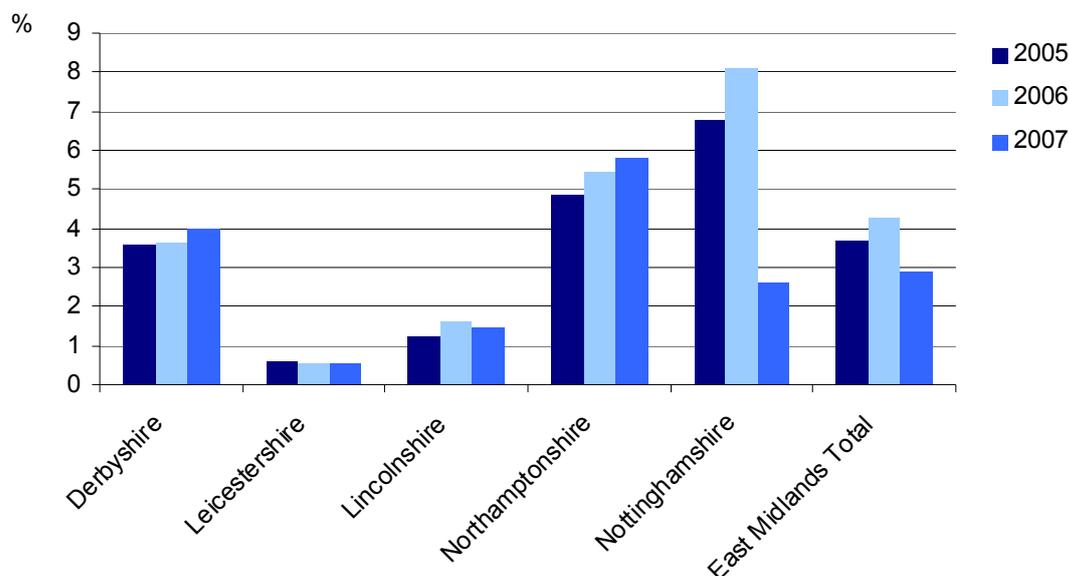
**Chart 18: Total volume of waste deposited at East Midlands management facilities, 2005-2007 (tonnes)**



Source: Environment Agency submission, March 2009.

Chart 19 shows the proportion of waste deposited in Environment Agency management facilities classed as 'hazardous'. In the East Midlands, this has decreased from 3.7% of all waste deposited in 2005 to 2.9% in 2007. However, in a number of local areas this proportion has increased. In Derbyshire, hazardous waste accounted for 3.6% of all deposits in 2005, increasing to 4% in 2007, and in Northamptonshire, hazardous waste accounted for 4.9% of all deposits in 2005, increasing to 5.8% in 2007.

**Chart 19: Proportion of waste deposits to East Midlands management facilities classed as 'hazardous', 2005-2007 (%)**



Source: Environment Agency, March 2009.

### 7.6.2 Recycled and secondary aggregates

As established in section 4, the East Midlands has the most significant natural aggregate resources of all English regions. Until the 1970s, the region could also tap into a wide range of other materials, by-products or "waste" from other industries and demolition. Important usable by-products from industry were iron and steel slag, pulverised fuel ash (PFA), furnace bottom ash (FBA), colliery spoil (burnt or unburnt), and brick/ceramic waste. Demolition waste principally comprised airfield concrete, especially in the eastern/southern counties. With the notable exception of PFA and FBA, most of these materials are now no longer available, and certainly not in the quantities previously experienced. Even supplies of PFA and FBA have greatly reduced with the closure of a number of coal-fired power stations. However no comprehensive or consistent series of figures are available to quantify such trends. The following summarises the present position.

**Construction and demolition waste:** the Office for the Deputy Prime Minister (ODPM – now the Department of Communities and Local Government) commissioned national studies relating to 2001 and 2003.<sup>79</sup> Attempts were made to derive regional figures but users were cautioned against over-interpretation. The results are summarised in Table 4:

<sup>79</sup> Survey of arisings and use of construction and demolition waste in England and Wales in 2001 (Symonds Group) for ODPM 2002-2004.

**Table 4: Waste arisings from construction and demolition in the East Midlands, 2001 and 2003**

<b>Demolition/excavation waste: East Midlands</b>			
<b>Year</b>	<b>Total arising (Million tonnes)</b>	<b>Used as aggregate (Million tonnes)</b>	<b>Confidence limits</b>
2001	10.59	4.09	±55%
2003	9.88	4.26	±14%

Source: Survey of arisings and use of construction and demolition waste in England and Wales in 2001, for ODPM 2002; Survey of arisings and use of construction and demolition waste in England and Wales in 2003, for ODPM 2004.

Over 40% of demolition/excavation waste is used as aggregate and the bulk of the remainder includes soil and material unsuitable for use as aggregates. This was employed in landfill, backfilling quarry voids, land reclamation, landscaping for leisure projects, etc. No records of the waste arising within various parts of the region are held, but these are likely to be heavily concentrated in the three main cities and the former coalfield area.

**PFA and FBA:** Coal-fired stations produce significant volumes of pulverised fuel ash and furnace bottom ash. These materials can be processed and used as aggregates (estimated at 33-50%), most of the remainder being employed in the systematic restoration of sand and gravel workings.

**Road planings:** the East Midlands Aggregates Working Party is currently collecting information from Highways Authorities. In the past, levels recorded have been extremely modest, amounting to only a few tens of thousands of tonnes. However the practice and related facilities have increased since the last surveys (in the 1990s). In addition to the recycling of aggregate per se, the rising price of bitumen will also act as a spur. Many of the main routes in the region (notably the M1) are programmed for surface renewal, and recycling is now normally a condition of contract.

### **Key Points: Waste**

- The East Midlands accounts for 10.1% of the waste produced in England. Construction and demolition accounted for the largest share.
- For every million pounds of GVA generated in the East Midlands, 330.5 tonnes of waste were produced, compared to 244.2 tonnes of waste per million pounds of GVA in England overall. Therefore the East Midlands is significantly less resource efficient than the national average according to this measure.
- Landfill remains the most prevalent method of waste disposal in the region (56.1% of the total, compared to 55.0% in England).
- However, in terms of municipal waste alone, the East Midlands has the joint highest proportion (along with the East of England) recycled or composted, at 44.5% compared to 37.6% in England. The East Midlands has also experienced the largest percentage point increase in the proportion of household waste recycled or composted between 1998-1999 and 2008-2009 of all nine English regions.
- Management facilities in Nottinghamshire accounted for the largest share of waste deposits in the region, whilst Lincolnshire accounted for the smallest share.
- The proportion of waste classed as 'hazardous' deposited in the region has decreased from 3.7% in 2005 to 2.9% in 2007.
- Currently about 40% of demolition/excavation waste in the East Midlands is used as aggregate, but this proportion is much lower than previous levels due to resources like airfield concrete and colliery spoil no longer being available.

## **7.7 Water**

Water is essential for life and is used for water supply as well as recreation and maintaining habitats in rivers and wetlands. Surface water from the River Trent and major tributaries, together with groundwater in the Sherwood Sandstone, the various limestone formations, and the gravels along the River Trent that form the main aquifers, comprise the main water resources in the region.

### **7.7.1 Water resources**

**Rainfall:** Water resources within the East Midlands are under pressure, with parts of Lincolnshire that are amongst the driest in the country, receiving less than 600 mm/yr of precipitation. In addition, this area also has large requirements for water to irrigate the high quality agricultural land. In contrast, the upland areas in the northwest of the region receive higher amounts of rainfall, in excess of 1300 mm/yr in parts. Over the entire region the average annual precipitation is around 670 mm/yr, which is significantly less than the

England average of 828 mm/yr.<sup>80</sup> Due to losses to vegetation and evaporation the effective rainfall for the East Midlands is not spread evenly throughout the year, with the majority occurring during the winter months.

**Surface water:** The main watercourses in the region can be split into those rivers that run into the Humber Estuary to the north of the region and those that flow into The Wash, off the Lincolnshire Coast. In the north and west of the region, the main rivers and their tributaries flow into the River Trent, which runs north of the region into the Humber Estuary. The Rivers Derwent, Dove, Soar and Erewash all flow into the Trent. The River Ancholme, in northern Lincolnshire, flows directly into the Humber. The western moors and uplands of Derbyshire are principally drained by the Derwent, whilst the Leicester vales are drained by the Soar. The eastern part of the area generally drains towards The Wash, with the Rivers Welland and Witham flowing into The Wash and the River Nene running between The Wash and the Grand Union Canal. Many users abstract directly from these rivers, although most water is drawn from the Derwent and Dove, rather than the Trent itself. The region also contains large public supply reservoirs, for example the Derwent Valley, Carsington, Ogston, Rutland and Pitsford.<sup>81</sup>

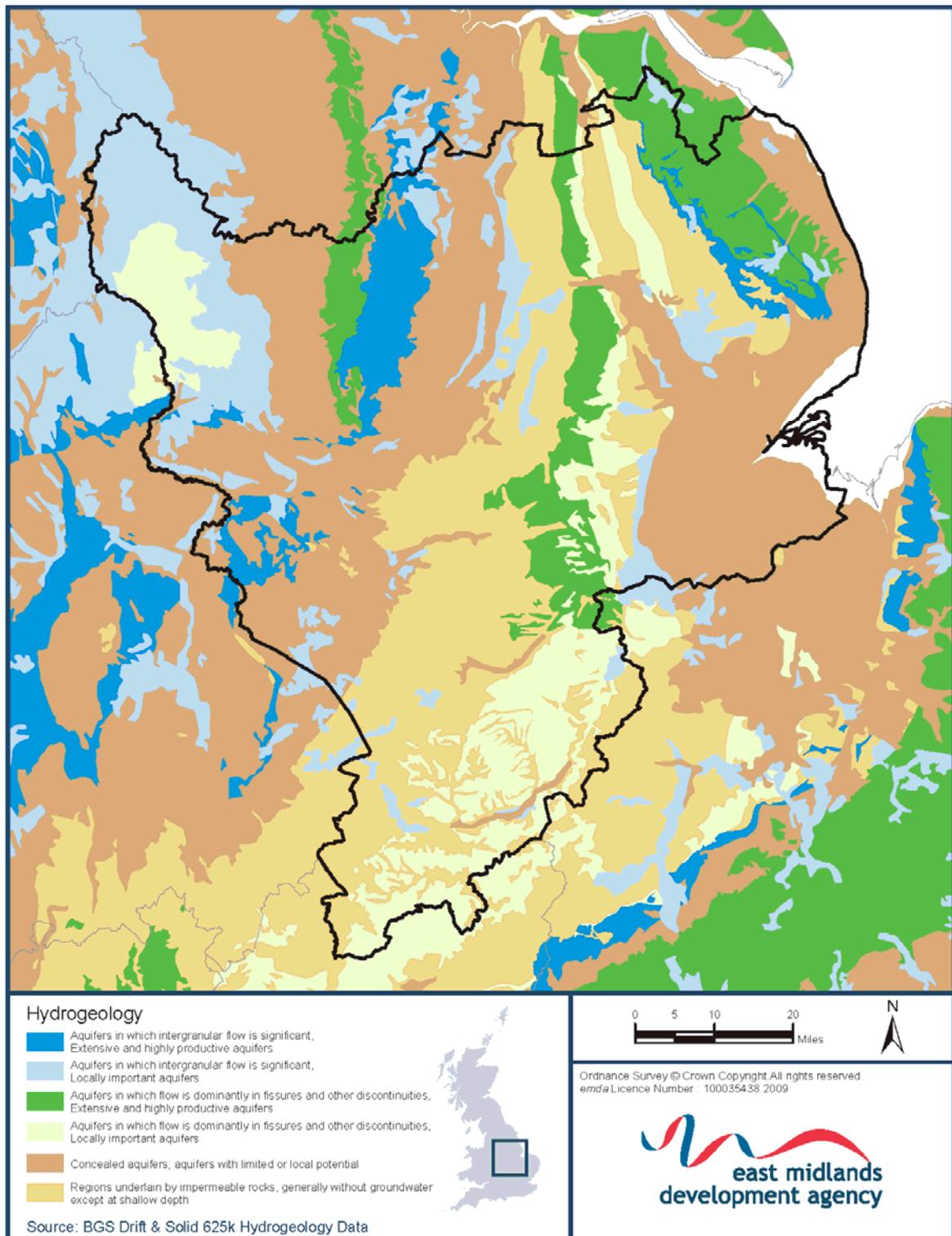
**Groundwater:** Approximately 40% of the region is underlain by useable aquifers, comprising bedrock formations as well as the superficial deposits (mainly the gravels associated with the River Trent). Bedrock aquifers include the Sherwood Sandstone, Cadeby Formation, Carboniferous Limestone, Lincolnshire Limestone, Spilsby Sandstone and Chalk. Table 5 summarises the hydrogeological classification of the region. Aquifers are recharged from rainfall and from streams flowing along their outcrops. The locations of the aquifers are shown in Map 14.

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<sup>80</sup> Meteorological Office, Hadley Centre.

<sup>81</sup> Environment Agency, 'A water resources strategy for the East Midlands', 2001.

**Map 14: Hydrogeology of the East Midlands, 2009**



**Table 5: Hydrology in the East Midlands**

<b>Superficial deposits</b>	<b>Lithology</b>	<b>Permeability</b>
Blown sand	Sand	Permeable
Peat	Peat	Low permeability
Alluvium	Clay, silt and sand	Generally low permeability
River terrace deposits	Sand and gravel	Permeable
Glacial sand and gravel	Sand and gravel	Permeable
Till	Boulder clay	Low permeability

<b>Bedrock</b>	<b>Lithology</b>	<b>Aquifer classification</b>
Chalk	Chalk	Aquifer
Carstone and Roach Formations	Sandstone underlain by sandy limestone and mudstone	Mainly aquifer
Tealby Formation	Mudstone and subordinate limestone	Mainly aquitard
Spilsby Sandstone	Sandstone	Aquifer
Kimmeridge Clay, Amphill Clay, West Walton and Oxford Clay Formations	Mudstone	Aquitard
Cornbrash	Limestone	Aquifer
Blisworth Clay Formation	Mudstone	Aquitard
Blisworth Limestone Formation	Limestone	Aquifer
Lincolnshire Limestone	Limestone	Aquifer
Whitby Mudstone, Marlstone Rock, Dyrham and Charmouth Mudstone Formations	Mainly mudstone	Aquitard
Mercia Mudstone Group	Mudstone with occasional siltstones	Aquitard
Sherwood Sandstone Group	Sandstone	Aquifer
Brotherton Formation	Dolomitic limestone	Aquifer
Edlington Formation	Mudstone	Aquitard
Cadeby Formation	Dolomitic limestone underlain by mudstone	Aquifer underlain by aquitard
Coal Measures	Mudstone, siltstone, sandstone and coal	Multi-layered aquifer
Millstone Grit	Mudstone, siltstone and sandstone	Multi-layered aquifer
Carboniferous Limestone	Limestone	Aquifer
Precambrian	Volcanic rocks and slates	Aquitard

Source: British Geological Survey, 2009.

Table 5 identifies the main geological sources of groundwater in the East Midlands, in terms of 'superficial deposits', such as alluvium (deposited by rivers and streams), and water sources found in 'bedrock', such as aquifers (underground layers of water-bearing rock from which groundwater can be extracted).

The river terrace deposits form an important aquifer, particularly along the Trent. The water is on hydraulic continuity with the associated surface water with both water levels and quality reflecting that of the rivers.

Over the Wolds, where there are no overlying superficial deposits, there is little or no surface runoff with rainfall directly recharging the aquifer. Springs issue from the base of the formation along the scarp slope and also at the western margin of the coastal plain, at the junction with the overlying till.

Groundwater in the Lincolnshire Limestone is generally of good quality, though hard and of calcium bicarbonate type near the outcrop. The water softens eastwards due to cation exchange, but eventually deteriorates with increasing depth and distance from outcrop, becoming dominated by sodium and chloride ions.<sup>82</sup>

The Mercia Mudstone Group predominantly consists of impermeable mudstones with occasional thin strata of siltstones and sandstones which may transmit limited quantities of groundwater through fractures.

The Sherwood Sandstone Group forms the second most important aquifer in England, supplying around a quarter of licensed groundwater abstractions in England and Wales. Historically, over-abstraction in Nottingham led to a decline in water levels that has been reversed since 1965 by a reduction in industrial abstraction.<sup>83</sup> Groundwater in the Sherwood Sandstone is generally of good quality. Nitrates are locally elevated due to agricultural practices. Around Nottingham the water quality is poorer, probably due to the effect of domestic and trade effluents over time.

The Coal Measures Group comprises alternations of sandstone, siltstones and mudstones, with frequent coal seams. Coal Measures sandstones generally possess little permeability, thus groundwater storage and movement occurs predominantly within and through fractures. The mining of numerous coal seams has been widespread and has largely disrupted natural hydrogeological conditions of the Coal Measures Group by the creation of open shafts, roadways and galleries, as well as collapsed disused workings and the production of subsidence-induced fractures. Yields are therefore from boreholes and are very variable, but can be large if old workings are intercepted. The water can be of drinkable quality at shallow depths. However, water from deep mines tends to be of poor quality with high total hardness, sulphate, chloride and iron concentrations. Mining activities tend to lower water tables compared with natural conditions, particularly where shafts are actively dewatered by pumping. Once mine dewatering ceases, and water levels naturally rebound, the quality of groundwater in the Coal Measures may be worse than before.

River flows around the Peak District are almost entirely fed by groundwater springs. Hydrographs indicate the large seasonal variations of water levels are due to the aquifer's low porosity and also the spiky response to individual rainfall events. The quality of water from the Carboniferous Limestone tends

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<sup>82</sup> Griffiths K J, Shand P and Marchant P, 2006, Baseline Report Series 23: The Lincolnshire Limestone, British Geological Survey Commissioned Report CR/06/060N.

<sup>83</sup> Charsley T J, Rathbone P A and Lowe D J, 1990, 'Nottingham: A geological background for planning and development', British Geological Survey Technical Report WA/90/1.

to be hard and the karstic<sup>84</sup> nature of the aquifer leads to rapid flow of water and thus the aquifer is vulnerable to contamination from the surface. After heavy rainfall, the water can become turbid and polluted, with high concentrations of suspended solids, organic matter, bacteria and nitrates.

## 7.7.2 Groundwater vulnerability

The main aquifers are very vulnerable at outcrop to surface pollution at the outcrop, where they are not protected by overlying, impermeable superficial deposits. This is particularly relevant to the Sherwood Sandstone.

### 7.7.2.1 Nitrate Vulnerable Zones

Nitrate Vulnerable Zones cover 55% of England and 3% of Wales and are designated in order to prevent nitrates entering groundwater by limiting the amount of nitrogen fertiliser applied to farmland. Within the East Midlands 19,120 hectares of agricultural land are designated as Nitrate Vulnerable Zones – mostly in the northern and central parts of Nottinghamshire and Lincolnshire and in southern Northamptonshire. This, however, represents only a small proportion of the ground and surface waters in the region vulnerable to nitrate pollution from agriculture, with much larger EU Nitrate Directive Nitrate Vulnerable Zones designated.<sup>85</sup>

## 7.7.3 Present water use and availability

Water abstractions from surface streams and underground aquifers support a range of uses. Water companies supply domestic, commercial and industrial users, and also supply to high volume users like agriculture, fisheries and power generation. In rural areas, some households also have their own domestic supplies.

Public water supply is the dominant use of water and constitutes in excess of 1,150 million litres per day (Ml/d). This is provided primarily by Severn Trent Water and Anglian Water, with a small area in the north west supplied by United Utilities and two small rural areas south west of Derby supplied by South Staffordshire Water. These companies utilise and distribute water via a combination of reservoirs, rivers and groundwater.

Additionally industry abstracts approximately 350 Ml/d. The majority of this water is treated and subsequently returned to the river network, where it is available for re-abstraction downstream. However, the treated water is

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<sup>84</sup> 'Karstic' refers to an area of irregular limestone in which erosion has produced fissures, sinkholes, underground streams and caverns.

<sup>85</sup> Defra, England Rural Development Programme (ERDP) Regional Chapters – East Midlands, May 2005.

frequently discharged to the network a considerable distance from where it was first abstracted.

Agriculture is important within the region with 77% of available land being used for agriculture. This is dominated by arable farming, notably cereal crops.<sup>86</sup> Agricultural abstraction for spray irrigation of these crops accounts for a further 90 MI/d, and is mainly obtained during the summer months when river levels are at their lowest. Peak daily irrigation demands may exceed public supply demand and little of this water is returned to the river network.

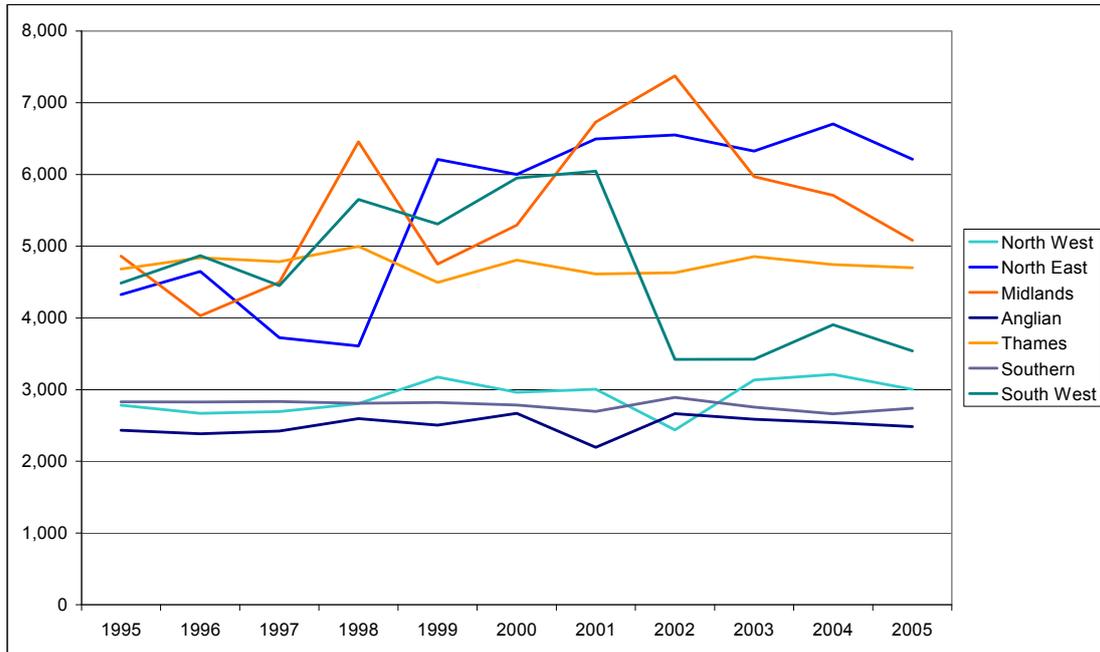
Chart 20 offers a comparison between the Environment Agency's regions in terms of the volume of water abstractions between 1995 and 2005. It is important to note that the East Midlands cannot be isolated from the data, as it is covered by parts of the Midlands and Anglian regions. Nonetheless, useful comparisons can be drawn out:

- Water abstractions in the Midlands as a whole have been amongst the highest in England since 1995, peaking at 7,376 MI/d in 2002. In 2005 they totalled 5,082 MI/d;
- The lowest volume of abstractions has been from the Anglian region in most years, at around 2,500 MI/d; and
- In most regions, water abstractions remained fairly steady or declined between 1995 and 2005, but abstractions in the North East, and to a lesser extent the Midlands, increased markedly in this period.

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<sup>86</sup> Entec, 2008, East Midlands Development Agency: Water and Physical Developments (Environmental Infrastructure), scoping and characterisation report.

**Chart 20: Estimated total abstractions from non-tidal surface waters and ground waters, 1995 to 2005 (million litres/day)**



Source: Environment Agency submission, March 2009.

The majority of surface water bodies are already fully committed to existing abstractions during the summer. Additional summer abstraction would only be possible from the River Trent and parts of the Soar, although additional winter abstraction may be possible across the region.

On the local scale the Environment Agency's Catchment Abstraction Management Strategy (CAMS) also highlights the strain on regional water resources. The majority of resources are classified as no water available (water resources fully allocated at low flows), over-licensed (if users abstract their full allocated volume there is potential for unacceptable environmental impact at low flows) or over-abstracted (existing abstraction is causing unacceptable environmental impact at high flows).

The Environment Agency has declared rivers and streams in over half of the region's catchments closed to further summer abstraction to protect the aquatic ecology and environment, and to prevent flows artificially falling below the requirements of other river uses such as for navigation. Similarly, many aquifers are now considered fully committed. The level of abstraction from some aquifers has reduced baseflows in watercourses and is causing adverse environmental effects.

#### 7.7.4 Future water issues

As described in Chapter 1, 'The East Midlands Demography', the region's population is projected to increase by 460,425 additional residents between 2006 and 2016. This is likely to intensify the demand for water resources in the area, although it is likely that these additional households would be more

water efficient. The Environment Agency forecasts suggest that future water demand due to this population increase could range between a 40% decrease and a 25 to 40% increase depending on a combination of economic pressures, more sustainable ways of using water and technological innovation. Additionally agricultural spray irrigation demand could decrease by 15% or increase by 60% by 2025 depending on customer and supermarket produce quality demands, international competition, crop varieties grown and efficiency of water use. This will have a significant effect on river and wetland habitats as already some abstractions exceed the current sustainable limit.<sup>87</sup>

Climate change is likely to result in higher temperatures with drier summers and wetter winters. This is likely to further exacerbate the pressures on water resources as demands for water are usually greatest in the summer. However increased winter rainfall should improve aquifer recharge and reservoir storage volumes, although increased variability in rainfall could make this less predictable.<sup>88</sup>

### 7.7.5 Water quality

The quality of rivers is affected by discharges from sewage treatment works and industries, and by diffuse drainage and discharges from agriculture. Unpolluted rivers should contain a wide diversity of organisms with no single species in great abundance. The effect of pollution is to selectively remove certain types of organisms, possibly resulting in other species becoming excessively abundant. The quality of rivers can therefore be classified by the presence of chemicals that indicate pollution and the extent and variety of biological organisms that inhabit them.

There has been a change in methodology used to make these assessments. The General Quality Assessment (GQA)<sup>89</sup> network has been reduced in its extent, due to the introduction Water Framework Directive into UK law in 2003. The methodology for chemical quality has also changed, with Biochemical Oxygen Demand no longer assessed. The result is that the figures will not be comparable with previously released GQA data. The GQA classifications themselves will cease to exist beyond 2010 so will cease to be the long term indicator for water quality.

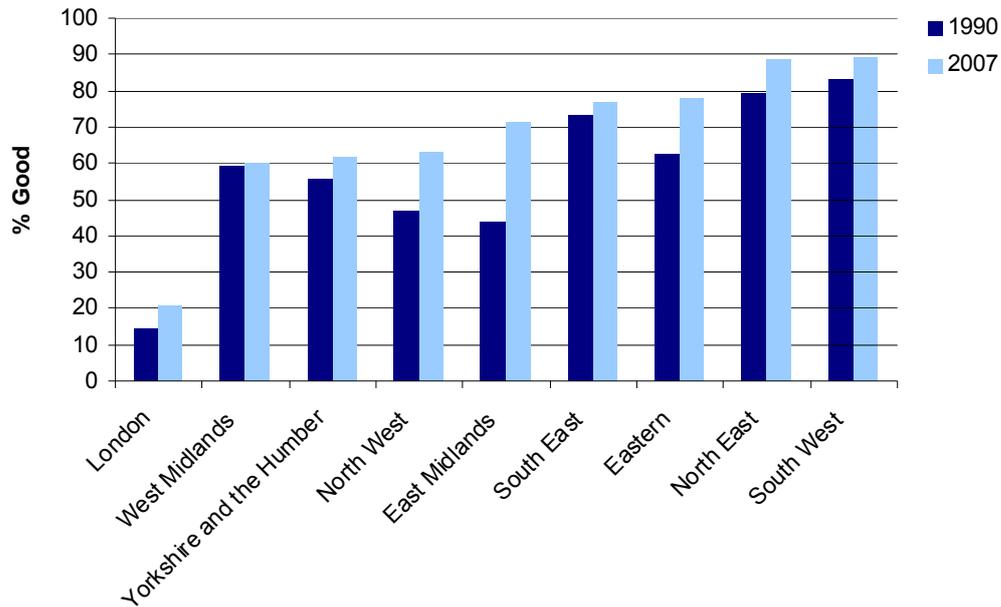
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<sup>87</sup> Environment Agency website <http://www.environment-agency.gov.uk>

<sup>88</sup> Waters B, 2004, 'The potential impact of climate change in the East Midlands'.

<sup>89</sup> The two principal elements of the General Quality Assessment (GQA) scheme for rivers cover chemical quality and biological quality. Chemical quality is defined by concentrations of Biochemical Oxygen Demand (BOD), ammonia and dissolved oxygen. These have been selected as indicators of the extent to which water has been affected by waste water discharges and rural land use run-off containing organic, biodegradable material. Biological quality is assessed by an evaluation of micro-invertebrates and plant life, which act as indicator species for the wider ecology of the water system. In terms of both chemical and biological quality, rivers are classified as 'very good', 'good' (where ecosystems are natural or close to natural) 'fairly good', 'fair', 'poor', or 'bad' (where ecosystems are impoverished or severely restricted).

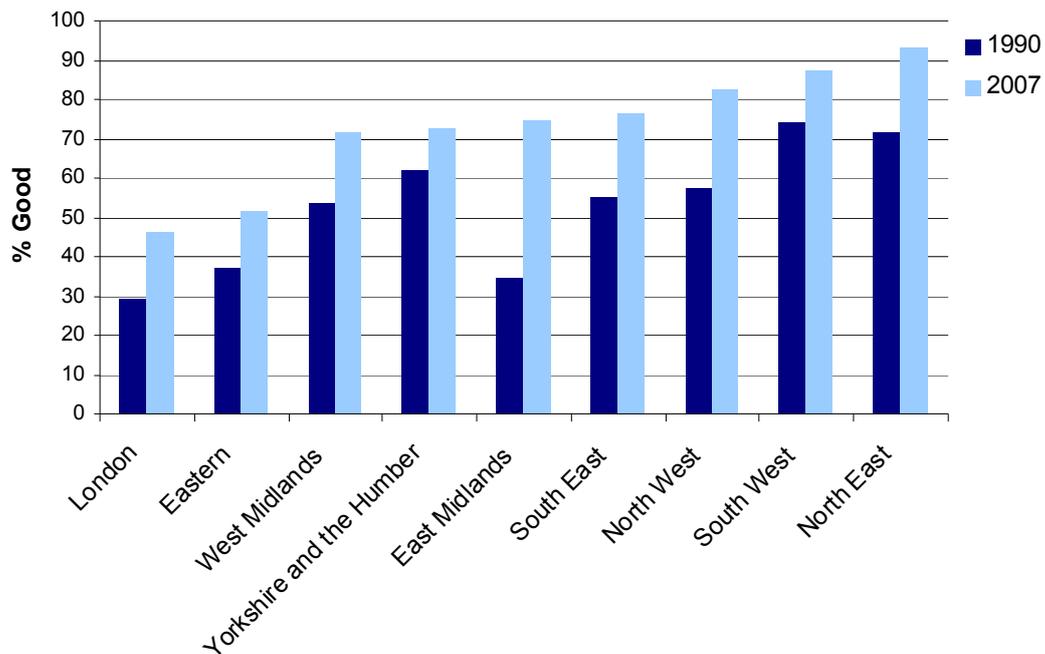
**Chart 21: Rivers classified as being of 'good' biological quality by region, 1990 and 2007 (%)**



Source: Environment Agency, February 2009.

Chart 21 shows that in every region, the proportion of river length achieving good biological GQA quality has increased since 1990. The East Midlands has experienced a significant improvement – the largest increase of any region, at 27 percentage points from 44% to 71% in 2007.

**Chart 22: Rivers classified as being of 'good' chemical quality by region, 1990 and 2007 (%)**



Source: Environment Agency, February 2009.

The proportion of river length achieving good chemical GQA quality has also increased since 1990 across all regions (Chart 22), again with the highest increase in the East Midlands, from 34% to 75% in 2007.

In 2008, the draft River Basin Plans were published according to the new classifications data required for the Water Framework Directive.<sup>90</sup> This supersedes GQA data and will become the key water quality dataset for England and Wales.

Assessment required by the Water Framework Directive means that river lengths are split into stretches known as 'water bodies'. They are categorised according to their 'naturalness'. Those considered less natural are put forward as candidate 'artificial' or 'heavily modified' water bodies. The standards that each stretch is required to meet depends on its 'naturalness'. The methodology for classifying 'non-natural' rivers is still being refined so results are only currently available for rivers categorised as 'natural' only. In the East Midlands the summary assessments of 'naturalness' and the results for assessments of the ecological and chemical classes of those water bodies assessed as 'natural' are shown in Table 6.

**Table 6: Water Framework Directive assessments from draft River Basin Plans in the East Midlands, 2009**

<b>Summary assessment</b>	<b>'Artificial' or 'Heavily modified'</b>	<b>'Natural'</b>			<b>Total</b>
Length of water bodies in km	2,613	2,402			5,015
% of total length	52.1	47.9			100.0
<b>Ecological class (of all water bodies categorised as 'natural')</b>	<b>Good</b>	<b>Moderate</b>	<b>Poor</b>	<b>Bad</b>	<b>Not yet assessed</b>
Length of water bodies in km	329	1,368	622	44	38
% of total length	13.7	57.0	25.9	1.8	1.6
<b>Chemical class (of all water bodies categorised as 'natural')</b>	<b>High</b>	<b>Moderate</b>	<b>Not yet assessed</b>		
Length of water bodies in km	658	48	1,695		
% of total length	27.4	2.0	70.6		

Source: Environment Agency submission, February 2009.

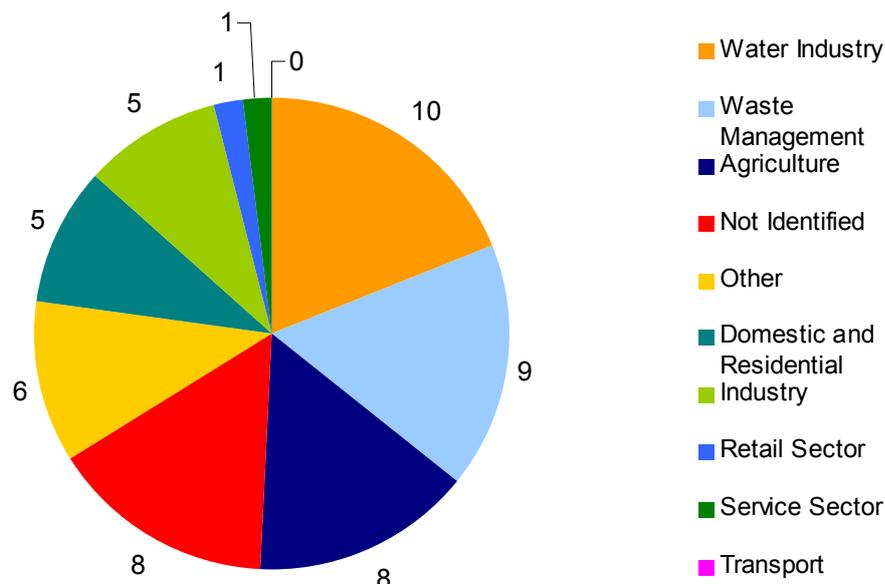
<sup>90</sup> The Water Framework Directive (WFD), which became legislation in the UK in 2003, is the most substantial piece of water legislation from the European Commission to date and is designed to improve and integrate the way water bodies are managed throughout Europe. In the UK, much of the implementation work will be undertaken by competent authorities. Member States must aim to reach good chemical and ecological status in inland and coastal waters by 2015.

Table 6 shows that, of the 5,015 km of water bodies in the region, 47.9% has been assessed as being in a 'natural' state. Of those water bodies classed as being in a 'natural' state, 25.9% of the length assessed so far was classed as being in a 'poor' ecological state and 1.8% in a 'bad' ecological state. A much lower proportion of the water bodies had been assessed for chemical class at the time of writing (70.6% had not yet been assessed), and all assessments so far had classed the river bodies as being of either 'high' or 'moderate' chemical status.

### 7.7.6 Pollution incidents

Pollution incidents have been reported showing the latest full year's data provided by the Environment Agency. There were 53 pollution incidents in the 'major' (category 1) and 'significant' (category 2) impact categories for 2008, compared with 99 in 2003.<sup>91</sup>

**Chart 23: Pollution incidents with major or significant impacts in the East Midlands, 2008 (number of incidents)**



Source: Environment Agency submission, February 2009.

Chart 23 shows the distribution of the pollution incidents reported in 2008. For those where the source has been identified, 'water industry' and 'waste management' accounted for largest proportion of incidents in 2008, at 19% (10 incidents) and 17% (9 incidents) respectively. 'Waste management' was also a significant cause of incidents in 2003, accounting for 19% of all incidents in that year.

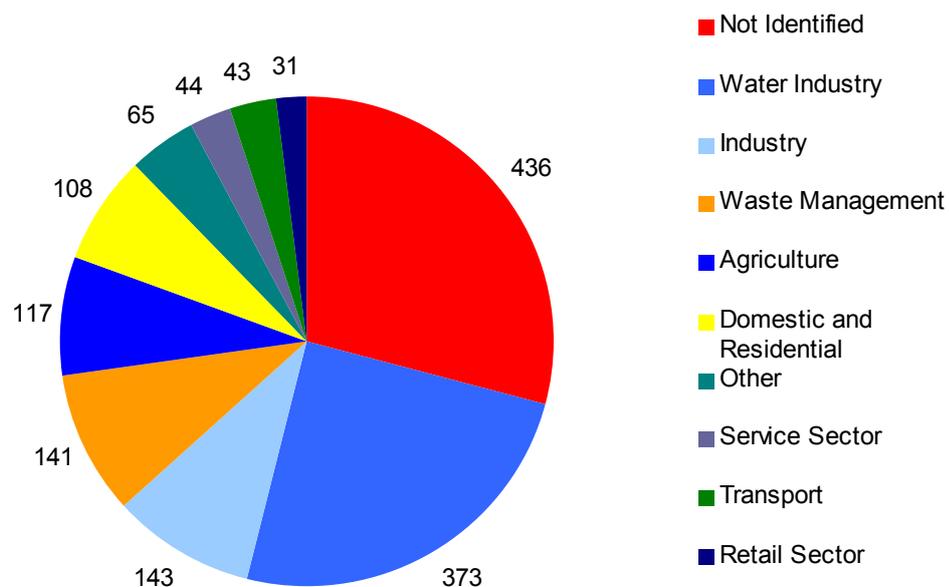
<sup>91</sup> Pollution incidents are ordered in categories from 1 to 4, with category 1, 'or 'major' incidents having the most serious impact on water quality.

'Industry' (including manufacturing, power generation and supply, construction and demolition) accounted for a large proportion of incidents in 2003 with 19%, but this has fallen to just 9% in 2008. Incidents attributed to 'agriculture' have experienced the greatest increase, from 8% of all recorded pollution incidents in 2003 to 15% in 2008.

In interpreting this data it should be noted that:

- No source has been identified for 15% of incidents reported in 2008; and
- The total number of incidents attributed to each of the sectors is small. For example, 'water Industry' accounts for 19% of the total, but this equates to only 10 incidents in the year.

**Chart 24: Pollution incidents with any environmental impact in the East Midlands, 2008 (number of incidents)**



Source: Environment Agency submission, February 2009.

A similar analysis has been carried out for pollution incidents with any environmental impact (Chart 24). In total, 1,501 incidents were recorded in 2008 compared to 2,329 in 2003, a significant decrease.

Of those where the source was identified, 'water Industry' was the highest contributor followed by 'industry' and 'waste management'. Although the water industry also accounted for the largest number in 2003, it now accounts for an even greater percentage of incidents – rising from 12% in 2003 to 25% in 2008. 'Industry' continues to account for 10% of the incidents. The

proportion of incidents not identified at source has also fallen, from 43% in 2003 to 29% in 2008.

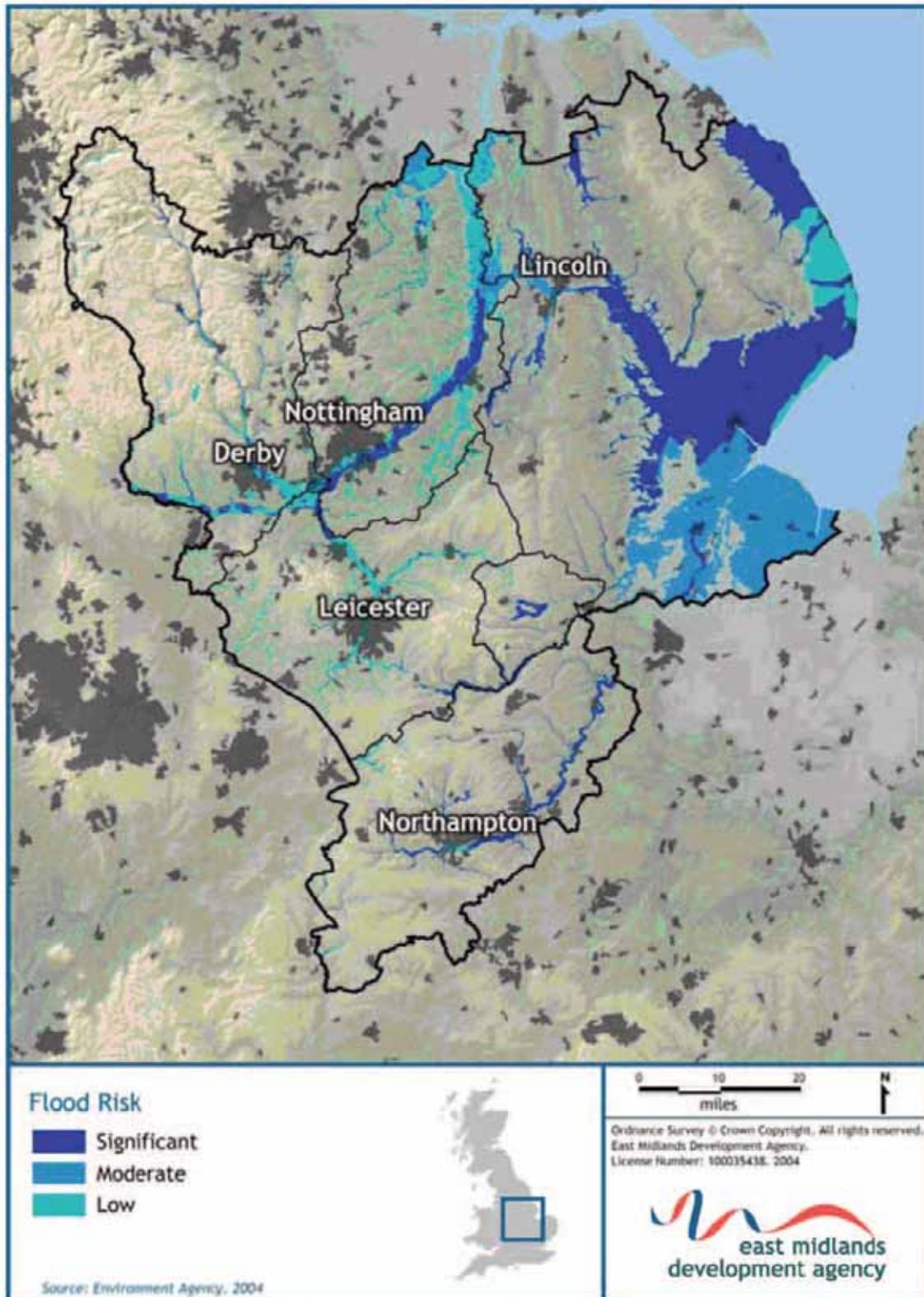
### 7.7.7 Flood risk

Flooding is a natural process and can happen at any time, with a wide variety of locations and geographical settings proving vulnerable. Flood risk areas cannot be defined precisely as the speed and duration of inundation varies greatly depending on the type of flooding. This is because floods can arise from different combinations of weather, sources, rainfall or oceanic patterns, local topography and modifications to the land surface caused by patterns of development.

Flooding from rivers occurs when the amount of water in them exceeds the flow capacity of the river channel. Most rivers are surrounded by a floodplain and where this is not impeded by barriers or development its natural function is to accommodate any excess water that spills over from the channel. Flooding from land happens when intense rainfall, often of short duration, either runs rapidly down slopes or, in poorly drained areas, is unable to soak into the ground or enter drainage systems. This type of flooding commonly involves sewerage overflow, and can be of long duration in low lying areas. It is exacerbated by local topography and urban building development, particularly when this increases land area that water is unable to permeate.

Please note that Map 15 illustrates only 'unmanaged' flood risk – i.e. it does not take into account the impact of current and planned coastal defences, flood protection and drainage schemes.

Map 15: Unmanaged flood risk



In the East Midlands, flood risk is a major economic and social issue in low lying inland areas. The region also contains some of the most extensive flood prone coastal areas in the UK. It is estimated that approximately 17% of the land area in the East Midlands is at risk of flooding, affecting over 350,000 people in 143,000 homes and significant numbers of businesses. Significantly, 20% of the region is low lying and protected by drainage and flood defences and over half of the best and most versatile agricultural land is situated less than five metres above sea level. Extrapolations over the next 50 or so years suggest that the social, economic and environmental consequences of climate change could be severe.<sup>92</sup>

Geological maps, and the Strategic Flood Risk Assessments carried out by the Environment Agency for the Trent and Soar valleys depict the distribution of flood risk for all major and minor floodplains (Map 15). Flood mapping shows that the floodplains of major rivers, such as the Trent, can extend up to 2.5 kilometres away from the main channel. For the River Trent, historical records dating back to 1674 reveal that there have been at least 32 major floods,<sup>93</sup> which will have caused widespread inundation of the floodplains. More recent examples of major floods in the region include:

- In November 2000, widespread inundation of the River Trent and Soar floodplains took place during an event with an estimated 'return period' of 1 in 35 years. It demonstrated that inundation is not only a problem across arable tracts that border river channels, but is particularly damaging in urbanised parts of the floodplain, where housing is dense and drain or sewer systems are unable to cope with significantly raised groundwater levels; and
- In June 2007, after a month's rain fell over parts of the East Midlands in 24 hours, the floodplains of many relatively small valleys were partially inundated. These 'flash' flood events typically affected smaller towns and villages that have grown up along minor streams, the courses of which commonly follow the main street. In these situations flooding is typically localised around constrictions to the stream caused by footpath or road bridges, or poorly maintained culverts.

The floodplains of the East Midlands commonly sustain high water tables due to a combination of high river levels and run-off from the valley sides. The groundwater causes damage by entering cellars or underground facilities, or by causing drains and sewage systems to overflow. Groundwater can also result in flooding behind barriers intended to prevent surface flooding from river channels. Limited groundwater flooding in the East Midlands has been found in valleys underlain by a permeable bedrock aquifer, such as the sandstone beds that underlie much of Nottingham. The hazard can also be expected in ground underlain by Carboniferous Limestone of the White Peak (Derbyshire), or by strata of the Chalk Group in the east of the region.

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<sup>92</sup> Environment Agency website <http://www.environment-agency.gov.uk>

<sup>93</sup> Communication to BGS from Roger Fell, Gunthorpe Flood Action Group, 2004.

Flooding from reservoirs, canals and other artificial sources can be caused by the sudden release of water that is normally retained above the natural ground level, by the impedance of surface flow paths, or by readjustments to groundwater levels upon cessation of pumping. Industrial sand and gravel extraction may unintentionally increase floodwater depths and velocities in adjacent parts of floodplains. Disruption to flow paths and floodplain constriction due to the dumping of colliery spoil, or the opening of opencast mines, may have the same effect.

Industrial flooding can occur when pumping ceases and groundwater returns to its natural level, for example in urban areas where industrial water abstraction is reduced from its previous rate (see above). In Nottingham a short-term solution (by direct pumping) has been adopted where the problem is at its worst, but should levels continue to rise some remedial dewatering of boreholes may have to be commissioned. Where aquifers are hydraulically connected to Coal Measures strata, the rise of mine waters upon cessation of pumping has the potential to cause contamination of local supplies.

#### 7.7.7.1 Coastal flooding and coastal erosion

Coastal regions are particularly sensitive to environmental change. Climate change will have a profound impact on the coasts of Britain, especially the east and south coasts. Pressures will come from sea level rise and increases in severe weather events and storm surges.

A large and increasing body of scientific evidence is showing that that sea levels are changing as a result of human activity. UKCP09 include projections of future sea level rises over the next 100 years. Table 7 shows the central estimates (where there is a 50% probability) of sea level rises affecting London for each of the scenarios and main forecast periods published in UKCP09. The UKCIP02 findings referenced in 'The East Midlands in 2006' provided projections specific to the East Midlands coastline alongside regional forecasts of temperature and precipitation. UKCP09 publishes marine data separately and has significantly more detail on changes to the marine environment alongside estimates of likelihood of storm surges.

**Table 7: Central estimates of sea level changes compared to 1990 (cm) for England (London)**

	Low emissions	Medium emissions	High emissions
<b>2020s</b>	8.2	9.7	11.5
<b>2050s</b>	18.4	21.8	25.8
<b>2080s</b>	30.5	36.3	43.3

Source: UKCP09.

The sea level rises for the high emissions scenario reflect a faster melting of the arctic ice sheets. By the 2050s, coastlines around England could experience an increase of 25.8cm on 1990 levels if future emissions trends progressed in line with this scenario. Under the medium emissions scenario,

the sea level could increase by 21.8cm by the 2050s, and would increase by 18.4cm on the 1990 level under the low emissions scenario.

UKCP09 projects only a small change in future storm surges. The surge level expected to be exceeded once in a two, 10, 20 or 50 year period is not projected to increase by more than 9cm in the next 100 years anywhere in the UK (this is in addition to mean sea level changes). The largest increase in surges is projected to be in the Bristol Channel and Severn Estuary.

The Lincolnshire coast was badly affected by the storm surge of 31st January /1st February 1953. Large areas between Mablethorpe and Skegness were inundated as a number of breaches to the existing defences and sand dunes occurred during the storm. Forty three people lost their lives, property was damaged or destroyed and farmland was made infertile by the saline waters. The event led directly to the improvement of the defences along the coast of the East Midlands. A similar surge on 11th January 1978 caused far less damage and loss of life as a result.

The Lincshore Project was initiated to improve the level of defence for the coastline between Donna Nook in the north to Gibraltar Point in the south. The beaches were renourished using 7.6Mm<sup>3</sup> of sand dredged from an offshore licence area off Lincolnshire, which was then placed on the beach to build up the level. The project commenced in 1994 and was completed in 1998 at a total cost of £37 million. Some additional renourishment was carried out near Chapel St Leonards in 1999.

With the threat of rising sea levels and increased storm risks in the future, coastal erosion is likely to increase. Re-nourishment may be required more frequently to maintain beach levels and ultimately the technique may become economically or environmentally unjustifiable.

The 'open coast' section of the Lincolnshire coastline is not the only area of the region's coastline affected by climate change. Inter-tidal saltmarshes and mudflats provide us with natural defences against storm surges because they reduce the energy of storm waves as they pass over.<sup>94</sup> In The Wash itself, erosion of the salt marsh affected the viability of the sea defences at Freiston Shore in the late 1990s. This led to the managed realignment of the sea defences and creation of salt marsh as part of a long-term sea defence strategy focused on recreation of salt marshes.<sup>95</sup>

The Government's national policies on different aspects of land use planning with respect to flood risk in England are set out in Planning Policy Statement 25: Development and Flood Risk<sup>96</sup> (PPS 25), which was issued in 2006. The key aims of PPS 25 are to:

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<sup>94</sup> Natural England, 'No Charge? Valuing the Natural Environment', 2009.

<sup>95</sup> Natural England, Consultation Response to 'The East Midlands in 2009', November 2009.

<sup>96</sup> Communities and Local Government, 'Planning Policy Statement 25: Development and Flood Risk', December 2006.

- Identify land at risk from flooding;
- Prepare regional or strategic flood risk assessments;
- Frame policies for the location of development to avoid flood risk;
- Reduce flood risk to and from development; and
- Use opportunities presented by development to reduce flood risk by working effectively with the Environment Agency and related agencies to ensure best use is made of expertise available.

An important feature of PPS 25 is the incorporation of a directive which compels the owner or developer to produce a Flood Risk Assessment of the development, to the satisfaction of the Local Planning Authority (LPA). It is then incumbent upon the LPA to consult the Environment Agency and other relevant bodies (e.g. adjacent LPAs) before approving an application for a major development that may have flood risk implications.

#### **Key Points: Water**

- Water resources in the East Midlands are under pressure, as parts of Lincolnshire are amongst the driest in England, but require large quantities of water for irrigation of agricultural land.
- The main watercourses in the region are the Rivers Trent, Derwent, Dove, Soar, Anchome, Witham, Welland and Nene, along with their tributaries. Rivers in the north west of the region mainly flow into the Trent, which in turn flows into the Humber Estuary, whilst rivers in the east and south of the region flow directly into The Wash.
- Approximately 40% of the region is supplied with groundwater from useable aquifers.
- Water abstractions from the Midlands as a whole have been amongst the highest in England since 1995, peaking at 7,376 million litres per day in 2002. The Environment Agency projects that future demand for water will increase by between 25 and 40% by 2025. Drier summers could mean that supply may decrease.
- The East Midlands has experienced the most significant increase in water quality of all English regions between 1990 and 2007. In 2007, 71% of rivers were assessed as being of 'good' biological quality and 75% were assessed as being of 'good' chemical quality.
- The water and waste management industries accounted for the largest proportions of water pollution incidents in the region, but the total number of 'major' or 'significant' incidents have decreased, from 99 in 2003 to 53 in 2008.
- Climate change projections suggest that sea levels could rise by 21.8 cm in the 2050s (compared to 1990 levels) in a medium emissions scenario. This would significantly increase flood risk in parts of Lincolnshire, which are already exposed to coastal flooding in maps of 'unmanaged' flood risk (which do not take account of current or planned flood defences and drainage).

## 7.8 Biodiversity, landscapes and heritage

### 7.8.1 Biodiversity

According to the International Convention on Biological Diversity, the term 'biodiversity' describes: "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."<sup>97</sup> In its widest sense, biodiversity is required for ecosystems to sustain themselves, and life on earth is thus dependent on the maintenance of biodiversity.

Natural habitats, which form functional ecosystems, can provide a range of other benefits as 'ecosystem services'. Along with the intrinsic value they provide in enabling people to encounter wildlife and appreciate the landscape, these services enable the environment to absorb some of the causes and effects of climate change:

- Healthy peat bogs and woodlands lock in carbon, thus helping to tackle the effects of climate change. It is estimated that peat soils in England store around 296 million tonnes of carbon, equivalent to around two years of total national carbon emissions;<sup>98</sup>
- Forests also accumulate carbon in their soils and trees. The entire UK woodland and forestry estate stores around 150 million tonnes of carbon (approximately equivalent of one year's carbon emissions);
- Grasslands store more carbon than any other land use in England (around 686 million tonnes) whilst arable land stores the second largest amount (583 million tonnes);<sup>99</sup>
- Naturally functioning rivers, wetlands and their catchments reducing the risk of flooding in our towns, cities and agricultural land; and
- Coastal habitats, like saltmarshes and sand dunes, providing effective natural defenses against rising sea levels. Salt marshes and mudflats also store significant amounts of carbon, and the largest carbon sink is provided by the ocean itself. Methods to manage ecological processes in the sea to sequester more carbon are the subject of much current research.<sup>100</sup>

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<sup>97</sup> The 1992 Convention on Biological Diversity, signed at the United Nations Conference on Environment and Development at Rio de Janeiro by 150 countries. It is now legally binding on most UN members, including the UK, enshrining a commitment to conserve biological diversity in UK law, including the planning system. In UK planning guidance, biodiversity is covered in PPS 9: Biodiversity and Geological Conservation.

<sup>98</sup> Natural England, 'No Charge? Valuing the Natural Environment', 2009.

<sup>99</sup> Ibid.

<sup>100</sup> Ibid.

As well as these roles, ecosystem services enable recreational use and passive enjoyment of the natural world whilst diverse habitats are a key contributor to the attractiveness of landscapes – generating tourism and contributing to a positive sense of ‘place’. The Biodiversity Action Plan (BAP) was the UK Government’s response to signing the Convention on Biological Diversity. It was published in 1994 and updated in 2007, and set out a priority list of species and habitats that required urgent conservation. The review of the BAP criteria identified 1,149 species and 65 habitats, which were then detailed in the Natural Environment and Rural Communities (NERC) Act 2006.

The 2006 NERC Act also identifies and protects Sites of Special Scientific Interest (SSSIs). SSSI status gives legal protection to the best sites for wildlife and geology and their conservation has to be taken into account in the planning process. All owners and occupiers of land considered to be of special interest because of its flora, fauna, or geological and physiographical features must be notified and the area is then registered as a local land charge, which means that all future owners and occupiers will be bound by the laws protecting SSSIs.

There are currently 4,114 Sites of Special Scientific Interest (SSSIs) in England, covering around 8% of the country's land area. The majority of SSSIs are small, with 40% under 10 hectares in size and 82% smaller than 100 hectares. More than 70% of land area of these sites are internationally important for their wildlife, and designated as Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Ramsar sites. SSSI condition is monitored regularly, and categorised in the following terms:

- **Favourable:** this means that the SSSI land is being adequately conserved and is meeting its 'conservation objectives', however, there is scope for the enhancement of these sites;
- **Unfavourable – recovering:** often known simply as 'recovering'. SSSI units are not yet fully conserved but all the necessary management measures are in place. Provided that the recovery work is sustained, the SSSI will reach favourable condition in time;
- **Unfavourable – no change:** this means the special interest of the SSSI unit is not being conserved and will not reach favourable condition unless there are changes to the site management or external pressures. The longer the SSSI unit remains in this poor condition, the more difficult it will be, in general, to achieve recovery;
- **Unfavourable – declining:** this means that the special interest of the SSSI unit is not being conserved and will not reach favourable condition unless there are changes to site management or external pressures. The site condition is becoming progressively worse;
- **Part destroyed:** lasting damage has occurred to part of the special conservation interest of a SSSI unit such that it has been irretrievably lost

and will never recover. Conservation work may be needed on the residual interest of the land; and

- **Destroyed:** lasting damage has occurred to all the special conservation interest of the SSSI unit such that it has been irretrievably lost. This land will never recover.

In June 2009, 81.1% of SSSIs in England were in 'favourable' or 'recovering' condition. This proportion has increased from 58.3% in 2003. The Government's Public Service Agreement target is for 95% of SSSI land to be in 'favourable' or 'recovering' condition by 2010.<sup>101</sup>

### 7.8.1.1 Biodiversity in the East Midlands

As shown in Chart 25, 10% of the East Midlands land area is covered by an SSSI. This compares to the North East, where 20% of the region's area is covered by land designated as an SSSI, and the West Midlands, where only 2% of the region's land area is designated as an SSSI.

The Wash, much of which is in Lincolnshire, is the largest SSSI in England, covering 62,046 hectares, almost 40% of the total SSSI area in the region, and is particularly noted as a coastal habitat for bird life.

However, this and subsequent data on SSSI condition by Government Office Region need to be interpreted with care, as the boundaries of SSSIs follow the extent of the natural phenomena they represent, and thus do not necessarily match regional boundaries. Therefore there are several significant SSSIs in the East Midlands which overlap other regions, such as The Wash (which extends into the East of England and has an unclear boundary)<sup>102</sup> and a number of large cross-boundary sites in Derbyshire. For the purposes of administration and reporting, such sites are entirely attributed to one Government Office Region, but where the site is as large as The Wash, conditions in neighbouring regions may influence the results for the East Midlands overall.<sup>103</sup>

In total, there are 392 SSSIs wholly or partly within the East Midlands, covering an area of 165,228 hectares. SSSIs in the East Midlands account for 15.3% of the total surface area covered by SSSIs in England.

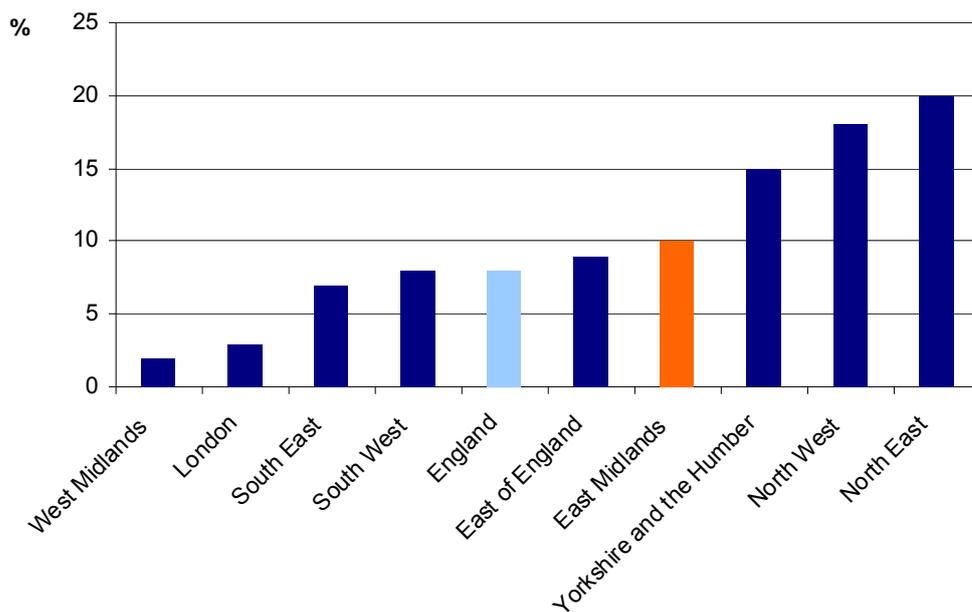
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<sup>101</sup> Natural England, 'State of the Natural Environment 2008', 2008.

<sup>102</sup> The Wash is a particularly problematic site to attribute to an administrative boundary. It contains significant areas of land below mean water level which cannot be measured accurately or apportioned to a given region or county, as its nature as a tidal site means that the extent of its boundaries change over time.

<sup>103</sup> Natural England, Consultation Response to 'The East Midlands in 2009', November 2009.

**Chart 25: Total SSSI area as a proportion of regional land area, 2008 (%)**

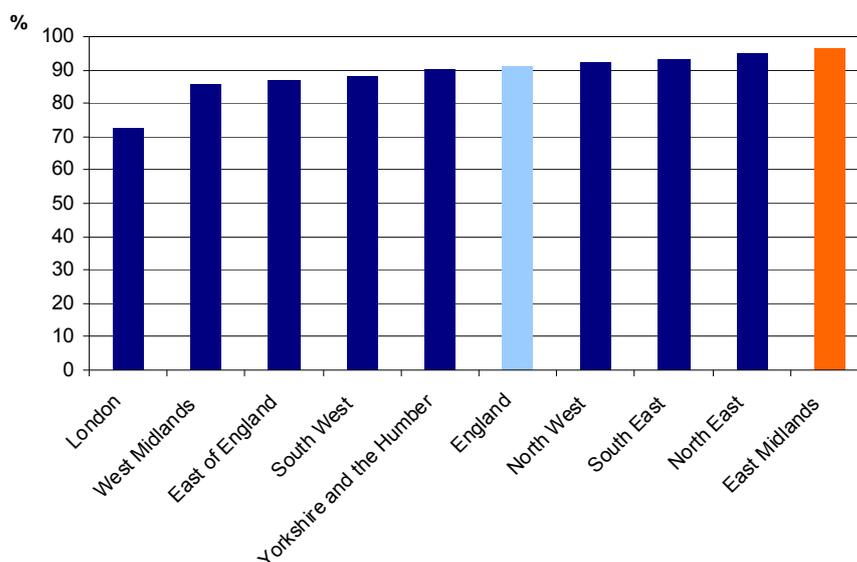


Source: Natural England, 'State of the Natural Environment 2008', 2008.

Chart 26 shows the proportions of SSSIs that are in 'favourable' or 'recovering' condition by English region, demonstrating that the East Midlands currently has the highest proportion of all English regions, at 96.2% according to the March 2010 assessment. This exceeds the PSA target for 2010 of 95%, and also exceeds the England average by 5.1 percentage points.

London has the lowest proportion of SSSIs in a 'favourable' or 'recovering' condition, at 72.7% in March 2010.

**Chart 26: Proportion of SSSIs in a 'favourable' or 'recovering' condition by region, March 2010 (%)**



Source: Natural England, SSSI regional reports, 1st March 2010.

The Natural England publication, 'The State of the Natural Environment 2008' provides some additional detail on SSSI condition. This relates to assessments carried out in 2008, so is not comparable to the above data (for the first quarter of 2010), but provides a useful indication of the variation in SSSI condition across different categories of habitat in the East Midlands:

- Of the grassland SSSIs in the East Midlands in 2008, 67% were in a 'favourable' or 'recovering' condition, which was below the proportion in England overall (83%). However, grasslands make up a relatively small proportion of SSSIs in the region;
- Of heathland SSSIs in the region, 72% were in a 'favourable' or 'recovering' condition, level with the national average of 73%. Again this type of habitat accounts for a relatively small land area in the East Midlands;
- Woodland SSSIs were also less likely to be in a 'favourable' or 'recovering' condition in the East Midlands than nationally, at 79% compared to 86% in 2008. Again this habitat accounts for a relatively small area in the region;
- Open water SSSIs, which account for a significant share of the region's land area, were more likely to be in a 'favourable' or 'recovering' condition than nationally, at 82% compared to 55%;
- Wetland SSSIs were also more likely to be in a 'favourable or 'recovering' condition in the East Midlands, at 76% compared to 69% in England overall. However, this habitat accounts for a relatively small surface area;
- SSSIs in urban areas were more likely to be in an unfavourable condition in the East Midlands – with only 66% of urban SSSIs categorised as 'favourable' or 'recovering' in 2008, 10 percentage points lower than the English average; and
- Finally, coastal habitat SSSIs, which make up a very large share of SSSI land area in the East Midlands, were significantly likely to be in a 'favourable' or 'recovering' condition, with 100% categorised as such in 2008, compared to 89% in England overall.

In its regional report for the East Midlands, Natural England suggest that some recent initiatives have made significant contributions to the good condition of coastal SSSIs (i.e. The Wash), such as the sustainable shellfish management policy. It also suggests that improvements in SSSIs in the Peak District could be due to work with water companies and tenant farmers to address over grazing and over drainage to improve the condition of blanket bogs.

SSSIs are designated for their biological, geological, or geomorphological interest, or a combination of these interests. Although the status of SSSIs in the region is favourable, the coverage of biological SSSIs is poor. Regional

SSSI statistics overestimate actual coverage, as they include very large sites which cross regional boundaries. Biological SSSIs sites are particularly small compared to other regions: 56% of biological SSSIs are 20 hectares or less, and 20% are smaller than 5 hectares, which can make them more vulnerable to external factors and more challenging to protect.<sup>104</sup>

Outside of designated areas such as SSSIs, the quality of biodiversity in the East Midlands is relatively impoverished, largely due to the impacts of intensive farming practices. For example, the region has a low woodland coverage compared to other regions and high species extinction rates. Recent research by Natural England has examined the ability of biodiversity habitats to form ecological networks. This suggests that the East Midlands has relatively few functional ecological networks compared to other regions. This reflects the large scale, historic losses of habitats in the East Midlands.<sup>105</sup>

The health of biodiversity across the region can be monitored by proxy indicators. The Government's preferred indicators used to monitor progress against its sustainable development objectives are the populations of woodland and farmland birds (part of the Defra PSA 28 on sustaining a healthy natural environment).

Between 1994 and 2007, farmland bird populations in the East Midlands, decreased by 17.4%, whilst there was a 12.6% increase in woodland bird populations. This led to an overall increase of all bird species of 3.1%. During the same period, out of the 18 farmland bird species monitored in the region, the population of 10 species decreased by 10% or more whilst eight species increased by 10% or more. Species of farmland birds that experienced decreases in the region included the Yellow Wagtail, Turtle Dove and Linnet. Out of the 30 species of woodland bird monitored in the region, 18 species increased by 10% or more whilst 10 species decreased by 10%.<sup>106</sup> These trends are shown as an index of the 1994 baseline (1994 = 100%) in Chart 27.

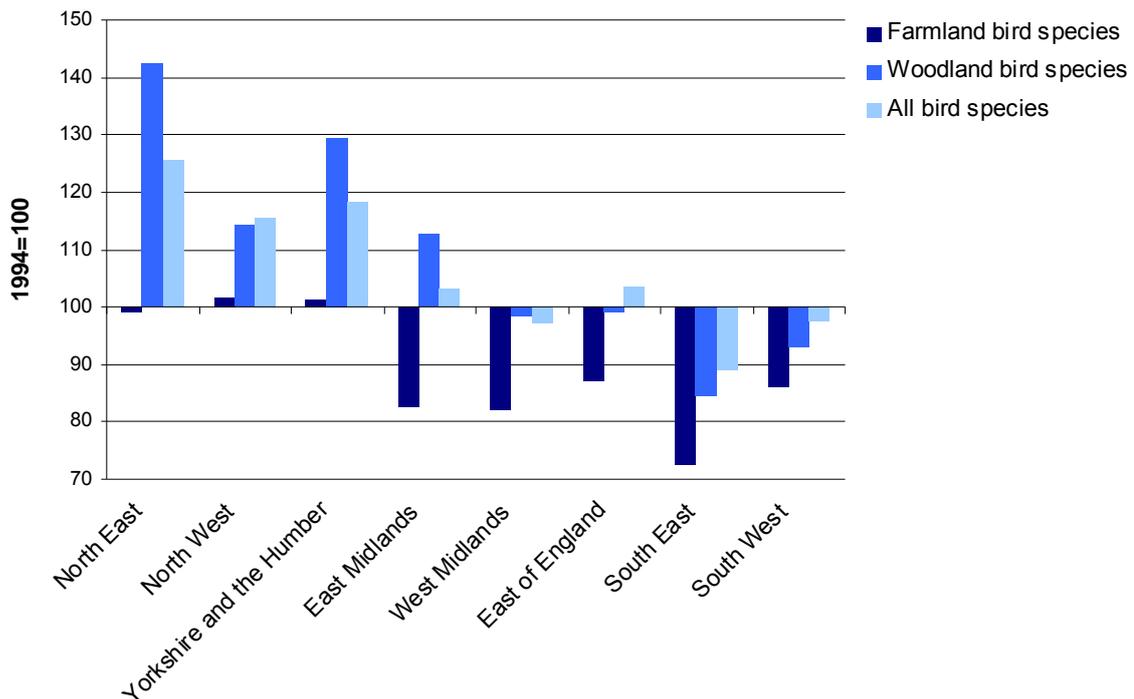
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<sup>104</sup> Natural England, Consultation Response to 'The East Midlands in 2009', November 2009.

<sup>105</sup> English Nature, 'Habitat losses in the East Midlands', 2002.

<sup>106</sup> Defra and Royal Society for Society for the Protection of Birds, 'Wild bird population indicators for the English regions: 1994-2007', May 2009.

**Chart 27: Populations of wild bird species by region, 2007 (1994=100)**



Source: Defra, Sustainable Development Indicators 2009, Natural Resources Datasets.

The chart shows that the farmland bird species has declined relative to 1994 in the East Midlands, to 82.6% in 2007. This could be due to a loss of hedgerow and field margins habitats due to the intensification of agricultural practices. Natural England estimated that in 2008, only 22% of hedgerows in Great Britain were in favourable condition. As stated above however, the population of woodland birds in the region has increased relative to 1994, to 112.6% of the baseline in 2007. Conversely, this could be due to an improvement in woodland habitats in recent years, with Natural England estimating that 86% of woodland SSSIs nationally were in favourable or recovering condition.<sup>107</sup>

### 7.8.2 Environmental assets: Landscapes

Landscapes are a vital and diverse resource for the East Midlands region, which is noted for its agricultural productivity, recreational value, cultural associations, heritage and biodiversity assets. The region's landscape includes the transition between the low lying agricultural landscapes of the east of England and more complex landscapes farther west. Between the two extremes lie a multitude of landscapes, comprising limestone and chalk hills,

<sup>107</sup> At a sub-regional level, data has recently become available on Local Authority progress towards the biodiversity National Indicator, NI197: Improved local biodiversity – proportion of Local Sites where active conservation management is being achieved. However, this simply indicates where actions have been taken by Local Authorities (e.g. the introduction of management schemes) and does not reflect the outcomes of this activity on the quality of the habitats in question. Moreover, there are currently no regional or national comparator data available, meaning that NI 197 is presently of little analytical value.

ancient forests, rolling farmlands interspersed with rural villages, remote lowland heaths and stretches of dramatic coastline.

The East Midlands has the lowest proportion of land designated as an Area of Outstanding Natural Beauty (AONB) of the nine English regions, at 3% in 2007, compared to an average of 15%. Although the region also has just 0.3% of England's common land, it plays host to some internationally and nationally significant landscapes that also contribute to the region's tourism offer:

- Visitors to sites in the East Midlands accounted for 10% of the total national number of visits to National Nature Reserves (NNR) in 2005-2006, with a total of 1,674,000 visits. This is higher than the share accounted by the North East, North West and Yorkshire and the Humber;
- The Peak District National Park is the second most visited National Park in the world, accounting for 22 million visitor days per annum in 2008.<sup>108</sup> It includes areas incorporated by three regions (895 out of the total of 917 square kilometres lies within the East Midlands, accounting for a total of 6% of the region's land area);
- The Lincolnshire Wolds is the only designated AONB in the region. It covers 519 sq km; and
- There are other important designations which benefit landscape, for example the Derwent Valley Mills World Heritage Site.

Whilst the nationally designated landscapes in the region are rightly considered to be very important assets, this has tended to encourage the idea that the region's non-designated landscape are of limited importance. However, this lack of designation does not mean that the rest of the region lacks distinctive character, or that efforts are not needed to conserve and enhance its distinctive range of landscapes. For example, remnants of ancient landscapes can be found across the region, notable examples being the ancient forests of Sherwood, Charnwood and Rockingham.

At the national level, the Countryside Character Initiative and National Landscape Typology provide a broad overview of the region's key landscape characteristics. It has defined a total of 159 National Character Areas (NCAs) and of these, 27 NCAs relate entirely or in part to the East Midlands region.

There have been no detailed studies of landscape change specifically in the East Midlands. However, information can be obtained from Natural England's Countryside Quality Counts (CQC) project,<sup>109</sup> which has measured landscape change for NCAs, classifying them as neglected, diverging, maintained or enhancing (Table 8). The results of this study indicate that, when compared

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<sup>108</sup> Natural England, 'State of the Natural Environment 2008', 2008.

<sup>109</sup> Countryside Quality Counts assessment: [http://www.countryside-quality-counts.org.uk/publications/CQC\\_HeadlineIndicator\\_A1.pdf](http://www.countryside-quality-counts.org.uk/publications/CQC_HeadlineIndicator_A1.pdf)

to England as a whole, more NCAs in the region are judged to be diverging from their intrinsic character. This is perhaps most notable close to large urban areas and major transport infrastructure. By contrast in the more rural areas, character is judged to be maintained, and in the Fens character is being enhanced.

**Table 8: Summary of landscape change statistics for NCAs in the East Midlands region**

	Maintained	Enhanced	Neglected	Diverging
<b>East Midlands</b>	44% (12)	11% (3)	19% (5)	26 % (7)
<b>England</b>	51%	10%	20%	19%

Note: The figures in brackets refer to the number of NCAs (mainly in the East Midlands) relating to each of the categories of change.

Further evidence for the potential pressures and risks on the landscape is provided by Natural England's 'State of the Natural Environment Report'<sup>110</sup> which demonstrates that, as with many areas in England, landscape quality and diversity is under pressure from a range of influences:

- The growth of cities and towns such as Derby, Leicester, Northampton, Nottingham and Lincoln together with the principal transport infrastructure features, such as motorways and airports, have all had a major influence on the landscape, as well as wider perceptions of landscape quality, tranquillity and remoteness; and
- In the countryside, agriculture, forestry, recreation and the growth of the rural economy have fuelled equally dramatic landscape changes over recent decades.

These drivers of past change will continue. However, the pressure for change on our landscapes will be escalated particularly in light of the high levels of population growth and associated levels of development that will need to be accommodated in what is the fastest growing English region. Furthermore, climate change, and the associated mitigation and adaptation measures, including a shift to renewable energy supply, will be particularly influential.

The European Landscape Convention (ELC) was the first international convention to focus on landscape, and its text became part of UK legislation in March 2007. The ELC encourages organisations to prepare their own landscape action plans with the aim of embedding landscape considerations into organisational ways of working.

In order to further assist in the implementation of the objectives in the ELC, Natural England's East Midlands regional office commissioned an East Midlands regional landscape character assessment (EMRLCA). This study is now complete in draft and will be available as a fully adopted tool from early 2010. It is a hierarchical framework that identifies 31 landscape types in the region, and for each landscape type it then identifies key characteristics, forces for change and future landscape management strategies. The

<sup>110</sup> Natural England, 'State of the Natural Environment 2008'.

EMRLCA signposts the way to the local landscape character and historic character assessments and should be used in conjunction with them to inform strategic decisions, such as where new development could be appropriately accommodated, and how development design should respond to landscape character and key environmental features.

Draft landscape characterisation from the EMRCLA project are shown in Table 10.

**Table 10: Regional Landscape Character Types**

<b>Broad type</b>	<b>Sub-type</b>
<b>Coast and sea</b>	Coastal saltmarsh Coastal dunes and sands Intertidal flats Shallow coastal waters Offshore industry and fisheries Small scale shipping channel Protected marine wildscape Major navigation channel
<b>Fenland and fenland fringe</b>	Settled fens and marshes Planned fens and carrlands Marsh and fen fringe farmland
<b>Major river valley floodplain</b>	Floodplain valley Sandland farmland
<b>Lowland vale</b>	Unwooded vale Wooded vale
<b>Village farmland</b>	Village farmlands Wooded village farmlands
<b>Lias hills</b>	Lias hills and valleys
<b>Limestone farmland</b>	Limestone scarp and dipslope Limestone dale Limestone farmland
<b>Chalk wold</b>	Chalk wolds Wolds scarp and ridges
<b>Clay wold</b>	Clay wold
<b>Coalfield</b>	Settled coalfields farmlands
<b>Woods and forest</b>	Forest hills and ridges Sandstone forests and heaths Wooded slopes and valleys
<b>Gritstone moor and moorland fringe</b>	Open moors and farmed moorland fringe Moorland dales and valleys Settled valleys and enclosed gritstone uplands Upland pastoral hills and valleys

Please note: Regional Landscape Character Types are in draft form at the moment and will be subject to review.

In consulting on these character assessment types with regional stakeholders, Natural England presented the following ‘indicative forces for change’ which it felt needed to be considered when developing regional strategies:

- Built development, including housing provision and provision of employment land;
- The development of infrastructure, including transport and energy provision – especially wind turbines and offshore turbines and tidal generators which can have significant impacts on landscape character;
- Minerals and waste, including quarrying and mining, and especially open cast extraction and sea bed dredging. In terms of waste, landfill was clearly seen as having the most significant impact on landscape character;
- Fishing, agriculture and land management, including the diversification and specialisation of agriculture, such as energy crops;
- Forestry and woodland, including deforestation and fragmentation;
- Tourism and leisure, including access to the countryside, coast and sea; and
- Environmental processes and climate change, including coastal flooding and erosion and changing temperatures and rainfall.

### **7.8.3 Environmental assets: Forests and woodland**

Forests and woodlands are part of the above landscape classification, but merit some additional discussion given their importance in a number of different respects.

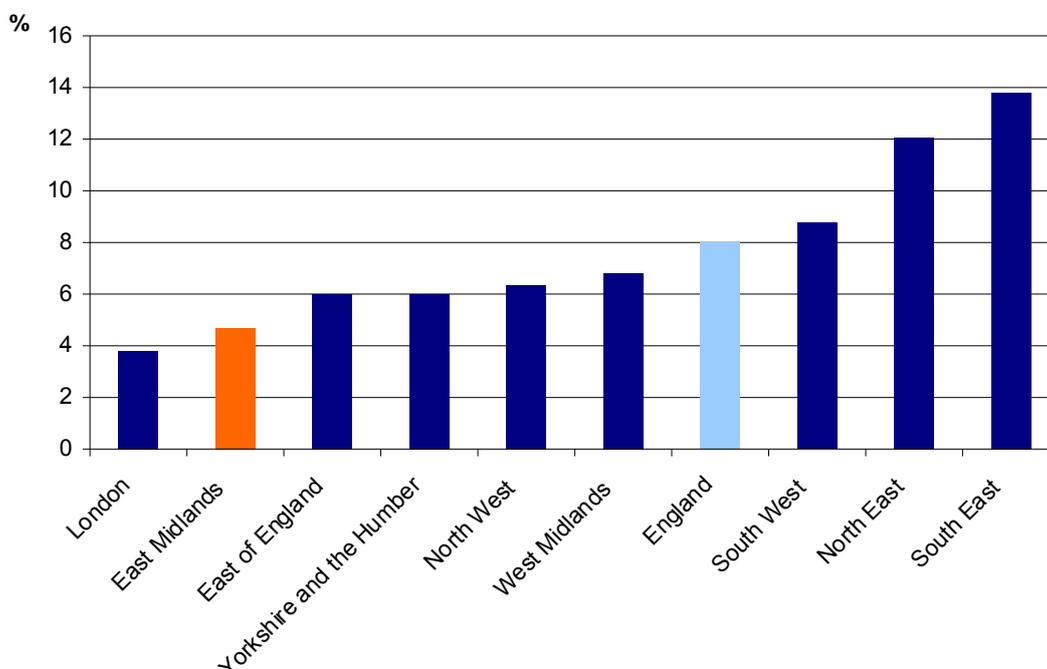
As stated in the introduction to this section, forests and woodlands play a very important role as providers of ecosystem services, storing significant quantities of carbon, and well as providing habitats for a large range of flora and fauna. The Government's 'Low Carbon Transition Plan' recognises this role, and attempts to encourage significant private sector funding for woodland creation, aiming to establish an additional 10,000 hectares of woodland nationally over the next 15 years in order to remove 50 million tonnes of carbon from the atmosphere. It has also been demonstrated that woodland provides an effective service in reducing pollution entering water courses. Flood risk can also be significantly reduced when woodland is located in flood plains, as it can absorb or delay major floods and entirely prevent smaller water flows.

As well as exploiting benefits from large wooded green spaces, there are also opportunities in providing smaller areas of woodland in and around urban areas, in order to cool urban heat island effects. Wooded areas tend to be cooler than grassland, although the effect varies with the season and type of tree. The University of Manchester calculated that a 10% increase in the amount of wooded green space in built-up areas could reduce urban surface

temperatures by as much as 4%. Trees can also be utilised as part of sustainable urban drainage systems, as increasing tree cover in built-up areas reduces surface water run-off, increasing the capacity of engineered drains to cope with excess water.<sup>111</sup>

England is one of the least wooded areas in Europe, and woodland is a particularly scarce resource in the East Midlands, covering only 74,443 hectares, or 4.7% of the region's total land area, compared to 8% in England overall. Woodland in the East Midlands accounts for only 7% of the total woodland area in England. Chart 28 below illustrates that this is the second lowest proportion of the nine English regions, with the lowest proportion in London (at 3.8%). The highest proportion of land area covered by woodland is in the South East, at 13.8%.

**Chart 28: Proportion of land area covered by woodland (%)**



Source: Woodland Trust, 'Space for People', 2004.

PPS9 prioritises the need to protect ancient woodland, as such habitats have grown over a long period of time and have thus become so complex as to be effectively irreplaceable. Of the woodland in the East Midlands, only 24,000 hectares are 'ancient woodland', amounting to less than 2% of the total East Midlands area.

Along with providing ecosystem services, woodlands provide quality of life benefits to residents when they are publicly accessible. According to research by the Woodland Trust and Forestry Commission, 48% of woodland area in the East Midlands is publicly accessible. This exceeds the average for

<sup>111</sup> Woodland Trust, Consultation Response to 'The East Midlands in 2009', November 2009, citing: The University of Manchester, in 'Public Health News', May 2007.

England of 46%, but is significantly lower than accessibility in the north of the country (at 93% in the North East and 54% in the North West).<sup>112</sup>

#### 7.8.4 Environmental assets: Tourism, rights of way and open access land

Access to a good quality natural environment is an important contributor to individual quality of life and can also provide significant economic returns. According to work commissioned by East Midlands Tourism, the total number of tourists (both from other English regions, UK nations and internationally) visiting the region increased from 139.8 million in 2003 to 144.1 million in 2007. Over this period, the number of day trips has increased from 125 million to 127.8 million and the number of trips involving an overnight stay has increased from 14.8 million to 16.4 million.<sup>113</sup> The Peak District, especially, experiences a high number of visits (estimated to be between 18 and 22 million day visits per year, almost a third of all annual visits to English National Parks)<sup>114</sup> and this places heavy pressure on infrastructure and the natural environment. There is currently a lack of available data on levels of access to the countryside (and, in particular, the urban fringe) for people living in urban areas of the region, although data from 2000 indicates that the extent of signposting and ease of use of public rights of way is significantly below the national average.

The region has an extensive network of statutory rights of way, including National Trails, which provide a well-used recreational resource. These public rights of way provide approximately 18,000 km of local routes, which is around 10% of the national network.<sup>115</sup>

Open country access land in the East Midlands has been mapped in three areas. Area 2 (Lower North West), which includes the Peak District National Park, provides significant areas of open access land. Access in this area has already legally commenced. In Area 8, (Nottinghamshire and Lincolnshire) and Area 7 (all other parts of the East Midlands) access land is minimal. Overall however, the East Midlands has a very small proportion of open access land – with only 2.1% of the regional total land area designated as open access, compared to an average for England of 6.5%.<sup>116</sup>

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<sup>112</sup> Woodland Trust, 'Space for People: Targeting action for woodland areas', 2004.

<sup>113</sup> Global Tourism Solutions UK on behalf of East Midlands Tourism, 'Annual Headline Figures', using data from the Scarborough Tourism Economic Activity Monitor (STEAM), 2009.

<sup>114</sup> Peak District National Park Authority, 'Tourism in the Peak District National Park', Fact Sheet 2,

<sup>115</sup> Ibid.

<sup>116</sup> Natural England, 'State of the Natural Environment 2008', 2008.

## 7.8.5 Environmental assets: Heritage and the historic environment

### 7.8.5.1 Policy context for conserving and enhancing the historic environment

'World Class Places – The Government's strategy for improving the quality of place' was launched in May 2009 by the Secretaries of State for Culture, Media and Sport and Communities and Local Government. The strategy lays out how the Government will bring together public and private partnerships to create places where regeneration and public services provide an environment where people and families want to live.<sup>117</sup> This includes objectives to ensure standards for “well designed and maintained buildings and open places” whilst also ensuring “sensitive treatment of historic buildings and places”. Building on previous policy developments regarding the historic environment,<sup>118</sup> the strategy advanced both an economic and a social inclusion argument for the preservation of heritage sites alongside other environmental assets. Traditionally, the importance of preserving heritage sites has been advocated in terms of both their educational benefits along with the civic responsibility to maintain sites of historic significance for the benefit of future generations.

However, the current strategy adds new emphasis on the economic value of well maintained heritage sites in attracting tourism and investors. Overseas residents made 32.8 million visits to the UK in 2007, which is an all time record.<sup>119</sup> The strategy also provides evidence that historic buildings increase the value of surrounding properties. Finally, accessibility to heritage sites and complementary surroundings can increase community cohesion, participation in outdoor activities and can create a sense of ‘civic pride’ which the Government views as a key outcome of the Place Making agenda.

These policy objectives have links to measures aimed at improving the design of new developments described in the Housing Chapter. Key quality criteria for new developments advocated in frameworks such as ‘Building for Life’ include the need for designs that are sensitive and complementary to adjacent and nearby historic buildings. The need to view heritage as an important asset for attracting investment and facilitating regeneration is reflected in the new PPS 5, ‘Planning for the Historic Environment’, published in March 2010. This emphasises the positive contribution of heritage assets to local character and sense of place and the importance, wherever possible, of keeping them in viable uses that are consistent with their conservation.

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<sup>117</sup> Department for Culture, Media and Sport, ‘World Class Places – The Government’s strategy for improving the quality of place’

[http://www.culture.gov.uk/reference\\_library/publications/6158.aspx](http://www.culture.gov.uk/reference_library/publications/6158.aspx)

<sup>118</sup> Including the DCMS policy statement ‘The Historic Environment: A Force for Our Future’ (2001) and the ‘Heritage Protection for the 21st Century’ White Paper (2007).

<sup>119</sup> Office for National Statistics, ‘Travel Trends in 2007’ – Data and commentary from the 2007 International Passenger Survey:

[http://www.statistics.gov.uk/downloads/theme\\_transport/Travel\\_Trends\\_2007.pdf](http://www.statistics.gov.uk/downloads/theme_transport/Travel_Trends_2007.pdf)

### 7.8.5.2 Heritage assets in the East Midlands

The region's historic towns, cities and landscapes provide evidence of multiple phases of human activity, dating back through industrial and pre-industrial times. This complex interaction of human activities and environmental factors over time, often on a landscape or townscape scale, gives rise to local distinctiveness, a sense of place, identity and pride, and attractiveness to investment.

Many historic sites in the East Midlands are subjected to high recreational use and also form part of its cultural assets, generating benefits for the economy from visitors. These sites include the historic parks of Clumber, Rufford, Chatsworth and Althorp. There are also important archaeological remains such as Creswell Crags, remnants of former hunting forests (such as Sherwood and Rockingham) and field systems, such as medieval ridge and furrow and enclosure landscapes. Historic buildings include castles like Tattershall and Fotheringay, country houses, such as Chatsworth and Boughton House, and many other buildings spread across the region.

There are more than 1,000 Conservation Areas in the East Midlands, with outstanding examples including the Cathedral City of Lincoln, Stamford and Buxton. A number of sites in the East Midlands reflect the important industrial heritage of the region, including the Derwent Valley Mills World Heritage Site. The network of waterways is also an integral part of the region's industrial past, linking historic buildings and structures with the natural environment.

Whilst the East Midlands has a rich and diverse historic environment, it is often under-valued and under threat. In 2008 English Heritage published its first register of Heritage at Risk – a region-by-region list of all the Grade I and II\* listed buildings<sup>120</sup> Scheduled Monuments (archaeological sites) and registered parks and gardens, as well as registered battlefields and world heritage sites known to be 'at risk'.<sup>121</sup> This included the following findings for the East Midlands region:

- In 2009, the East Midlands contained 135 registered parks and gardens, two more than in 2002. There are 15 Grade I listed parks and gardens in the East Midlands which represents 11.8% of the national total;
- There are five registered battlefields, including Bosworth Fields;
- The region has one of England's 17 World Heritage Sites – Derwent Valley Mills in Derbyshire;

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<sup>120</sup> The buildings are graded to show their relative architectural or historic interest. Grade I buildings are of exceptional interest, Grade II\* are particularly important buildings of more than special interest. Grade II buildings are of special interest warranting every effort to preserve them. <http://www.heritage.co.uk/apavilions/glstb.html>

<sup>121</sup> English Heritage, 'Heritage Counts 2009 East Midlands Regional Data Report', 2009.

- There were over 1,509 Scheduled Monuments in the region in 2009, accounting for 7.6% of the national total and 29,615 listed buildings in the region (representing 7.9% of the national total); and
- Grade I listed buildings are well represented in the East Midlands as the region has 10.7% of the total for England.

Based on the Taking Part survey,<sup>122</sup> between 2005 and 2007, 93% of East Midlands residents agreed or strongly agreed that it was important to save historic features, which is marginally above the national average of 92.1%. The proportion of adults who agreed or strongly agreed that they are interested in the history of their place of residence was very similar in the East Midlands and in England at 69.1% and 70.7% respectively.

However, 31.7% of East Midlands residents were not really interested in the history of the place where they lived, which is a slightly higher proportion than the English average of 29.1%.<sup>123</sup> The Taking Part survey also shows that 71.5% of adults in the region had visited a heritage site in the last 12 months, marginally above the national average of 69.6%.<sup>124</sup>

The region's heritage assets are important attractions for East Midlands residents and tourists from other regions and countries. Chart 29 shows that the proportion of adults visiting heritage sites was slightly higher in every age group in the East Midlands than in England. The highest proportion of adults visiting heritage sites in the last 12 months was among the 45 to 64 year olds, at 77.5% in the East Midlands and 75.2% in England overall. In contrast, only 52.6% of individuals over 75 reported visits to heritage sites in the last 12 months in the East Midlands. However, this is still slightly higher than the average in England of 51.8%.

Both men and women are slightly more likely to visit heritage sites in the East Midlands than in England. However, in the East Midlands a higher proportion of men than women visited heritage sites over the last year at 72.3% and 70.8% respectively.

As well as physical historical assets, residents of the East Midlands can also interact with the historical environment through museums, libraries and archives. There are 213 museums in the East Midlands (52 in Derbyshire, 39 in Leicestershire, 52 in Lincolnshire, 32 in Nottinghamshire, 35 in Northamptonshire and three in Rutland). There are 348 static public library service points provided by local authorities, and 52 library vehicles in the region. Additionally, there is extensive library provision in the education, commercial and industrial sectors. For example the region's Higher Education Institutions collectively operate 31 libraries. There are 74 archive holding

<sup>122</sup> 'Taking part' is a survey of leisure, culture and sport in England which gathers data about the encouraging and hindering factors of participation and attendance of individuals in cultural and sporting activities.

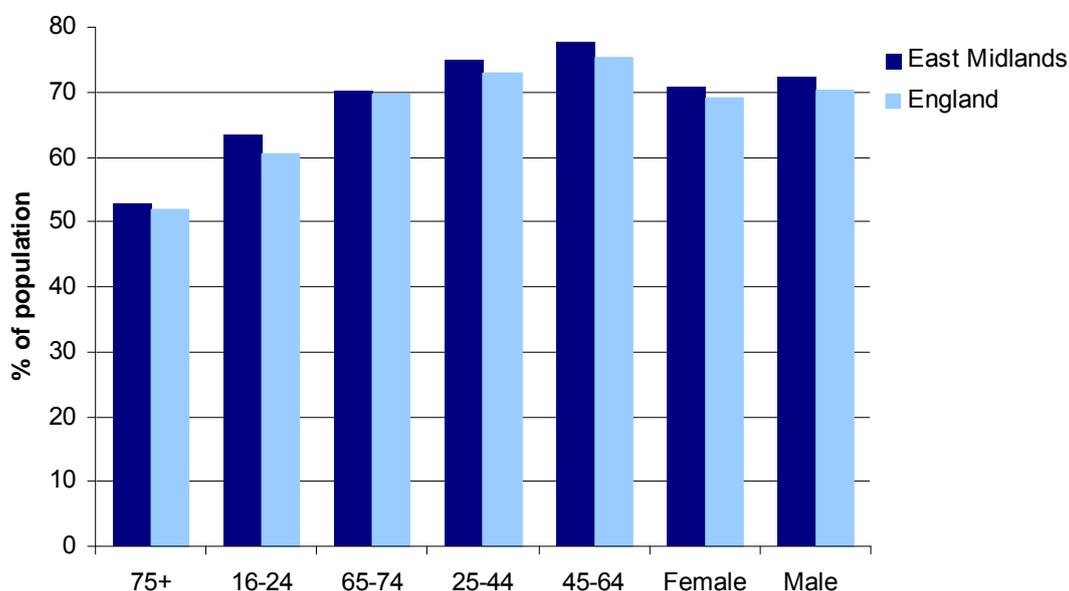
<sup>123</sup> English Heritage, Heritage Counts 2008 East Midlands Regional Data Report, 2008.

[http://www.english-heritage.org.uk/hc/upload/pdf/EM\\_Data\\_Report\\_2008.pdf?1246274790](http://www.english-heritage.org.uk/hc/upload/pdf/EM_Data_Report_2008.pdf?1246274790)

<sup>124</sup> Combined figures covering the period between July 2005 and July 2007.

organisations including six main archive services and a regional film archive.<sup>125</sup>

**Chart 29: Adults visiting heritage sites in the last 12 months by age and gender (2005-2007 combined figures)**



Source: Taking Part survey 2005-2007 combined figures. English Heritage, 'Heritage Counts 2008 East Midlands Regional Data Report', 2008.

### 7.8.5.3 Heritage and participation

As the Economic Inclusion and Deprivation chapter highlights, the level of volunteering may indicate how cohesive and active a given community is, and interaction with the historic environment can be of key importance in creating and maintaining a shared relationship between individuals and their surroundings. In the East Midlands in 2009, there were 51,259 members of English Heritage regionally (7% of all membership nationally) and 288,852 National Trust members (8.1% of all members in England).<sup>126</sup> The actual numbers of volunteers actively working at National Trust properties in the East Midlands in 2008-2009 was 4,545, which accounted for around 237,000 hours worked and £1,700,000 generated. In addition, historic sites looked after by English Heritage attracted 244,800 visitors to the region in 2008-2009. The most visited three sites were Bolsover Castle, Hardwick Hall and Peveril Castle.<sup>127</sup>

<sup>125</sup> Museums, Libraries and Archives Council (MLA), Consultation Response to 'The East Midlands in 2009', November 2009.

<sup>126</sup> Membership data refer to March 2008 and June 2008. English Heritage, Heritage Counts 2008, East Midlands Regional Data Report, 2008.

<sup>127</sup> English Heritage, 'Heritage Counts 2009 East Midlands Regional Data Report', 2009.

#### 7.8.5.4 Heritage sites at risk

The region's heritage sites are safeguarded through the system of designation, locally or nationally, of the various types of 'heritage assets'. Conservation Areas have a particularly important role to play in guaranteeing the quality of places, as their designation means that they should be protected and actively managed by local planning authorities. However, as in the case of biodiversity, when analysing statistics on the state of heritage assets it needs to be born in mind that the data focuses on designated areas only. As there are also a large number of locally important heritage sites that are not designated, the condition of heritage assets based on designated sites needs to be interpreted carefully, as it can misrepresent the wider state of the region's historical environment.

According to the 2009 'Heritage at Risk' assessment, 'Buildings at Risk' are a particular challenge for the East Midlands. Of the region's Grade I and Grade II Listed Buildings, 4.6% are classified as 'at risk' compared to 3.1% in England as a whole. Out of all the entries in the first 'Buildings at Risk' register in 1999, the East Midlands had the largest proportion that was still at risk in the 2009 register. If Grade II listed buildings are taken into account, there are at least 1,560 Listed Buildings at Risk in the region.

In contrast, the region has the smallest proportion of Scheduled Monuments at risk in England, as a result of a significant improvement in condition since 2006. Broadly speaking Scheduled Monuments form the core of our designated archaeological heritage, while Listed Buildings represent its nationally-designated built heritage. Listed Buildings are therefore far more numerous as a type of heritage asset compared to Scheduled Monuments. According to 'Scheduled Monuments at Risk', in 2009, 9% of Scheduled Monuments were at risk, which is equivalent to 130 monuments. This is significantly lower than the proportion of monuments at risk in England overall, which was 18% in 2009.

The proportion of registered parks and gardens at risk in the 2009 'Heritage at Risk' report was 4.4% in the East Midlands (or six parks or gardens), which is also lower than the proportion in England overall, at 6%.<sup>128</sup>

Finally, within the wider context of this chapter, it is important to consider the risks posed by climate change to the region's heritage assets. This is particularly the case in coastal heritage sites. Such areas, such as the mediaeval port town of Boston as well moorland archaeological sites in the Peak District are amongst those sites most at risk from changing weather patterns. Historic assets can also contribute to the region's response to climate change, particularly given the amount of embodied energy in existing buildings.<sup>129</sup>

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<sup>128</sup> English Heritage, 'Heritage Counts 2009 East Midlands Regional Data Report', 2009.

<sup>129</sup> English Heritage, Consultation Response to 'The East Midlands in 2009', November 2009.

### 7.8.6 Environmental asset density

Map 16 gives an indication of the density of environmental assets in the East Midlands.<sup>130</sup> Environmental and cultural assets can be anything that society places a value on. They are numerous and diverse, and not only valued by society for their landscape, biodiversity and heritage quality, but also their recreational, educational and tourism value. Planning and development must take these assets into consideration, but the large range and number of assets can make it difficult to gain a strategic overview of an area for planning purposes. The environmental sensitivity map is designed to help overcome this, by creating a single composite layer of a wide range of assets. Assets included in the Environmental Sensitivity Map are set out below (but note that this includes only selected nationally designated sites, with listed buildings, for example, being excluded).

- Agricultural Land
- National Park
- Ancient Woodland
- Parks and Gardens of Historic Interest
- Areas of Outstanding Natural Beauty
- RAMSAR Wetland Sites
- Community Forests
- RSPB Important Bird Areas
- Doorstep Greens
- RSPB Reserves
- Scheduled Ancient Monuments
- Local Nature Reserve
- Sites of Special Scientific Interest
- Millennium Greens
- Special Areas of Conservation
- National Forest
- Special Protection Areas
- National Nature Reserve
- Woodland Trust Sites

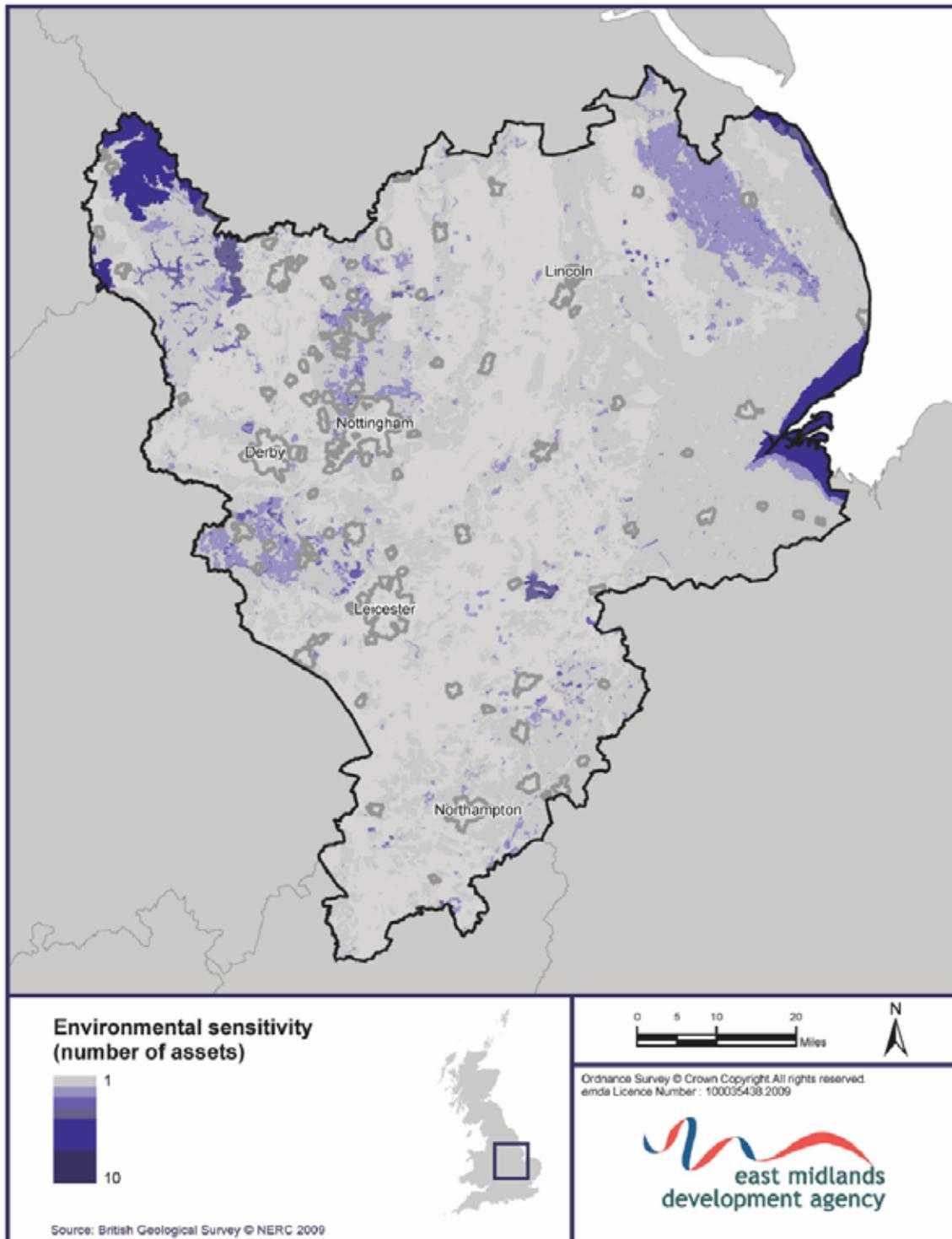
Map 16 demonstrates that the areas with the largest number of assets are concentrated in the far north of Derbyshire and along the Lincolnshire coast. The darker colours on the map indicate a higher number of environmental and cultural assets in an area.

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<sup>130</sup> Environmental asset density mapping (which can also be referred to as environmental sensitivity mapping) is a technique developed by the British Geological Survey to provide a strategic overview of the environmental and cultural assets in a region. See strategic environmental assessment and future aggregates extraction in the East Midlands region, BGS Commissioned Report CR/04/003N, available for download at [http://www.bgs.ac.uk/mineralsuk/free\\_downloads/downloads.html](http://www.bgs.ac.uk/mineralsuk/free_downloads/downloads.html)

The map was created in a Geographical Information System (GIS) using a one hectare grid to generalise the original data and enable analysis in the GIS. A listing of the environmental and cultural assets used to create this map can be accessed online at <http://www.bgs.ac.uk/mineralsuk/envsens/whatare.html>

**Map 16: Environmental asset density of the East Midlands region**



## 7.9 Land use, agriculture and soil geochemistry

### 7.9.1 Land use and agriculture

The East Midlands is a very productive area for agriculture, containing a significant percentage of the total national resource of the best and most versatile agricultural land. The proportion of agricultural land in the East Midlands of the most versatile grades (Grades 1, 2 and 3a) is 47% compared to 39% across all of England. The region also has a significant percentage (34%) of the total national resource of Grade 1 land. This enables a wide range of crops to be grown, adding robustness to the local economy and helping to support a wide range of complementary and ancillary rural businesses and services. Over 1.2 million hectares of land are in agricultural use, employing over 39,000 people across some 18,500 farms in the region. As a result, arable farmland dominates the landscape, reflecting the national trend towards arable farming being more dominant in the east and permanent grassland dominating in the west:

- The East Midlands has the second largest proportion of arable land of any English region (behind the East of England), representing almost half the total land area of the region;
- The most common farm types in the East Midlands are cereals and grazing (livestock lowland) accounting for 19% and 13% of total holdings respectively, compared to 11% and 16% in England;
- The East Midlands accounts for 18% of total cereal holdings and 17% of all general cropping holdings in England;
- In terms of farm size the East Midlands is not dissimilar to the England average. Forty three percent of holdings in the East Midlands are <5 hectares (45% in England), 18% are 5<20 hectares (19% in England). The region does however have a slightly higher percentage of holdings greater than 100ha, at 16%, than the England average (of 13%);
- Wheat is the primary crop in both the East Midlands and England accounting for 31% and 28% of all arable crops respectively (measured by total hectares). Wheat production in the East Midlands accounts for 20% of total wheat produced in England;
- Oilseed rape is produced on 12% of farmland in the East Midlands compared to 9% in England;
- There are 519,000 cattle in the East Midlands, accounting for 9% of total cattle in England;
- The East Midlands accounts for 11% of pigs produced in England (418,000);

- The East Midlands produces 20% of all poultry in England; and
- Between 2006 and 2007 there was a 10% increase in output from crop enterprises as measured by £ per farm. In the same period there was an overall reduction in output from livestock enterprises, of 2%. Data for England suggests that output from crop enterprises increased by 16% whilst output from livestock enterprises increased by 13% over the same period.<sup>131</sup>

Good quality soil is generally located in the east of the region. The fenlands along the eastern borders of the East Midlands are Britain's largest area of peat soils. Soil is a valuable resource within the region and is under pressure. In March 2005 the Environment Agency identified 74 contaminated land sites in the East Midlands. These sites are generally small with 59 having an area of less than five hectares.<sup>132</sup>

### 7.9.2 Regional geochemistry

For many years the British Geological Survey has been carrying out a detailed regional scale survey of the geochemistry of the UK using stream sediments, soils and stream waters as the principal materials. This analyses up to 50 chemical elements (such as calcium, copper and lead) and parameters such as the acidity (pH) of soils and stream waters, in both rural and selected urban areas.

Key elements of interest include lead and arsenic in both soils and stream sediments, as both elements are commonly known to be toxic. However, it should be noted that such 'trace elements' occur naturally at low levels in almost all geological materials, and that toxicity is a complex issue involving not just the concentration of the element, but also its chemical form, its host minerals, and the conditions in which it is found. The typical natural background levels of such trace elements in soils might be a few tens of parts per million by weight (milligrammes per kilogram).

Lead levels over much of the region are typically less than about 40 mg/kg in soils and stream sediment (median value), but very high lead levels are present over the eastern part of the Peak District, where lead ores were extensively mined and smelted in the 18th and 19th centuries.

Concentrations of greater than 1000 mg/kg lead are locally present, but the mainly limestone bedrock gives rise to alkaline soils and stream waters which strongly limit the solubility of lead and therefore minimise its toxicity.

Moderately high concentrations are present around the industrial centres of the Nottinghamshire Coalfield and are also associated with urban centres such as Derby and Nottingham. A prominent line of moderately high lead values follows the Dove-Derwent-Trent Valley system downstream as far as Gainsborough and is related to lead minerals from the mineral deposits and

<sup>131</sup> Defra, 'Agricultural and Horticultural Survey', June 2007.

<sup>132</sup> Environment Agency, 2005.

mining activities of the Peak District being redistributed into the river alluvium (sand and gravel deposits).

The natural background levels of arsenic over much of the region are typically less than 15 mg/kg in soils stream sediment (median value), but the most prominent features on the maps are the high arsenic levels which run in two lines. The first runs approximately south then south west from Scunthorpe to Northampton and the second south eastwards through Lincolnshire to The Wash. Arsenic is a natural component of these sedimentary ironstones, and can be present at relatively high concentrations of up to a few hundred mg/kg. Other areas with raised arsenic values include south Derbyshire (where an outcrop of black shale is naturally high in arsenic) and parts of the Nottinghamshire Coalfield.

Although at the present time, even those areas with the highest levels of arsenic and lead are at a minimal risk from any environmental toxic effects from these elements, a change to a warmer climate could increase the rate of weathering and release more geochemically active forms, especially if soil bacterial activity increases. There is too great a level of uncertainty to allow forecasting on what effects this might have.

Climate change may also affect the rates of weathering and mobilisation for many other elements, such as the agriculturally important major nutrients potassium, calcium, magnesium and phosphorus and trace elements such as cobalt and molybdenum.

### **Key Points: Biodiversity, heritage, landscape, soil and landuse**

- Sites of Special Scientific Interest (SSSIs) cover 10% of the East Midlands (although this figure includes several large cross-boundary sites). The Wash, which is the largest SSSI in England, accounts for 40% of the East Midlands area designated as an SSSI.
- The East Midlands currently has the highest proportion of SSSIs assessed as being in 'favourable' or 'recovering' condition of the English regions, at 96.2% in March 2010. This means that the region has exceeded the PSA target of 95% by 2010. Of the region's SSSIs, 100% of coastal habitats were assessed as 'favourable' or 'recovering', whilst only 66% of SSSIs in urban areas were assessed as 'favourable' or 'recovering' in the East Midlands compared to 76% in England.
- As a wider indicator of biodiversity in the region, the population of woodland bird species has increased in the region by 7% between 1994 and 2006. However, the population of farmland bird species had decreased by 1%.
- The region has identified 31 Landscape Character Types, and 55% of the region's National Character Areas have been assessed as either maintained or enhanced, although this means that the remainder is either neglected or diverging.
- The East Midlands has the lowest proportion of land covered by woodland of all regions other than London, at 4.7% compared to 8% in England overall. Furthermore, public accessibility to woodland is low compared to regions in the north of England, with 48% of woodland accessible to the public in the East Midlands compared to 93% in the North West.
- The East Midlands has the lowest proportion of its land area designated as an Area of Outstanding Natural Beauty (AONB) of the English regions (at 3% compared to 15% in England). The Lincolnshire Wolds is the only AONB in the region.
- Visitors to National Nature Reserves in the East Midlands accounted for 10% of all visits in England in 2005-2006 and the Peak District National Park is the second most visited National Park in the world.
- The East Midlands has a number of important heritage sites, containing 10.7% of Grade I listed buildings and 11.6% of registered battlefields in England.
- However, a comparatively high proportion of listed buildings in the East Midlands were at risk in 2009, at 4.6% of all Grade I and Grade II listed buildings, compared to 3.1% in England overall.
- The East Midlands is a productive area for agriculture, accounting for the second largest proportion of arable land in England. The region accounts for 18% of cereal holdings and 17% of general crop holdings in England.
- Soil is generally of good geochemical quality, with relatively low levels of lead and arsenic.

## 7.10 Conclusions

Global and national evidence presents a compelling case for the contribution of economic activity to climate change. The Stern Review suggests that even if current rates of emissions are stabilised, the world is still likely to experience a temperature increase of at least 2°C by 2050. Recent projections suggest that climate change outcomes in the East Midlands will be quite close to the national average. Mean summer temperatures in the East Midlands are projected to increase by 1.4°C and winter temperatures to increase by 1.3°C by the 2020s. By the 2050s, summer temperatures are projected to increase by 2.5°C and winter temperatures by 2.2°C in the region. Winter precipitation could increase by 5%, whilst summer precipitation could decrease by -6%. Projections of sea level rises are more modest than previous estimates, but the East Midlands coastline could still experience a rise of 9.7cm on 1990 levels in the 2020s. This could lead to increased chances of coastal flooding in Lincolnshire, which is not only a consideration that could constrain development planning, but is also a threat to the region's coastal SSSI and areas of high quality agricultural land. The likely scale of future population increase (detailed in the chapter on Demography) and associated increase in demand for housing could present further challenges in areas of increased flood risk.

Greenhouse gas emissions in the East Midlands have decreased over the long-term, but there has been a short term upward trend since 1999. This is due to two reasons. Firstly the East Midlands is a major producer and exporter of energy, with fuel and power production accounting for 87.2% of all greenhouse gas emissions in the region in 2007. The impacts of improvements in technology in the early 1990s accounts for the long-term decrease in emissions from fuel and power production, but since 1999 further improvements have had a more limited impact, which explains why emissions have stabilised and then increased after that date. However, end users have also contributed to this increase, principally through emissions attributed to road transport. Latest figures show that the East Midlands had one of the highest volumes of emissions attributed to road transport, and this has demonstrated little sign of decreasing despite significant improvements in car engine design. This can be linked to the East Midlands' relatively dispersed spatial pattern of development, with no single dominant centre and significant inter and intra-regional flows of commuters and goods.

Other trends reflecting the impact of human activity on the environment have been more positive in the East Midlands. With the exception of nitrogen oxide, technological improvements have significantly reduced emissions in the major air pollutants in the region, such as sulphur oxide.

The East Midlands has experienced the greatest improvements of any region in the proportion of its rivers assessed as 'good' in terms of both biological and chemical quality. Pollution incidents that have had a 'major' impact on water quality have also fallen in recent years, although the Water and Waste

industries have consistently been responsible for the largest number of incidents.

The region also has the highest proportions of municipal waste recycled or composted in England. However, the region still has to achieve significant improvements in order to manage waste more sustainably. An above average proportion of all waste continues to be disposed of in landfill sites and a relatively small amount of waste has been subject to energy recovery. In terms of resource efficiency – measured by the amount of waste generated for every unit of economic output – the East Midlands remains relatively inefficient, and this represents a key challenge for regional policy.

The threat of coastal floods notwithstanding, recent assessments of site-specific biodiversity in the East Midlands are very positive, with the region recording the highest proportion of SSSIs that are either in a ‘favourable’ or ‘recovering’ position of any English region. However, the region has a fairly low proportion of its land area designated for protection, and has the second lowest proportion of woodland, behind London, and the lowest proportion of land designated as Areas of Outstanding Natural Beauty of all nine regions. Looking just at ‘biological’ SSSIs, the picture is less positive, with only 2% of county areas, with the exception of Derbyshire, designated as such. Past assessments have suggested that the region has fewer functional habitat networks than other regions, making them more vulnerable. Other wider indicators of biodiversity are also less positive. On the indicator of wild bird populations, although the East Midlands has experienced a decline in farmland bird species, there has been an increase in woodland birds.

It is important to view the environment in terms of assets and opportunities as well as constraints. The Stern Review estimated that markets for low carbon energy products could be worth at least \$500 billion per year by 2050. The energy resources provided by the East Midlands coal mining past reviewed in this chapter, such as the extraction of Coal Mine Methane (CMM), are examples of an opportunity for innovation and enterprise that the region can build on. However, recent statistics on renewable fuels suggest that the East Midlands, as a significant energy producer, continues to contribute a relatively small share of the national renewable energy capacity.

The East Midlands is geologically rich, and is England’s principal producer and exporter of aggregates and other minerals. It is also the country’s principal manufacturer of concrete. In addition to this significant asset, the region also has a relatively benign geology, with limited risks of earthquakes or other geological hazards (such as radon), although shrink-swell clay poses a risk for development in some parts of the region. However, it also has to be noted that much of the extraction that makes the East Midlands England’s most important region for aggregate production takes place in areas of natural beauty, such as the Peak District National Park.

Recent evidence on heritage suggests that East Midlands residents have a greater level of interaction with their historic environment than elsewhere, with above average visits to heritage sites for both men and women and for all age

bands. However, a relatively high proportion of listed buildings are at risk, and this has not reduced significantly over time.

The East Midlands has strong environmental assets in terms of the improving quality of its water bodies, reductions in air pollutants, and has made significant achievements in improving the condition of its sites of importance in terms of biodiversity and heritage. However, the region's important status as an energy producer means that it remains responsible for a significant level of greenhouse gas emissions. To an extent, emissions from power generation in the East Midlands are therefore affected by demand and consumption from other regions. However, current estimates suggest that the region is currently generating a smaller share of national renewable energy capacity compared to its overall share of total energy production. The other significant challenge for the region is reducing the contribution of road transport to overall emissions. As other chapters demonstrate (e.g. the Demography, Labour Market, and Spatial Economy chapters), the region has a relatively high level of commuting, and its central location means that it has an important place in national transport routes and logistics. Reducing emissions whilst maintaining these strengths will present a key challenge for the region's sustainable economic growth aspirations.

## **8. The Spatial Economy of the East Midlands**

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## 8.1 Introduction

This chapter of *The East Midlands in 2010* provides an analysis of the spatial economy of the East Midlands. Unlike other chapters of *The East Midlands in 2010*, this chapter is less reliant on an analysis of a range of official statistics. In order to provide, in more qualitative terms, a greater understanding of the spatial structure of the East Midlands, it reviews and brings together findings from a number of pieces of existing research. It examines the role that places play and the linkages that exist between places, both inter- and intra-regionally. The role that places play is more than a function of their size and this section provides an assessment of agglomeration economies that exist in the region and the economic flows that can be measured through data on commuting flows and patterns of retail and leisure travel. On the basis of this evidence an assessment can be made on whether or not the East Midlands can be considered a polycentric region and, more broadly, of spatial patterns of economic activity.

Previous sections of *The East Midlands in 2010* have highlighted clear differences between places within the East Midlands on a range of indicators- economic, social and environmental. These differences can be summarised in broad terms as:

- The Lincolnshire coast: this area experiences very low levels of economic activity and high levels of deprivation. There is a growing and ageing population but transport links are poor and access to services can be a problem;
- The Coalfields area: although more urban in nature than the Lincolnshire coast, it shares a number of the same problems. Still undergoing a process of economic transformation, levels of economic and business activity are relatively low. However, it is better connected than the coast, with opportunities to travel into Sheffield and Nottingham relatively easily;
- The urban centres: the major urban centres in the region – Derby, Leicester, Lincoln, Northampton and Nottingham – are key drivers of the regional economy. They are well connected both within and without the region. However there is a notable difference in the characteristics of people who live and work in these areas. Residents tend to live in more deprived areas and have lower levels of skills and earnings than those who travel to these places to work; and
- The rural areas in the centre and south of the region: these tend to be more affluent with relatively high levels of economic and business activity, including high rates of business start-up. Many people in these areas have high levels of skills and earnings but work elsewhere. Although generally affluent, there are pockets of deprivation and people who live and work in these areas may have a lower standard of living.

This chapter of *The East Midlands in 2010* will assess the structure of the regional economy and begin to explain why these differences exist across the region. It draws on work commissioned by *emda* from the University of Lincoln, Newcastle University and Experian<sup>1</sup>.

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<sup>1</sup> A Atherton and A Johnston, University of Lincoln, *Mapping the Structure of Regional Economies*, 2006.

The second section assesses the structure of the East Midlands economy in terms of the functional roles that places in the region play. It finds that there are a number of key centres in the region (Derby, Leicester, Nottingham and Northampton), and a number of smaller centres that act as service centres for larger rural hinterlands (such as Buxton, Market Harborough, Grantham and Wellingborough).

The third section assesses the nature of flows of economic activity in the region, measured by commuting, retail and leisure flows. Levels of commuting are significant and have been increasing over time. It shows that more people commute out of the East Midlands than commute into the region. It clearly shows the influence of major centres just across the East Midlands border, such as Sheffield, Milton Keynes and Peterborough. Within the region the key commuting destinations are the larger urban areas, which also tend to attract retail and leisure spend from elsewhere.

The fourth section assesses whether or not the East Midlands can be considered a polycentric region, and more broadly of spatial patterns of economic activity. Interest in the concept of polycentricity has been driven by recent policy focus on the role of cities, their hinterlands and whether or not these overlap. Whether or not a region can be considered polycentric or monocentric has important implications for development policy. It sets out a number of criterion that are commonly used to define such a region and suggest that while, in terms of descriptive statistics the East Midlands may appear to be polycentric and meets a number of these criteria, overall it is not a functional polycentric region in these terms.

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A Atherton and L Price, University of Lincoln, Secondary Centres of Economic Activity in the East Midlands, 2009.

M Coombes, D Charles, S Raybould and C Wymer, Newcastle University, City Regions and Polycentricity: the East Midlands Urban Network, 2005.

Experian, *Commuting, Retail and Leisure Flows in the East Midlands*, 2007.

## 8.2 The structure of the East Midlands economy

There are a number of theories of how economies are structured that are captured by the idea that the location of a business is determined by the costs of transportation of inputs and outputs from the production process. These give rise to agglomeration effects and flow effects.

### 8.2.1 Agglomeration and flow effects

Atherton and Johnston (2006)<sup>2</sup> define agglomeration effects as the benefits that businesses enjoy from being located close to each other and within settlements with concentrations of customers and employees. On this basis it is expected that large urban areas will dominate regional economies. Three types of agglomeration effect have been identified:

- Internal returns to scale (firm specific economies) – capital and labour can concentrate in an area as a result of the activities of a single firm at a specific location;
- Economies of localisation (industry specific economies) – businesses in the same or closely related sectors that locate together can benefit from the local provision of specialist services and a specialist pool of labour; and
- Economies of urbanisation (city specific economies) – these accrue to businesses (in different sectors) from location in urban areas. These include a greater variety of local services and larger pools of customers and labour.

Agglomeration economies tend to be self-reinforcing as dense areas of economic activity attract further businesses and labour. This 'stickiness' suggests that over time activity will concentrate in urban areas. In addition this also suggests that disparities between areas that benefit from agglomeration economies and those that do not will increase over time.

However, there are limits to agglomeration. At a certain point the concentration of economic activity in a particular location will generate costs and loss of agglomeration benefits. These costs arise from:

- The cost of land increases as more businesses seek to locate in a particular location. At some point these costs may rise so that businesses are effectively paying to benefit from agglomeration economies. Despite this a business may not choose to relocate if it still benefits from proximity to customers and labour; and
- Congestion and increases in the cost of transport can also increase until they outweigh the benefits of agglomeration.

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<sup>2</sup> A Atherton and A Johnston, University of Lincoln, Mapping the Structure of Regional Economies, 2006.

The Transport and Infrastructure chapter shows how land prices are higher in the region's larger centres, along with an estimate of the costs associated with congestion.

Natural resources can also work against agglomeration and can lead to dispersed patterns of economic activity. For example mineral extraction is site specific and logistics businesses tend to locate in areas away from city centres that have access to the wider transport infrastructure.

Transport infrastructure and the costs of transportation will determine the scale of flow effects in a regional economy. Flows of goods and labour along these channels will also determine the pattern of regional economic activity. Where infrastructure is extensive and the costs of transportation are relatively low, it might be expected that flows of economic activity within and between regions will be higher than where this is not the case.

This theoretical approach suggests that regional economies will be made up of a number of larger settlements as there are limits to the benefits that can be derived from agglomeration economies, and that there will be smaller settlements that generate agglomeration economies through the location of large employers and infrastructure.

This framework has been applied by Atherton and Johnston (2006)<sup>3</sup> and Atherton and Price (2009)<sup>4</sup> in their analyses of the structure of the East Midlands economy. The remainder of this section will outline the findings of this work, beginning with an assessment of larger centres in the region followed by an assessment of smaller secondary centres.

The starting point is an assessment of business density (as measured by the number of businesses per square kilometre) and population density (as measured by the number of people of working age). High business and population densities will suggest agglomeration economies whilst the opposite may point toward low agglomeration economies. Flow effects are measured by the quality of road and rail links.

### **8.2.2 Larger settlements in the East Midlands**

In their work on larger settlements in the region, Atherton and Johnston (2006)<sup>5</sup> suggest a matrix for categorising settlements on the basis of business and workforce density and potential agglomeration economies. This is shown in Table 1.

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<sup>3</sup> A Atherton and A Johnston, University of Lincoln, Mapping the Structure of Regional Economies, 2006.

<sup>4</sup> A Atherton and L Price, University of Lincoln, Secondary Centres of Economic Activity in the East Midlands, 2009.

<sup>5</sup> A Atherton and A Johnston, University of Lincoln, Mapping the Structure of Regional Economies, 2006.

**Table 1: Typology of larger settlements**

<p><b>Labour attractors</b></p> <ul style="list-style-type: none"> <li>• Likely to have in-flows of labour as business densities are greater than workforce densities</li> <li>• High business densities suggest a local concentration with partial or localised agglomeration economies.</li> </ul>	<p><b>Regional agglomerations</b></p> <ul style="list-style-type: none"> <li>• Critical mass in terms of above average business and workforce densities</li> <li>• Key regional settlements</li> <li>• Major concentrations of activity that attract labour and other inputs.</li> </ul>
<p><b>Low agglomeration effects</b></p> <ul style="list-style-type: none"> <li>• Below average business and workforce densities indicate lack of critical mass</li> <li>• Unlikely to have significant agglomeration effects, may have partial effects</li> <li>• May be important for sub-regional and local economies.</li> </ul>	<p><b>Labour providers</b></p> <ul style="list-style-type: none"> <li>• Lower business densities with high workforce densities are likely to lead to outflows of labour</li> <li>• Less likely to have agglomeration economies but still important to the regional economy.</li> </ul>

Three sets of analyses were undertaken by Atherton and Johnston (2006)<sup>6</sup>. The first compared business densities with workforce densities in order to test for an overall indication of agglomeration economies. These analyses made use of data from the Annual Business Inquiry and the 2001 Census of Population. The analysis shows that:

- Nottingham, Leicester and Northampton (the three settlements with the largest business populations) have business and workforce densities that are above the regional averages. These densities, alongside a critical mass of businesses and labour, clearly suggest agglomeration economies;
- Derby, along with Nottingham, Leicester and Northampton, is one of the four settlements in the region that are significant in terms of agglomeration economies. However, along with Kettering, it has above average workforce densities and business densities that are close to the average. This suggests that there may be an out-flow of labour (in 2001 there were over 22,000 out-commuters from Derby and around 38,000 in-commuters);
- Lincoln, Chesterfield and Grantham have business and workforce densities that are just below the regional averages. This suggests the existence of partial agglomeration effects in these settlements; and
- There are four settlements in the region that have relatively high business densities but workforce densities that are below the regional average. This suggests local economies with the potential for agglomeration economies. Loughborough and Wellingborough are both well connected to transport infrastructure, providing for inflows of labour. Louth and Boston are more remote and likely to act as service centres for wider rural hinterlands.

<sup>6</sup> A Atherton and A Johnston, University of Lincoln, Mapping the Structure of Regional Economies, 2006.

Mansfield has very low business and workforce densities and is considered in the work on secondary centres by Atherton and Price (2009). This is highlighted in the next section.

The second analysis tested for the presence of large employer effects. These occur when there are large businesses but low business and workforce densities and can work against the development of agglomeration economies. This analysis suggests that these effects are present in just one location in the region – Corby – which has the highest average business size in the region but a low business density. The analysis also suggests that:

- The four major settlements in the region (Derby, Leicester, Northampton and Nottingham) have high business densities and average employment per business. This suggests that there continue to be benefits from agglomeration in these areas and that agglomeration effects are self-reinforcing; and
- Loughborough, Wellingborough, Boston and Louth all have above average business densities and below average business sizes, suggesting that they function as ‘local small business economies’ and have the potential to further benefit from agglomeration economies.

The final analysis assesses flow effects by examining the availability of economically active people, per square kilometre, in a given settlement. This provides an indication of local labour market conditions. This analysis shows that:

- There is no clear relationship between business density and the number of economically active people per square kilometre – it is possible that high densities of businesses can exist without a concentration of economically active people around them; and
- The four settlements with the highest business densities have the lowest number of economically active people per square kilometre.

One implication of this is that greater competition for labour where agglomeration economies exist will attract labour from other areas.

**Table 2: Typology of large settlements in the East Midlands**

<p><b>Labour attractors</b></p> <ul style="list-style-type: none"> <li>• Wellingborough</li> <li>• Loughborough</li> <li>• Boston</li> <li>• Louth</li> </ul>	<p><b>Regional agglomerations</b></p> <ul style="list-style-type: none"> <li>• Nottingham</li> <li>• Leicester</li> <li>• Northampton</li> <li>• Derby</li> </ul>
<p><b>Low agglomeration effects</b></p> <ul style="list-style-type: none"> <li>• Lincoln</li> <li>• Chesterfield</li> <li>• Daventry</li> <li>• Hinkley</li> <li>• Corby</li> </ul>	<p><b>Labour providers</b></p> <ul style="list-style-type: none"> <li>• Mansfield</li> </ul>

On the basis of these analyses, the following conclusions can be drawn about the structure of the East Midlands economy, which are summarised in Table 2. First of all, there are four major centres in the region that benefit from agglomeration economies – Nottingham, Leicester, Northampton and Derby. Secondly, there are a number of settlements that exhibit some agglomeration but not on a regional scale (such as Lincoln and Chesterfield) and some that exhibit low agglomeration economies (such as Daventry, Hinckley and Corby). Mansfield is not likely to generate agglomeration economies and, though shown as a labour provider may come somewhere between the two categorisations in the lower half of Table 2. Finally, there are a number of settlements that act as attractors of labour and these include Wellingborough, Loughborough, Boston and Louth.

### 8.2.3 Secondary centres in the East Midlands

Following on from the 2006 study, Atherton and Price (2009)<sup>7</sup> extended the work to look at smaller centres in the region. Termed ‘secondary centres’, these were defined as “urban settlements that are smaller than a principal urban area, but still significant as a centre of economic activity”.

A total of 98 settlements were included in this analysis, with a small degree of overlap with the study of large centres described above. They ranged from Chesterfield, with a population of over 70,000, to Wainfleet, with a population of just under 2,000. Of these 26 were in Derbyshire, 19 in Leicestershire, 20 in Lincolnshire, 11 in Northamptonshire, 20 in Nottinghamshire and two in Rutland.

As in the study of larger centres, a number of analyses were carried out using data on business density, population density, workforce density and connectivity. The results of these analyses are summarised by county (for the purposes of the analysis Rutland was combined with Lincolnshire). The results point towards a categorisation of secondary centres in the East Midlands:

- Sub-regional centres: these are larger centres with a diverse economic base and can be considered to be the key secondary centres in the East Midlands. They are likely to generate agglomeration economies;
- Manufacturing/transition economies: these centres tend to have greater concentrations of traditional industries and still have a relatively large manufacturing centre. Agglomeration effects are likely to be low in these centres, although there may be some large employer effects;
- Strong local economies: these are small centres with higher concentrations of businesses serving a wider hinterland. They are likely to generate localised agglomeration effects that can, to a degree, have sub-regional and some regional significance;

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<sup>7</sup> A Atherton and L Price, University of Lincoln, Secondary Centres of Economic Activity in the East Midlands, 2009.

- Healthy town economies: these centres serve their towns and a small surrounding area in which cases they generate some localised agglomeration effects;
- Dependent/commuter centres: these are well connected centres with high numbers in employment but with fewer local employment sites and services. They are unlikely to generate agglomeration economies; and
- Centres without critical mass: these are centres in remote rural or former mining areas with insufficient numbers of businesses or population to generate agglomeration effects.

## **Derbyshire**

Chesterfield is the largest town in Derbyshire and the analysis shows that this has a higher business than population density. It is also reasonably connected. The closest large urban centre is Sheffield in South Yorkshire, and the M1 and Midland Mainline provide good connections. Chesterfield also serves as an important sub-regional service centre for settlements in the Peak District to the west and for areas such as Staveley and Dronfield to the north and east.

With the exception of Chesterfield, secondary centres in Derbyshire tend to be less well connected than in other areas of the region. A number of these centres do have high levels of business and population density, which suggests the presence of a number of relatively strong local economies. Settlements with these characteristics fall into two groups.

Settlements such as Long Eaton, Belper and Ilkeston demonstrate the potential for agglomeration economies with their high business and population densities. They are also likely to benefit from their proximity and connectivity to Derby and Nottingham. These settlements may be considered functional parts of these city economies given their proximate location to them and apparent levels of economic integration.

There is a group of settlements that are more remote from larger urban centres and are less well connected, but still demonstrate the potential for agglomeration economies. This group includes Buxton, Matlock, Chapel-en-le-Frith and Wirksworth. These settlements tend to be self contained but do serve wider rural hinterlands and benefit from tourism in the Peak District National Park.

There are also settlements that have low business densities. Some of these, such as Staveley, Dronfield, Shirebrook, Clowne and Swadlincote, have high population densities and act as commuter settlements for larger urban areas. However there are some that also have low population densities. These areas include Bolsover, South Normanton, Alfreton and Clay Cross. These areas are former mining areas that are going through a period of industrial restructuring. This, combined with a low level of critical mass suggests limited potential for agglomeration economies.

Table 3 shows how settlements in Derbyshire fit into the typology outlined above.

**Table 3: Secondary centres in Derbyshire**

Sub-regional centres	Buxton, Belper, Chesterfield, Ilkeston, Long Eaton
Manufacturing/transition economies	Alfreton, Clay Cross
Strong local economies	Ashbourne, Bakewell, Whaley Bridge
Healthy town economies	Chapel-en-le-Frith, Eckington, Matlock, Melbourne, New Mills, Ripley, Wirksworth
Dependent/commuter centres	Dronfield, Heanor, Staveley, Swadlincote
Centres without critical mass	Bolsover, Clowne, Shirebrook, South Normanton/Pinxton

Source: Secondary Centres of Economic Activity in the East Midlands, A Atherton and L Price, University of Lincoln, 2009.

Overall Derbyshire has a number of centres with high business and population, suggesting strong local economies. There is something of an east-west divide, with settlements in the west tending to serve wider rural hinterlands and those in the east closely linked to, if not becoming part of, the economies of Nottingham and Derby. Despite some good links, centres in the county tend to be less well connected than elsewhere in the region.

### **Leicestershire**

The two largest secondary centres in Leicestershire are Loughborough and Hinckley. Hinckley has business and population densities that are above average. It is also well connected to Leicester and, in the West Midlands, Coventry. It is likely that Hinckley serves as both a commuter settlement and as a centre of activity in its own right. On the other hand, Loughborough has a relatively low business density and high population density, suggesting that it is more of a commuter settlement, particularly for Leicester and Nottingham (in 2001 over 10,000 people commuted from Charnwood, the district in which Loughborough is located, into Leicester)<sup>8</sup>.

Other secondary centres in Leicestershire tend to be better connected when compared to other counties. Lutterworth, Sileby, Market Bosworth, Ashby, Castle Donington and Market Harborough have higher business than population densities. In the case of Lutterworth this may be because of the presence of the Magna Park logistics centre, while for Castle Donington this is because of its proximity to East Midlands Airport and the presence of airport related businesses. These settlements demonstrate the potential for agglomeration economies and are likely to act as service centres for wider hinterlands.

Melton Mowbray, Shepshed, Mountsorrel, Earl Shilton and Ibstock have much higher population than business densities. This group of settlements are less likely to generate agglomeration economies and fulfil a commuter settlement role.

A final group of settlements may lack critical mass and be unlikely to generate agglomeration economies. Barrow upon Soar, Quordon, Markfield and Coalville all have relatively low business and population densities.

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<sup>8</sup> Experian, Commuting, Retail and Leisure Flows in the East Midlands, 2007.

Table 4 shows how secondary centres in Leicestershire fit into the typology outlined at the beginning of this sub-section.

**Table 4: Secondary centres in Leicestershire**

Sub-regional centres	Hinckley, Market Harborough
Manufacturing/transition economies	Coalville
Strong local economies	Ashby de la Zouch, Castle Donington, Enderby, Kidworth Harcourt, Lutterworth, Market Bosworth
Healthy town economies	Sileby
Dependent/commuter centres	Earl Shilton, Ibstock, Loughborough, Melton Mowbray, Mountsorrel, Shepshed
Centres without critical mass	Barrow upon Soar, Markfield, Quorndon

Source: Secondary Centres of Economic Activity in the East Midlands, A Atherton and L Price, University of Lincoln, 2009.

Overall centres in Leicestershire tend to be well connected and have high levels of labour market participation. Despite having a number of strong economies, many centres play a commuter settlement role, with some, such as Market Harborough and Loughborough, within commuting distance of London.

### **Lincolnshire and Rutland**

The majority of centres in Lincolnshire and Rutland have lower than average business and population densities. However, there are three centres where these densities are above average – Sleaford, Stamford and Uppingham. These centres are also located in the south and west of the area, which has better connectivity than elsewhere. These centres are likely to act as sub-regional centres, with some out-commuting.

There are a number of settlements that have higher business than population densities, suggesting that they act as centres for wider hinterlands. These include Grantham (the largest economy outside of Lincoln), Skegness, Louth and Oakham. Grantham aside, which is well connected to London, these settlements are more remote from key centres of population. Skegness, in addition to serving a wider hinterland, is also a centre for tourism.

There is only one settlement that has below average business density and above average population density, suggesting a commuter settlement role. This is Market Deeping, which is in close proximity to Peterborough.

The final group of settlements are those with below average business and population densities. Size of settlement suggests two sub-groups. The first is smaller settlements that may indicate a lack of critical mass for agglomeration effects to occur, and these include Spilsby, Wainfleet, Alford and Caistor. The second, larger sub-group includes Gainsborough, Boston and Spalding. In the case of Boston and Spalding this may be the result of the presence of a small number of large businesses, while industrial decline and re-structuring may account for this in Gainsborough.

Table 5 shows how secondary centres in Lincolnshire and Rutland fit into the typology outlined at the beginning of this sub-section.

**Table 5: Secondary centres in Lincolnshire and Rutland**

Sub-regional centres	Grantham
Manufacturing/transition economies	Boston, Gainsborough, Spalding
Strong local economies	Louth, Market Rasen, Oakham, Skegness, Sleaford
Healthy town economies	Stamford, Uppingham
Dependent/commuter centres	Market Deeping
Centres without critical mass	Alford, Bourne, Caistor, Crowland, Holbeach, Horncastle, Long Sutton, Mablethorpe/Sutton, Spilsby, Wainfleet

Source: Secondary Centres of Economic Activity in the East Midlands, A Atherton and L Price, University of Lincoln, 2009.

Overall, settlements in Lincolnshire and Rutland are less well connected than elsewhere in the East Midlands. Connectivity seems to matter as those areas with the lowest business and population densities are more remote. Chapter 7 of *The East Midlands in 2010, Economic Inclusion and Deprivation*, highlights the more deprived nature of these areas. This is particularly the case in the north and east of Lincolnshire. Settlements tend to be more self-contained and there are fewer commuter settlements than elsewhere.

### **Northamptonshire**

The largest settlement in Northamptonshire, outside of Northampton, is Wellingborough. This, along with Towcester and Brackley, has above average business and population densities. This suggests that these settlements are relatively strong economies that demonstrate agglomeration effects. Part of the success of Towcester and Brackley is attributed to the presence of the motorsports industry and its supply chain, along with proximity to Milton Keynes and the South East.

Many of the centres in Northamptonshire have below average levels of business density combined with above average levels of population density. This suggests that settlements in Northamptonshire are commuter settlements, with out-flows to Northampton, Milton Keynes and London in particular. This includes larger settlements such as Kettering and Rushden, and smaller towns such as Rothwell, Desborough, Irthlingborough and Raunds.

Corby and Daventry, two of the larger settlements in Northamptonshire, have below average business and population densities. This is partly historical – both were subject to significant expansion in the 1960s, in the low density style of development of that time. However both have gone through a period of industrial re-structuring and both are home to a number of large firms that dominate their economies.

Table 6 shows how secondary centres in Northamptonshire fit into the typology outlined at the beginning of this sub-section.

**Table 6: Secondary centres in Northamptonshire**

Sub-regional centres	Wellingborough
Manufacturing/transition economies	Corby, Daventry
Strong local economies	
Healthy town economies	Brackley, Towcester
Dependent/commuter centres	Desborough, Irthlingborough, Kettering, Raunds, Rothwell, Rushden/Higham Ferrers
Centres without critical mass	Oundle

Source: Secondary Centres of Economic Activity in the East Midlands, A Atherton and L Price, University of Lincoln, 2009

Overall, settlements in Northamptonshire experience the highest levels of labour market participation and connectivity in the region, but business densities are relatively low. This suggests the presence of a number of commuter settlements, with significant outflows to Milton Keynes and London. There are just a small number of centres that act as the focal point for services and employment.

### **Nottinghamshire**

As in Leicestershire, secondary centres in Nottinghamshire tend to be well connected but have low business densities. Just two centres, Newark and Bingham, have above average population and business densities. These two settlements are located in the east of Nottinghamshire, which is more sparsely populated. This suggests that these two centres are relatively self contained and act as sub-regional centres for wider hinterlands.

There are a number of settlements that have higher business than population densities and may attract labour. These include Tuxford, Retford, and Southwell. The high business density in Tuxford is the result of the location of two business parks nearby. Retford and Southwell are market towns that act as service centres for a number of surrounding villages.

Cotgrave, Mansfield Woodhouse, Eastwood and Hucknall all have higher population densities than business densities. They are all located close to, and reasonably well connected to, Nottingham. This suggests that these settlements are commuter areas that rely on the larger city for services and employment opportunities.

Mansfield is one of the larger centres in Nottinghamshire but, along with Worksop and Sutton in Ashfield, has below average business and population densities. Economic activity rates are also relatively low in Mansfield and levels of ill health are relatively high. This suggests that Mansfield is still re-structuring following the decline of mining and is also dependent on Nottingham for employment opportunities.

Table 7 shows how secondary centres in Nottinghamshire fit into the typology outlined at the beginning of this sub-section.

**Table 7: Secondary centres in Nottinghamshire**

Sub-regional centres	Newark
Manufacturing/transition economies	Mansfield, Sutton in Ashfield, Worksop
Strong local economies	Retford, Ruddington, Southwell, Tuxford
Healthy town economies	Bingham
Dependent/commuter centres	Boughton/Ollerton, Clifton, Cotgrave, Eastwood, Hucknall, Kirkby in Ashfield, Mansfield Woodhouse
Centres without critical mass	Keyworth, Kimberley, Radcliffe on Trent, Selston/Underwood/Brimley

Source: Secondary Centres of Economic Activity in the East Midlands, A Atherton and L Price, University of Lincoln, 2009.

Overall centres in Nottinghamshire are characterised by low levels of business density and low levels of activity. In the north and west of the county this is because of the industrial and mining heritage and the influence of Nottingham. In the east of the county there are a number of self contained, sub-regional centres that are well connected.

**Key Points: The structure of the East Midlands economy**

- Regional agglomerations of activity are to be found in Derby, Leicester, Northampton and Nottingham. Lincoln and Chesterfield exhibit some agglomeration effects but not on a regional scale.
- There is something of an east-west divide in Derbyshire, with settlements in the west tending to serve wider rural hinterlands and those in the east closely linked to the economies of Nottingham and Derby.
- Centres in Leicestershire tend to be well connected and have high levels of labour market participation. Many centres play a commuter settlement role, with some, such as Market Harborough and Loughborough, within commuting distance of London.
- Settlements in Lincolnshire and Rutland are less well connected than elsewhere in the East Midlands. This is particularly the case in the north and east of Lincolnshire. Settlements tend to be more self-contained and there are fewer commuter settlements than elsewhere.
- Settlements in Northamptonshire experience the highest levels of labour market participation and connectivity in the region. There are a number of commuter settlements, with significant outflows to Milton Keynes and London. There are just a small number of centres that act as the focal point for services and employment.
- Settlements in Nottinghamshire are characterised by low levels of business density and low levels of activity. In the north and west of the county this is because of the influence of Nottingham. In the east of the county there are a number of self contained, sub-regional centres that are well connected.

## 8.3 Flows of activity in the East Midlands

The previous section summarised an analysis of the structure of the East Midlands economy. This analysis highlighted the functional roles that centres in the region play. There are a small number of key regional centres that act as service and employment providers (Derby, Leicester, Northampton and Nottingham). There are many smaller centres that play a number of roles – some as smaller service centres in their own right and some as commuter settlements for the larger centres in the region.

This section will build on that analysis by providing an assessment of measurable flows in order to build a more dynamic assessment of the regional economy. Data is available that makes it possible to assess commuter flows (both within and without the region) and flows of people associated with retail and leisure activities.

### 8.3.1 Commuting patterns

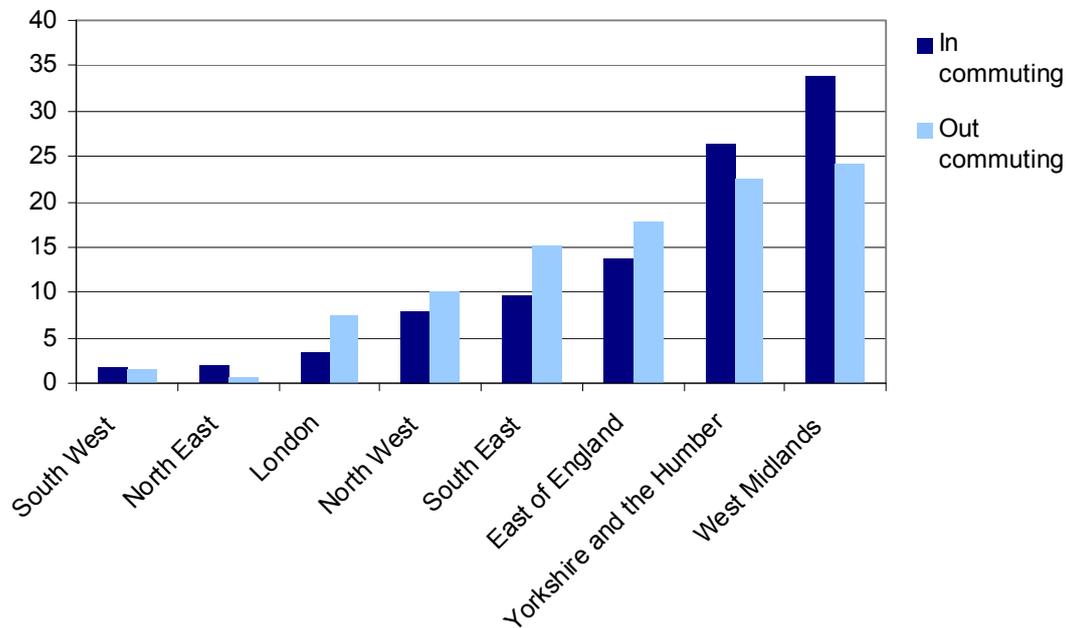
The most detailed data on commuting patterns remains that from the 2001 Census of Population, but it is possible, in some instances, to provide more up to date analysis from the Labour Force Survey. It should be noted that this data and analysis is for administrative rather than functional areas.

The East Midlands experiences significant amounts of in and out commuting, a function of its central location and the transport infrastructure. Overall the region is a net exporter of workers, and this has been increasing over time. In 1991 a total of 61,000 more workers commuted out of the region than commuted in. By 2001 this figure had increased to around 93,000. Data from the Labour Force Survey suggest that this trend has continued, with net out-commuting of over 100,000 in 2006.

Chart 1 shows that, as might be expected, the four regions that surround the East Midlands are the most popular sources of, and destinations for, commuting. The West Midlands, Yorkshire and the Humber, the East of England and the South East account for almost 80% of out-commuting from, and 83.5% of in-commuting to, the East Midlands. The West Midlands alone accounts for over a third of in commuters and almost a quarter of out commuters.

It is also clear from Chart 1 that these headline numbers disguise quite different patterns. The East Midlands attracts workers from the West Midlands and Yorkshire and the Humber, but there is a net out-flow to the South East and the East of England.

**Chart 1: Share of in and out commuting by region 2001 (%)**

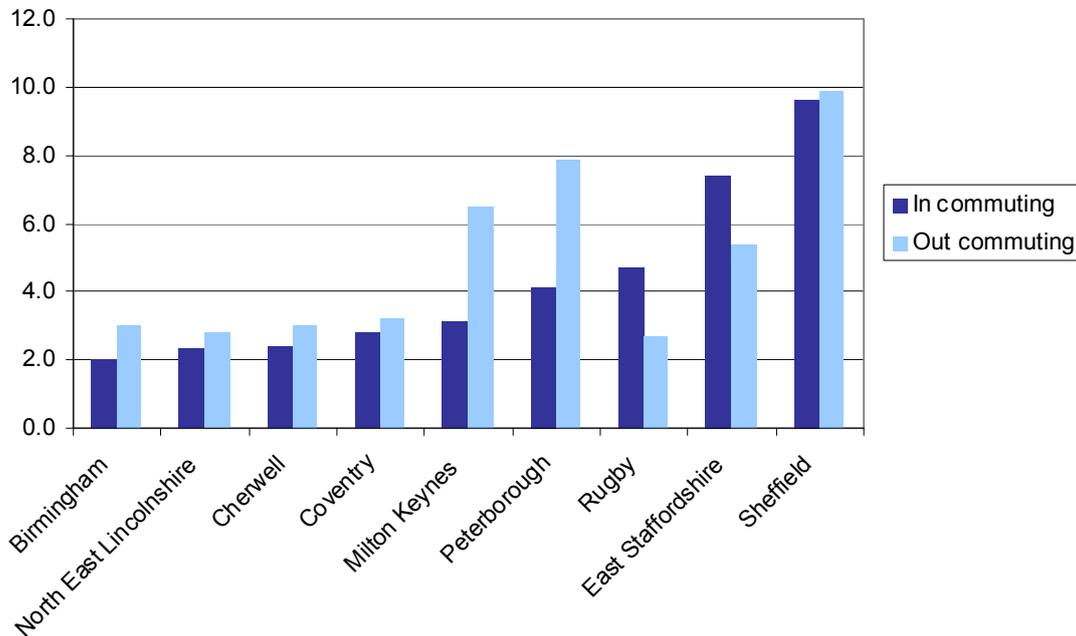


Source: Commuting Flows in the East Midlands, Experian, 2007.

Data is available from the 2001 Census that shows the districts outside the region that people commute to and from. Sheffield accounted for 9.9% of commuter outflows from the region (almost 20,000 people). Just under 8% commuted to Peterborough, 6.5% to Milton Keynes and 5.4% to East Staffordshire. Around 3% of out commuting was accounted for by Birmingham, Coventry, Rugby, Cherwell and North East Lincolnshire.

Sheffield is also the source of the largest number of commuters into the region, accounting for 9.6% of the total of all inflows into the region (around 10,000 people). East Staffordshire (7.4%) and Nuneaton & Bedworth (4.8%) are the second and third largest sources of commuting into the region. Nuneaton & Bedworth is not shown in the chart because of the very low level of out-commuting from the East Midlands to that district.

**Chart 2: Share of in and out commuting by district 2001(%)**



Source: Commuting Flows in the East Midlands, Experian, 2007.

This brief analysis highlights the linkages between the East Midlands and the West Midlands and Yorkshire and the Humber in particular. There are significant two way flows of workers between the region and Sheffield and East Staffordshire.

The 2001 Census allows for an assessment of net commuting and outflows and inflows at district level within the East Midlands. As the largest urban areas in the region, Nottingham, Leicester, Derby, Northampton and Lincoln all experience net in-commuting. The scale of net in-commuting varies significantly though. There is net in-commuting of over 70,000 in Nottingham, 43,000 in Leicester but between 10,000 and 15,000 in Derby, Northampton and Lincoln. Net out-commuting is highest in South Northamptonshire (-13,800), Broxtowe (-16,000), Rushcliffe (-16,100), North East Derbyshire (-17,100) and Gedling (-21,300). This reflects the structure and roles of these places, and the secondary centres located there, that were identified in the previous section.

These net commuting numbers mask significant flows between districts. There are around 590,000 commuters within the East Midlands who live and work in a different district in the region. Table 8 shows the highest proportion of employment accounted for by in commuters by district in the East Midlands. In 15 of the region's districts, commuters account for a third or more of employment. The table shows that:

- Nottingham experiences the highest levels of in-commuting both in absolute terms, and as a proportion of employment in the city. Although the flows are much smaller in-commuting accounts for more than half of total employment in Blaby and Oadby & Wigston;

- While there are 66,500 commuters into Leicester, this accounts for a smaller proportion of employment in the city, at 43%; and
- In Broxtowe, Bolsover, Lincoln, Ashfield, Rushcliffe and Gedling, commuter inflows account for more than 40% of total employment.

**Table 8: In commuting by district 2001**

District	Total employment	Commuter inflows	%
Nottingham	172,300	93,300	54
Blaby	41,100	21,100	51
Oadby and Wigston	19,000	9,600	50
Broxtowe 3	5,300	16,100	46
Leicester 154	,700	66,500	43
Bolsover	21,800	9,300	43
Lincoln 4	7,300	20,200	43
Ashfield	44,600	18,600	42
Rushcliffe	35,900	14,600	41
Gedling	33,000	13,100	40
North West Leicestershire	45,000	17,000	38
Mansfield 3	6,500	13,500	37
Amber Valley	49,100	17,000	35
Wellingborough	33,400	11,500	35
Erewash	39,800	13,600	34

Source: Commuting Flows in the East Midlands, Experian, 2007

Table 9 shows the 15 districts with the highest levels of out-commuting, and the proportion of the resident population that this accounts for. None of the region's major urban areas appear in this list. However, nearly all of these districts border one of these urban areas. The relative scale of out-commuting is larger than the in-commuting reported in Table 8. The key points to note are:

- In Oadby & Wigston commuter outflows are equivalent to two thirds of the resident population of the district. This proportion is only slightly lower in Broxtowe, North East Derbyshire and Gedling. North East Derbyshire is notable as the only district in the table not to share a border with Nottingham, Leicester, Derby, Northampton and Lincoln. In Gedling, for example, around 70% of these outflows are people who travel to work in Nottingham; and
- Even at the lower end of this list, commute outflows are equivalent to around half of the total resident population.

**Table 9: Out commuting by district 2001**

District	Total residents	Commuter outflows	%
Oadby and Wigston	26,700	17,500	66
Broxtowe 51	,300	32,900	64
North East Derbyshire	44,500	28,500	64
Gedling	54,400	34,800	64
Blaby	47,100	29,100	62
Bolsover	29,400	18,100	62
South Derbyshire	40,000	24,400	61
Rushcliffe	52,100	31,500	60
South Northamptonshire	42,100	24,200	58
East Northamptonshire	38,400	20,000	52
Erewash	52,500	27,000	51
Harborough 39	,800	20,300	51
Ashfield	49,000	24,200	49
Daventry	36,900	17,600	48
West Lindsey	35,500	16,700	47

Source: Commuting Flows in the East Midlands, Experian, 2007.

Tables 8 and 9 suggest that, while the scale of commuting is relatively large between the urban centres and surrounding areas, there is very little commuting between them. This reinforces the conclusion of the previous section that they are regional drivers of the economy. There are very few commuters between the three cities and Northampton, and between the three cities the largest flows are to be found between Derby and Nottingham. Around 2,400 commute from Derby to Nottingham and around 1,300 people travel in the opposite direction. Around 500 people travel in each direction between Nottingham and Leicester and the flows between Derby and Leicester are even smaller.

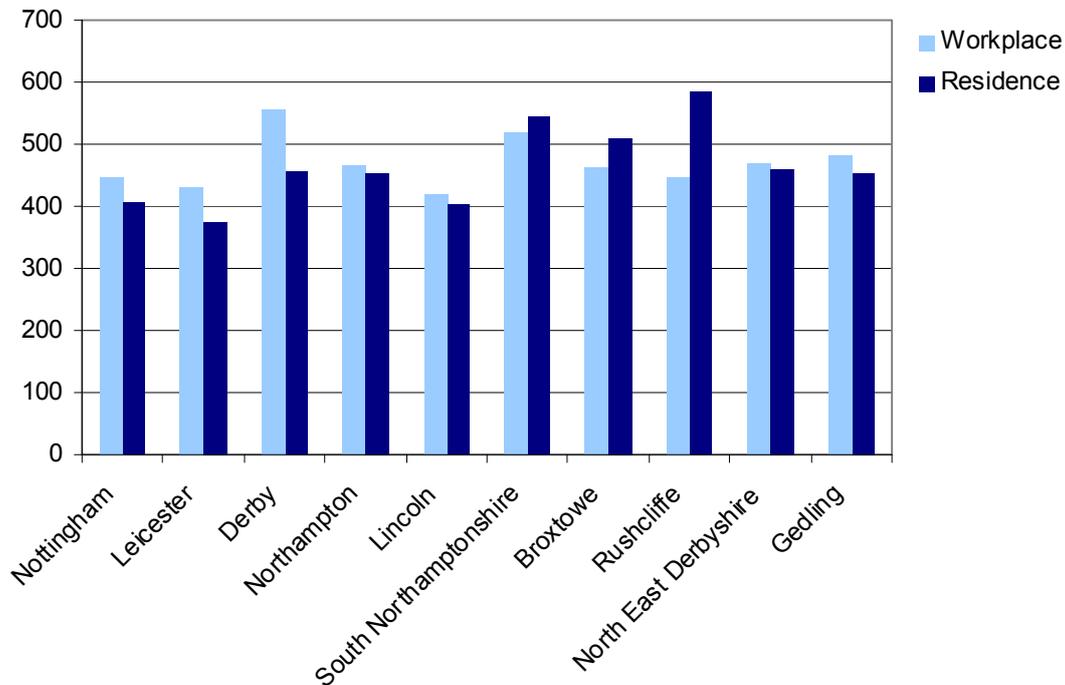
People commute for many reasons, based on decisions about where to live and work. These decisions about where to live and work are influenced by a number of factors.

Employment opportunities are the key driver of commuting activity. Those districts with the largest amounts of net in-commuting identified above are also those with the highest jobs density (number of jobs relative to the working age population). Conversely, those districts with the highest level of net out-commuting tend to have the lowest jobs densities. Future employment opportunities may either reinforce existing commuting patterns or create new patterns. Key commuting destinations such as Northampton, Milton Keynes and Peterborough are, despite the current recession, expected to grow rapidly as part of the Sustainable Communities Plan. On the other hand, new technologies might lead to increased home-working or other flexible working, which would create new commuting patterns.

In addition to the number of employment opportunities, it is also important to consider the quality of employment and the wages offered. People are more likely to commute if employment is available that pays a wage that is higher than what is available locally, and is sufficiently high to compensate for the costs of commuting. The available data offers some support to this. Workplace based earnings are generally higher than residence based earnings in the key commuting destinations such as the three cities and Northampton. In contrast residence based earnings tend to be higher than workplace

based earnings in those areas where there is significant out-commuting such as South Northamptonshire, Rushcliffe and Broxtowe. This is shown in Chart 3, which highlights residence and workplace based earnings for those districts with the highest levels of net in and out-commuting.

**Chart 3: Workplace and residence based earnings 2008 (£)**



Source: Annual Survey of Hours and Earnings, 2008, NOMIS, 7<sup>th</sup> July 2009.

Population and household growth tends to be higher in those areas that border the key urban areas. For example there has been significant population growth around Northampton in South Northamptonshire and Daventry, and around Lincoln in North Kesteven (see Chapters 1 and 2 for more detail on these trends). Some of this is down to higher skilled and higher earning groups moving from the cities into rural areas, a process known as ‘city flight’. Coombes et al (2007) found high levels of migration from Nottingham and Leicester into the surrounding rural areas. They suggest that people move because of the quality of life that is available, with access to leisure and recreational facilities increasingly available in rural areas.<sup>9</sup> These population trends are likely to continue, so that the pattern of commuting from rural areas into the regions larger urban centres will also continue.

Property prices and the housing stock are also key considerations in determining whether a person commutes. Data presented in Chapter 2 shows that housing affordability is most acute in the region’s rural areas. The highest ratios of lower quartile house prices to lower quartile earnings are found in Rutland, Daventry, South Northamptonshire and Derbyshire Dales. These are all areas that are within commuting

<sup>9</sup> M Coombes, T Champion, T Brown and S Raybould, Centre for Urban and Regional Development Studies, University of Newcastle Upon Tyne, City Flight Migration Patterns in the East Midlands, 2007.

hotspots, either inside or outside the East Midlands. However, housing affordability is not as acute in the key commuting destinations. Some of the acute problems of affordability are also down to the type of housing that is available. In the cities there are relatively fewer detached houses and more flats and maisonettes. The availability of larger, detached homes is frequently a key influence on the location decisions of higher paid workers, and particularly those with families.

Transport infrastructure and public transport availability are other key determinants of the level of commuting. The Transport and Infrastructure chapter showed that relatively more people use the car to travel to work in the East Midlands, and that relatively more people spend more than an hour travelling to work. The large urban centres are more accessible, with a greater range of options than the more rural areas of the region. As noted above agglomeration diseconomies, such as the cost of congestion, can increase the costs of commuting.

The reasons for commuting set out in the previous paragraphs suggest that a general profile of commuters can be constructed. Data from the 2001 Census suggest that commuters have the following characteristics:

- Gender: commuters are more likely to be male. Around 60% of commuters in the region were male in 2001;
- Age: commuters are more likely to be aged over 30. Those aged over 30 accounted for around 75% of commuters in 2001;
- Occupation: commuters are more likely to be employed as managers and senior officials, in professional occupations and in associate professional and technical occupations. They are less likely to be employed in personal service occupations, elementary occupations and as process, plant and machine operatives;
- Qualifications: commuters are more likely than average to be qualified to NVQ Level 4 or above. They are less likely than average to have an NVQ Level 1 or no qualification; and
- Hours worked: commuters are much more likely to be in full-time employment, a requirement of the need to cover the costs of travel, than those who work part-time.

### **Key Points: Commuting patterns**

- Levels of commuting are significant and have been rising during the last two decades.
- Cross regional border commuting is significant, reflecting the central location of the region. The largest flows are between the East Midlands and Yorkshire and the Humber, the West Midlands, the East of England and the South East.
- Sheffield, Peterborough, Milton Keynes and East Staffordshire are the key destinations and sources of cross regional commuting activity.
- Within the region net in-commuting is highest in Nottingham, Leicester, Derby, Northampton and Lincoln. Net out-commuting is highest from South Northamptonshire, Broxtowe, Rushcliffe, North East Derbyshire and Gedling. Out-commuting tends to be highest from those areas located near to the largest urban centres.
- Commuting flows between the large urban centres in the region are relatively small, with the most significant flows between Derby and Nottingham.
- People commute for many reasons including: employment, earnings, housing availability and affordability, and the availability of transport links.
- Commuters are more likely to be male, aged over 30, employed in higher level occupations and be highly qualified.

### **8.3.2 Patterns of retail and leisure activity**

Information on patterns of retail and leisure activity is less comprehensive than that on commuting flows outlined in the previous section. However proprietary survey data from Experian does provide some coverage of these flows in the region.<sup>10</sup> It should be noted that this data does not include the impact of recent changes to the retail offer within the region such as the opening of the Westfield Centre in Derby. This data is based on two key questions:

- Where do you shop most often for non-food goods like clothes, shoes and jewellery? and
- Which town centre do you normally visit for a 'big night out' (visiting pubs, restaurants or clubs)?

For retail flows 30 catchments were analysed, based on the volume of responses to the survey. Of these nine are destinations outside the East Midlands but have catchments

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<sup>10</sup> Experian's programme of regular lifestyle surveys includes the Where Britain Shops and Big Night Out surveys. This data is based on over 51,000 responses to the Where Britain Shops Survey in the East Midlands in 2004-2005 and 10,000 responses to the Big Night Out survey in the region in 2004.

that extend into the region. Table 10 shows that around 85% of shoppers stay within the region. As with data on commuting, the key flows outside of the region are for shoppers travelling to Yorkshire and the Humber (Sheffield), the East of England (Peterborough), the South East (Milton Keynes) and the West Midlands (Burton on Trent in the district of East Staffordshire). This is similar to the pattern of out-commuting identified above.

**Table 10: Shopping destinations outside the East Midlands**

Region	% of flows
East Midlands	85.6
Yorkshire and the Humber 5.4	
East of England	3.1
South East	2.2
West Midlands	2.2
North West	1.3
London 0	.1

Source: Retail and Leisure Flows in the East Midlands, Experian, 2007.

Note: figures may not add to 100 due to rounding.

Within the East Midlands the key retail destinations are shown in Table 11. As with cross border retail flows, these are very similar to the key commuter destinations outlined above. The most significant destinations within the region are Nottingham (14.0%) and Leicester (13.0%). It is also significant that Lincoln is ranked so highly as a shopping destination. This highlights the role that it has serving a wider hinterland in a less densely populated party of the region. The table also highlights a number of smaller centres that serve wider hinterlands, as discussed in section 2 of this chapter. These include Kettering, Skegness and Newark.

**Table 11: Shopping destinations within the East Midlands**

Destination	% of flows
Nottingham	14.0
Leicester	13.0
Lincoln 9.5	
Derby	9.2
Northampton	6.3
Chesterfield	5.6
Mansfield 4.2	
Boston 2.4	
Loughborough	2.2
Kettering	1.8
Skegness 1.3	
Newark	1.1
Worksop	1.0

Source: Retail and Leisure Flows in the East Midlands, Experian, 2007.

The largest retail catchments are to be found in the west of the region. They tend to exhibit significant interaction with each other and are influenced by the major transport infrastructure in that part of the region. On the other hand catchments in the east of the region tend to be smaller and are relatively more self-contained. Catchments are described in terms of primary catchments (which account for 50% of shoppers) and

secondary catchments (which account for the next 30% of shoppers). After accounting for 80% of shoppers, catchment areas increase rapidly and become less relevant for retailers. The key catchments in the East Midlands can be described as follows:

- Nottingham’s catchment reaches further to the east (as far as Grantham), than the west, as there is a degree of overlap to the west with the Derby catchment;
- Derby’s catchment extends as far as Uttoxeter in the West Midlands, Matlock to the north and Coalville to the south. The M1 acts as a boundary to the east;
- Leicester’s catchment extends further to the east than the west, again a result of the M1 acting as a barrier to the west of the city. To the north it overlaps with the Loughborough catchment and to the south extends to Hinckley, Lutterworth and Market Harborough;
- For the three cities the primary catchment closely matches the extent of the built up area;
- The Northampton catchment extends into Kettering and Wellingborough to the east and most of Daventry in the west; and
- Lincoln’s catchment is relatively large compared to the other centres, partly a function of its greater isolation. The catchment extends further to the south than the north, a function of the A15.

There are some similarities between retail and leisure catchment areas. However, leisure catchment areas tend to be smaller as this activity is more localised in nature. As with retail flows there is some leakage out of the region, and this is shown in Table 12. Almost 91% of leisure trips are within the East Midlands. The next largest share is accounted for by Yorkshire and the Humber, and this is mostly trips to Sheffield.

**Table 12: Leisure destinations outside the East Midlands**

Region	% of flows
East Midlands	90.7
Yorkshire and the Humber	3.6
East of England	2.0
London 1	.1
West Midlands	1.1

Source: Retail and Leisure Flows in the East Midlands, Experian, 2007.

Table 13 shows the share of leisure trips accounted for by destinations within the East Midlands. The list of destinations is similar to that for retail trips but there are some differences. First, the share of trips into Nottingham and Leicester is greater for leisure than retail. Second, Derby accounts for a greater share of leisure than retail trips. Finally, Northampton and Lincoln account for fewer leisure than retail trips.

**Table 13: Leisure destinations within the East Midlands**

<b>Destination</b>	<b>% of flows</b>
Leicester	18.0
Nottingham	17.9
Derby	9.6
Lincoln 7.9	
Chesterfield	6.2
Northampton	5.2
Mansfield 5.1	
Boston 1.8	
Kettering	1.5
Stamford 1.4	
Grantham 1	.4
Loughborough	1.3
Skegness 1.2	
Newark	1.0

Source: Retail and Leisure Flows in the East Midlands, Experian, 2007.

**Key Points: Patterns of retail and leisure activity**

- As with commuting, key destinations for shoppers outside of the region are Yorkshire and the Humber (Sheffield), the East of England (Peterborough), the South East (Milton Keynes) and the West Midlands (Burton on Trent in East Staffordshire).
- Within the East Midlands key retail destinations are Nottingham, Leicester, Lincoln, Derby and Northampton. Centres such as Chesterfield, Buxton, Kettering and Skegness are significant sub-regional retail destinations.
- There are similarities between retail flows and leisure flows. However, leisure trips tend to be more localised with smaller catchments and less leakage outside the region.
- The large urban centres in the region account for a greater share of leisure trips than retail trips. However, there are still a number of significant sub-regional leisure destinations that include Chesterfield, Buxton, Kettering and Skegness.

## 8.4 Is the East Midlands a polycentric region?

The previous sections of this chapter have identified key centres of activity in the region and the flows between them. They suggest that there is a hierarchy of settlements in the region, with much of the region's economic activity concentrated in Derby, Leicester, Northampton and Nottingham, and more remote areas served by smaller secondary centres. This, and a descriptive analysis of key statistics, might suggest that the East Midlands is a polycentric region. This section assesses the influence of the large urban areas and discusses whether or not the East Midlands can be considered a polycentric region in functional terms.

Many regions in the UK can be considered to be monocentric in that they are dominated by a single urban centre (for example, Birmingham in the West Midlands). In their paper on city regions and polycentricity, Coombes et al (2005)<sup>11</sup> suggest a number of criteria that, if met, would indicate a functioning polycentric region:

- There are at least two principal centres of comparable significance;
- The centres are not part of the same built up area;
- The centres do not duplicate activity and functions; and
- There is substantial interaction between the centres, with a reasonably close balance between the flows in each direction.

The analysis of agglomeration economies set out in the first two sections of this chapter clearly highlighted Derby, Leicester, Northampton, Nottingham and, to a lesser extent, Lincoln as the key centres of economic activity in the region. However, the Demography chapter of *The East Midlands in 2010* shows that, among these five key centres, Nottingham and Leicester are appreciably larger than the other three. The Economy and Productivity chapter highlights that the size of the business stock in Nottingham and Leicester is also greater than in Derby, Northampton or Lincoln.

Coombes et al (2005) present an alternative indicator of the urban hierarchy in the region, ranking cities on the basis of retail floorspace. On this ranking Nottingham lags behind the larger core cities of Birmingham and Manchester, but is comparable with Sheffield.

Within the East Midlands, Leicester is more comparable with Nottingham, both being significantly larger than Derby. On this measure of floorspace Derby is more comparable with Northampton and Lincoln, despite the much smaller population in Lincoln. It should be noted that these figures pre-date the opening of the Westfield Centre in Derby. Peterborough and Milton Keynes, which have been highlighted as larger centres outside the region that exert significant influence in the region, are of comparable size to these centres. On this basis, it appears that Nottingham and Leicester fulfil the first of the criteria set out above.

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<sup>11</sup> M Coombes, D Charles, S Raybould and C Wymer, Newcastle University, *City Regions and Polycentricity: the East Midlands Urban Network*, 2005.

The second criterion is clearly met in that Leicester, Nottingham and Northampton are distinct urban areas. However, this is not so clear cut when examining Nottingham and Derby. The built up area of Derby extends eastwards into Erewash, while the built up area of Nottingham extends westwards into Broxtowe and Erewash.

Using commuting data to construct areas of self-containment Coombes et al (2005)<sup>12</sup> make the point that “there is no simple answer in terms of a best map”. Looking at large labour market areas, defined as areas that are 85% self-contained (85% of people live and work in these areas) they find that Derby is not combined with Nottingham but is part of a larger area that includes Sheffield.

However, different places fulfil different labour market roles. A second analysis<sup>13</sup> examining areas of self-containment (using the 85% definition) based on commuting flows of professional and managerial workers, suggests a different pattern for Derby. In this analysis Derby is grouped with Nottingham rather than Sheffield.

These two analyses of self-containment suggest that Northampton, Lincoln and Leicester stand alone, dominating large hinterlands. This suggests that, for these areas, the third criterion set out above, that there be no duplication of activity or function, does not hold because each offers services locally that would be available in the other settlements (e.g. a retail offer). The relationship between Derby and Nottingham is more complex, with some suggestion that Nottingham provides labour market opportunities to Derby (as noted above Derby is part of Nottingham’s catchment for professional and managerial workers), and that an assessment of the third criterion is not so clear cut in this case.

The previous section highlighted patterns of commuting within and without the East Midlands. The analysis of flows between the large urban centres in the region suggested that they were relatively small, with very little commuting between Nottingham and Leicester. There are larger flows between Nottingham and Derby but flows from Derby into Nottingham are almost twice as large as those in the other direction. Coombes et al (2005)<sup>14</sup> suggest that this does not provide evidence either for or against a polycentric interpretation of the region’s structure.

Coombes et al (2005)<sup>15</sup> conclude that the East Midlands can not be considered as a single polycentric region as all four of the criteria that they use are not clearly met, particularly in terms of the duplication of activity and function across a number of centres. The region is not strongly integrated internally, and there are many areas that have greater links with larger centres outside the region. They note that the region is likely to become even less integrated as development in the Milton Keynes South Midlands growth area will further increase the orientation of Northamptonshire to the South East and London.

While they conclude that the region is not polycentric, they do suggest that polycentricity may be a feature of areas within the East Midlands. They highlight the eastern half of

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<sup>12</sup> Ibid, 11.

<sup>13</sup> Ibid, 11.

<sup>14</sup> M Coombes, D Charles, S Raybould and C Wymer, Newcastle University, City Regions and Polycentricity: the East Midlands Urban Network, 2005.

<sup>15</sup> Ibid, 11.

Northamptonshire as being the most plausible case. This is based on their assessment of the roles of Wellingborough and Kettering, which were also identified by Atherton and Price, and described in the second section of this chapter. They are more cautious in their assessment of the three cities, arguing that Leicester clearly stands alone as a separate sub-region. As far as the relationship between Derby and Nottingham goes, they suggest that in the future, as Nottingham develops further, greater integration may occur and a polycentric sub-region develop, especially if Nottingham's position in the labour market (with its clear comparative advantage in higher level occupations) is consolidated. This assessment of the functionality of the three cities does not negate the policy of those authorities who wish to work together to achieve shared objectives.

**Key Points: Is the East Midlands a polycentric region?**

- A number of criteria exist that may be indicative of whether a region is polycentric or not. Coombes et al (2005) identify four criteria and argue that they are not clearly met in the case of the East Midlands. On this basis they argue that the East Midlands is not a polycentric region but suggest that polycentricity may be a feature at sub-regional level.
- Within the East Midlands, Nottingham and Leicester have comparable status, both being larger than Derby.
- Derby is more comparable to Northampton and Lincoln.
- Leicester, Northampton and Lincoln stand alone as distinct centres but the relationship between Nottingham and Derby is more complex.

## 8.5 Conclusions

This chapter has shown that the East Midlands has a complex structure, with no single dominant centre (as in Birmingham in the West Midlands for example). Agglomeration economies occur when there are significant concentrations of businesses and people. They tend to be self-reinforcing as dense areas of economic activity attract yet more businesses and people. This suggests that, over time, economic activity will be concentrated in urban areas. This is often supported by the planning system, which focuses on development of brownfield urban sites before encouraging more peripheral development. However, there are limits to the extent to which this can take place as costs such as congestion and increased land values can drive activity elsewhere.

In their work on large urban settlements in the East Midlands, Atherton and Johnston (2006)<sup>16</sup> suggest that there are a small number of settlements that can be categorised as regional agglomerations. These are Derby, Leicester, Northampton and Nottingham. However, agglomeration economies, and the benefits they bring, can also occur on a smaller scale. An example of this is Lincoln which serves a large rural hinterland.

In a subsequent piece of work Atherton and Price (2009)<sup>17</sup> looked at a number of smaller 'secondary' centres in the East Midlands and examined the role that they play. They found that there are a number of these settlements that act in a similar way to the larger urban areas, providing a service centre function to often large rural hinterlands. These settlements include Chesterfield, Buxton, Market Harborough, Grantham, Wellingborough and Newark. An implication of this finding is that these centres need to develop in an appropriate way, so that they can continue to fulfil this function.

The fact that there are a number of large and small service centres in the East Midlands that draw in people from large hinterlands suggest that commuting and other travel flows are significant and this is borne out in the data. Analysis of commuting flows suggests that commuting flows are significant, both within and without the region. There are significant flows between the East Midlands and Yorkshire and the Humber (Sheffield), the West Midlands (East Staffordshire), the East of England (Peterborough) and the South East (Milton Keynes). This means that the impact of economic development and other interventions will flow across regional borders.

Within the East Midlands, commuting flows are greatest into the larger urban areas, and Nottingham and Leicester in particular. The other side of the coin is that outflows are greatest from those districts that are close to the large cities (for example Broxtowe, Rushcliffe or South Northamptonshire). Those districts have also experienced significant population growth, partly as a result of 'city flight' migration trends.

The data shows that commuting has increased since 1991, with more people travelling further to work. Commuters tend to be more highly skilled and highly paid. This group of workers are likely to be part of a labour market that is regional or even national. As the workforce grows and becomes more highly skilled, commuting is likely to increase.

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<sup>16</sup> A Atherton and A Johnston, University of Lincoln, Mapping the Structure of Regional Economies, 2006.

<sup>17</sup> A Atherton and L Price, University of Lincoln, Secondary Centres of Economic Activity in the East Midlands, 2009.

Although a number of key centres have been identified in the region, and descriptive analysis of data might suggest it, there is little evidence that the region can be considered to be polycentric in strict functional forms. Coombes et al (2005) identify four criteria that define polycentric regions and argue that two of these are not met in the East Midlands. However, they suggest that polycentricity may be a feature of areas within the East Midlands.

The available data on business stock, population and commuting suggest that Nottingham and Leicester stand alone as regional centres, with little interaction between them (for example commuting flows between these two cities are extremely small). Northampton also stands somewhat apart from the rest of the region and this is likely to become even more pronounced in the future as a result of greater linkages with the South East through the Milton Keynes South Midlands growth area.

The most complex relationship among the region's major centres is between Nottingham and Derby. Nottingham attracts twice as many commuters from Derby as it sends. In many ways Derby is closely linked to the South Yorkshire conurbation but in terms of a market for highly skilled workers it is part of the same labour market as Nottingham. As Nottingham is the larger centre and develops further its existing position may be consolidated.

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## 9.1 Introduction

This chapter presents short sub-regional profiles provided by the nine East Midlands Upper Tier Local Authorities. These profiles are based on data produced by the ONS Regional Team and reflect progress made on shared approaches to the new Local Economic Assessment duty<sup>1</sup> in the East Midlands. Each profile describes key indicators grouped by theme reflecting the main chapter headings of The East Midlands in 2010. Each profile concludes by identifying a number of key challenges and issues affecting each sub-region.

The first profile has been provided by Derby City Council, followed by a profile contributed by Derbyshire County Council. The next section comprises a joint profile provided by Leicester City and Leicestershire County Councils (to support the Multi-Area Agreement currently being taken forwards by the two authorities). Following this, Lincolnshire County Council has produced a profile for its area. The next profile has been produced by Northamptonshire County Council, and this is followed by profiles provided by Nottingham City and Nottinghamshire County Councils respectively. The final profile covers Rutland Unitary Authority, produced jointly by *emda* and Rutland County Council.

*emda* is appreciative of the contributions made by its Sub-Regional Partners (SRPs) and hopes that this Chapter provides a positive basis for regional joint working in producing Local Economic Assessments through 2010-2011.

### 9.1.2 Technical introduction

These profiles describe indicators identified by a working group comprising *emda* and Local Authority research staff. Data is drawn from a database of official statistics produced by the ONS Regional Team. The nine Upper Tier Authorities agreed a small selection of indicators with *emda* that could reasonably be used by each area to create comparable short profiles that would facilitate a level of local interpretation as part of The East Midlands in 2010. The principal level of geography used in these profiles is Upper Tier Local Authority – i.e. County and Unitary Authorities. These sub-regions are compared to the East Midlands region and national average where appropriate, and variations within the sub-region are illustrated with Local Authority District (LAD) data. In the case of Nottingham City and Leicester and Leicestershire, the areas are treated somewhat differently in order to reflect spatial and strategic issues.

Some indicators used in this chapter will not be comparable with equivalent indicators used in the earlier chapters of The East Midlands in 2010 because of data issues related to the different levels of geography. For example, the modelled estimates of unemployment used in this chapter and the chapter on

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<sup>1</sup> Part of the 2009 Local Democracy, Economic Development and Construction Act. From 1st April 2010, all Upper Tier Local Authorities have been given the responsibility of producing an assessment of the economic, social and environmental challenges facing their area, which will form a key input to future integrated Regional Strategies.

deprivation and economic inclusion will differ. In the Deprivation and Economic Inclusion Chapter, published data for the region's 40 Local Authority Districts/Unitary Authorities is used, which is based on the denominator for the population aged 16 and above. To produce data for the Upper Tier Authorities for this chapter, the ONS Regional Team produced weighted averages of the LAD data and using the 16 to retirement age denominator for consistency with other labour market indicators. It should also be noted that official statistics used in these profiles often have significant time lags, and thus in many cases cannot yet be used to fully discuss the impacts of the recession and any recent indications of recovery. Where possible, the Local Authorities contributing to this work have referred to more recent local intelligence or recent unemployment claimant count data in order to discuss more recent developments.

## **9.2 Derby City Sub-regional Profile**

### **9.2.1 Introduction**

Derby is located in the centre of England and is an important transport hub, with good east-west and north-south rail links and close proximity to the M1 motorway and East Midlands Airport. Derby was at the centre of the Industrial Revolution and remains an important centre for rail, aerospace and automotive engineering. Significant engineering employers like Rolls-Royce, Bombardier and Alstom are located in Derby, and Toyota is located seven miles south of Derby city centre. Additionally, the credit card company Egg represents an important asset in the city's growing financial services sector.

Due to a £2 billion investment programme, Derby has seen an increase in its education, retail and leisure offer, as well as an upturn in riverside housing developments with master planning support from Derby Cityscape. The city's retail offer has had a major boost with the expansion of the Eagle Centre, supported by the Connecting Derby transport proposals. An impressive cultural development – QUAD Arts Centre – has taken place in the city's Cathedral Quarter, supported by an increase in public realm investment. Significant investment in further education, including the development of Derby College's Roundhouse campus, has seen the city capitalising on its industrial heritage. Other developments include public-private partnerships such as Lightspeed Derby, an alliance of businesses and public sector organisations to ensure Derby has access to advanced broadband technology.

### **9.2.2 Demography**

The Mid Year Estimates for 2008 show that Derby has a total population of around 239,200, equating to 5.4% of the East Midlands population. When broken down by broad age band, 19.5% of Derby residents were in the school age group (above the regional average of 18.4%), 62.2% were in the working age group (compared to 61.9% in the East Midlands), and 18.3% were in the pensionable age group (below the regional average of 19.7%).

Derby City makes up over half of the total population of the Derby Housing Market Area, which has a population of just less than 453,000.

Between 1998 and 2008 the population of Derby increased by 3.6%, which was half the rate of growth experienced in the East Midlands overall (7.3%). The school age population decreased by -5.5% over the decade, whilst the working age and pensionable age groups increased by 6.6% and 4.0% respectively. However, the rate of decrease in the school age group was significantly less than in other cities in the East Midlands.

Population projections suggest that Derby's population will increase in line with the national average throughout the period to 2031 at 19.5% compared to 19% in England overall. However, this is below the rate expected to occur in both the Derby Housing Market Area (24.4%) and in the East Midlands as a whole (25.8%). This could be exacerbated by the projected expansion of housing provision in areas such as South Derbyshire, which could potentially draw residents away from the city.

The experimental estimates of ethnicity indicate that, in 2007, 84.8% of Derby's population described themselves as 'White'. However, Derby has a significant proportion of the population who would describe themselves as 'Asian or Asian British', at 9.5% compared to 5.7% in the East Midlands overall. Communities with larger proportions of people who would describe themselves as coming from an ethnic minority background are concentrated within the wards south of the city centre, primarily Arboretum and Normanton. Data from the Annual Population Survey on country of birth suggests that in 2008 Derby has a significant proportion of the population who are 'non-white not UK-born', at 7.3%, compared to 4.6% in the East Midlands overall. This suggests that larger proportions of migrants to Derby could be from the Indian Sub-Continent and also from Africa and the Middle East (Derby has played an important role as a destination for asylum seekers and refugees<sup>2</sup>), with smaller proportions of migrants from the predominantly white countries in central and eastern Europe compared to other sub-regions in the East Midlands.

### 9.2.3 Housing

In 2008, the mean house price in Derby was £143,600. Although the city has experienced one of the highest increases in mean house prices in the region between 1997 and 2007, prices remain significantly lower than the East Midlands average of £163,300. Derby is ranked 9th out of the 40 Local and Unitary Authorities in the region in relation to 2008 mean house prices.

Using the ratio of lower quartile house prices to lower quartile incomes, Derby is one of the more affordable areas in the East Midlands. In Derby, lower quartile house prices are 5.1 times the amount of lower quartile incomes, which is a lower ratio than in the East Midlands, which was 6.6 in 2008. This

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<sup>2</sup> See Institute of Employment Research, on behalf of *emda*, 'Migrant Workers in the East Midlands Labour Market', January 2007.

is a product of the relatively low house prices in Derby combined with above average incomes (see the labour market section).

Derby broadly conforms to the concentric zone model<sup>3</sup> with the cheapest house prices towards the city centre and highest prices in the outer suburbs. Some of the highest house prices can be found in Chellaston on the A50 corridor and in Allestree.

#### 9.2.4 Economy and productivity

The economy of Derby has traditionally been based around manufacturing and engineering. The city has successfully transformed its traditional manufacturing capabilities into high skilled activities which compete on a global scale.

More than 40% of employed residents are in upper tier occupational groups. This is higher than Nottingham, Leicester and the regional average of 39.1%.

The highest percentage of employment is within the public administration, education and health industry group, which accounts for 28.9% of all employees. Manufacturing accounts for 18.7% of employment, compared to a regional average of 15.0%, heavily influenced by the presence of large companies such as Rolls-Royce and Bombardier. For its size, Derby has a relatively strong banking, finance and insurance sector, with 19.1% employed in this group, largely influenced by the presence of the headquarters of Egg.

Derby continues to lag behind other areas in terms of business birth rates, with 40.5 business births per 10,000 population in 2008, compared to a regional average of 46.7.

#### 9.2.5 Labour market

In Derby for the 12 months between January and December 2008, the employment rate was 73.5%, below the East Midlands average of 75.9%. The ONS' model-based estimate of unemployment was 6.5%, which is lower than other cities in the East Midlands.

In terms of qualifications, Derby performs well with 28.7% of the working age population qualified to at least an equivalent of an NVQ Level 4 (2008), an overall increase from 24.5% in 2001. In 2005 the percentage of working age population with no qualification was 25.5%, but this had fallen to 14.6% by 2008.

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<sup>3</sup> This describes the distribution of social groups within urban areas, with each group concentrated in a concentric ring. A city conforming to the concentric zone model has a Central Business District (CBD) in the centre, a transitional zone of mixed commercial and residential use around this, followed by a more deprived residential zone (the inner city residential area), then a more affluent ring of middle class residential areas (the outer suburbs), and finally the commuter belt of the most affluent residences.

Derby has the highest median weekly pay by workplace in the East Midlands (£574.90 compared to £456.60 respectively). The wage levels are in part attributable to the level of high skill employment in engineering in the city. However, the statistics for residents' pay suggest that a significant number of well paid jobs in Derby are undertaken by people living outside the city. Median weekly resident pay in 2009 was £492 in Derby compared to £460.50 in the East Midlands.

### 9.2.6 Deprivation and economic inclusion

Derby has an economic activity rate of 77.9%, which is higher than other cities in the region but below the regional average of 80.0%.

Latest Job Seeker's Allowance (JSA) figures highlight a significant increase in claimants. From 2004 to 2008, Derby's JSA count remained relatively stable, at around 3%, but the arrival of recession in autumn 2008 led to a rapid increase to 5% (a total of 7,500<sup>4</sup>) by December 2009. The claimant rate has continued to increase through the first quarter of 2010, reaching 5.3% by March 2010 (7,800 residents). It is interesting to note that the male claimant rate is over 7% while the female claimant rate is below 3%<sup>5</sup>. To some extent this is a national trend but it is expected that this will be influenced by recession-led redundancies in traditionally male dominated sectors such as manufacturing.

In February 2009, 15.2% of the working age population were claiming out-of-work benefits, which is significantly higher than the regional figure of 12.5%. Incapacity Benefit and JSA have been the most claimed benefits in Derby for the last decade.

According to the 2007 Indices of Deprivation, Derby has 41 Lower Super Output Areas (LSOA) in the most deprived quintile in England, which is 27.9% of the total LSOAs in the city. In Derby, 19% of LSOAs are within the least deprived quintile in England. The most deprived areas in Derby are located within the Sinfyn, Normanton and Arboretum wards.

### 9.2.7 Transport and infrastructure

Results from the Annual Population Survey show 75% of all residents of Derby who were in employment were working in Derby, while 59% of the workforce of Derby lived in the city.

According to the April 2008 count of bulk premises, Derby has significant levels of office and retail floor space. However Derby has lower levels of warehouse, bulk premises and factory floor space.

The proportion of working age residents who are able to access employment

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<sup>4</sup> ONS (accessed via Gavurin, May 2009).

<sup>5</sup> ONS (accessed via Gavurin, May 2009).

by public transport has improved in Derby between 2005 and 2008, increasing from 81.7% to 82.0% over that period.

### 9.2.8 Environment

Historical data reveals that Derby is showing a steady improvement in CO<sub>2</sub> emission levels. There are similar improvements in the levels of household residual waste (kilograms per household) between 2002-2003 and 2008-2009. This has been a result of increased recycling and composting performance, with over 43.7% of households in the city receiving comprehensive kerbside recycling collections. Alongside this there has been a downturn in the amount of non-recyclable waste produced per household.

### 9.2.9 Health and crime

Between 2002 and 2007, Derby has shown a progressive decline in mortality rates per 100,000 head of population. This overall reduction reflects the increases in both male and female life expectancy in the East Midlands. Contributing to this are healthcare programmes targeting key causes of mortality, including circulatory diseases such as coronary heart disease and certain cancers. Together, the NHS national 'Smoke Free' campaign, Derby City's smoking cessation service and 'Fresh Start' have done much to reduce mortality from circulatory diseases. The city has also introduced improvements to the management of cardiovascular conditions, for example by prescribing Statins and Aspirin and improving monitoring and management methods to prevent more serious development of the disease.

Derby has the third highest overall crime rates of the sub-regions in the East Midlands. However, between 2003-2004 and 2008-2009 the crime rate in Derby has declined significantly. This is in part due to a significant reduction in acquisitive crime at a national level.

### Key challenges and issues

- There is a significant difference between the salaries of people working in Derby (amongst the highest in the region) and those who are resident in the city. There is therefore a need to increase the skills levels of Derby residents to improve their employment opportunities.
- Derby suffers from low rates of new business starts in relation to the regional average. This needs to be improved to ensure the city remains competitive across all sectors.
- Improvements to the infrastructure in Derby present a key challenge to link the residential and commercial areas of the city. Developments that will be essential to attract investment and ensure economic progress include Connecting Derby and Lightspeed Derby.

## 9.3 Derbyshire Sub-regional Profile

### 9.3.1 Introduction

The county of Derbyshire lies in the centre of England and forms the north-west part of the East Midlands region. Derbyshire consists of eight district/borough councils<sup>6</sup> and encircles the Unitary Authority of Derby City.

Derbyshire is a largely rural county, with a relatively higher proportion of its population living within rural areas. The Peak District National Park, an area of outstanding natural beauty, covers most of north-west Derbyshire.

### 9.3.2 Demography

The mid-2008 population of Derbyshire stood at 762,100, representing 17.2% of the region's population. The age profile of the county is considerably older than both the East Midlands and England. Within the county, the districts of Derbyshire Dales and North East Derbyshire have notably older age profiles than the Derbyshire average, and South Derbyshire a notably younger age profile.

Population growth between 1998 and 2008 and projected population growth to 2016 are both below the regional averages. Of all nine Unitary/County Authorities in the East Midlands region, Derbyshire is projected to have the lowest population growth from 2006-2016. Across Derbyshire, South Derbyshire has experienced significant population growth over the last 10 years, linked to the high level of new housing development that has taken place in the district. Significant growth in this district is also expected to continue up to 2016, with an 18.8% increase projected between 2006 and 2016. However, population growth across Derbyshire will be uneven, with projected growth in Derbyshire Dales being just 3.3%, which is likely to reflect the older age profile of this district.

### 9.3.3 Housing

In 2008 the average house price in Derbyshire was £162,600, similar to the average for region, but only 74.0% of the average for England. Across Derbyshire this varies significantly from £244,100 in the rural district of Derbyshire Dales to £128,800 in Bolsover.

Using the ratio of the lower quartile of house prices to the lower quartile of earnings as a measure of affordability, houses appear to be slightly more affordable in Derbyshire than in the East Midlands and England. However,

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<sup>6</sup> The county includes the boroughs of Amber Valley, Chesterfield, High Peak and Erewash and the districts of Bolsover, Derbyshire Dales, North East Derbyshire and South Derbyshire.

within Derbyshire, affordability is particularly an issue in High Peak and the Derbyshire Dales. These districts fall within the Peak District National Park and are a sought after location for people to live, therefore impacting on property prices. Using this measure, Bolsover is one of the most affordable districts in the East Midlands.

#### 9.3.4 Economy and productivity

The structure of the business population in Derbyshire is very similar to that regionally. However, compared with England, the production and agriculture sectors are more prominent in Derbyshire and the finance, property and business services sector less so.

Focusing on the sector split of employees, in 2008 the main three employment sectors in the county were: public administration, education and health (27.1%); distribution, hotels and restaurants (23.1%); and manufacturing (20.4%). The employment structure in Derbyshire is more heavily dependent on manufacturing than both the East Midlands (15%) and England (10.2%). Conversely, the banking, finance and insurance sector is under-represented in the county. The significance of the rural economy to the county could also contribute to the importance of the distribution, hotels and restaurants sector compared to the regional and national averages.

In 2007 the level of new business formation in Derbyshire was 44.2 enterprise births per 10,000 population, similar to the regional figure of 46.7, but well below the national figure of 57.2. Derbyshire Dales has by far the highest rate of new business registration in the county, with a figure of 56.4. The growth in the tourism sector in the district is likely to be a factor. Bolsover has the lowest, at 38.0, although it has experienced the fastest increase since 2002. The latter is likely to reflect the targeted intervention and investment made to regenerate Bolsover's economy in recent years.

The percentage of small businesses showing employment growth in 2008 was similar in Derbyshire to the East Midlands and England, at around 14.7%, 14.5% and 14.2% respectively. In recent years there has been an increase in the proportion of small businesses showing employment growth, with the rate of increase in Derbyshire above the region but well below the national figure.

Derbyshire, as with the East Midlands, has a lower skilled occupational structure than England. The proportion of Derbyshire residents employed in upper tier occupational groups in 2008 was 37.5%, the figures for the East Midlands and England being 39.0% and 43.7% respectively. Within the districts, the most skilled occupational structure is in South Derbyshire, with the least skilled being Bolsover.

### 9.3.5 Labour market

In 2008 the employment rate in Derbyshire was 78.8%, on a par with the regional figure of 75.9%, but marginally higher than the national figure of 74.2%. There are parts of Derbyshire where male employment rate is lower than the regional or national average, such as Chesterfield and North East Derbyshire. A possible contributory factor to this could be the higher levels of limiting long-term illness experienced by former workers in the male dominated mining industry in the North Derbyshire coalfields.

Annual Population Survey data for 2008 shows that the unemployment rate was 5% in Derbyshire. This is higher than the unemployment rate for Rutland and Leicestershire and the same as the rate for Northamptonshire; and lower than unemployment rate for the three city Unitary Authorities. Within Derbyshire, Bolsover and Chesterfield have the highest rates and Derbyshire Dales the lowest.

The working age population in Derbyshire has a slightly higher proportion of residents with higher level qualifications (28.3% with a Level 4 and above) than the regional average (27%), but performs less well relative to the national average (30.5%). In terms of the proportion of working age residents with no qualifications, Derbyshire also outperforms the regional average, at 10.3% compared to 12.8% in the East Midlands overall in 2008.

There is a marked variation in qualification levels across the districts. For those qualified to a Level 4 or above, the variation is almost 25 percentage points, with the predominantly rural districts of High Peak and South Derbyshire showing the highest values at 39.7% and 34.9% respectively and Bolsover the lowest at 15.5%. Analysis using the ACORN<sup>7</sup> 2007 classification highlights that many areas in these districts are dominated by the 'wealthy achievers' category, a group characterised by higher qualification levels. In contrast, districts in the east of the county, specifically Erewash and Bolsover, showed the lowest proportions qualified to level 4. In localised areas within this part of the county deprivation remains an issue – and educational underachievement is one facet of this.

Over recent years the working age population at county, regional and national level has become better qualified, although in Derbyshire the rate of improvement has been marginally greater.

For workplace earnings, average weekly pay in Derbyshire in 2009 was £439.20, below both the regional and national averages (£456.60 and £488.70 respectively). There is considerable variation within the county, with the lowest average earnings in Bolsover and North East Derbyshire, at around £414. High Peak had the highest workplace earnings, at £469.20 per week, possibly linked to the higher skilled occupational structure in this district.

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<sup>7</sup> ACORN a geo-demographic tool used to identify and understand the UK population and the demand for products and services, CACI Ltd.

The proportion of the working age population able to access employment sites by public transport/walking is virtually the same in Derbyshire as regionally and nationally.

### 9.3.6 Deprivation and economic inclusion

In 2008 the level of economic activity in Derbyshire was 82.9%, higher than the regional and national average. Within the county, Bolsover has the lowest rate, at 77.1%. This is also the lowest of any of the Local Authority Districts (i.e. excluding the three city Unitary Authorities) in the East Midlands. Derbyshire Dales has the highest economic activity rate in Derbyshire, at 85.2%.

In March 2010, the county JSA claimant unemployment rate was 3.8%, below both the regional and national figures (4.1% and 4.2% respectively). However, since the beginning of the economic downturn, the rate of increase in parts of Derbyshire has been greater than both the regional and national rates. Within Derbyshire, claimant unemployment was highest in Erewash, Bolsover and Chesterfield, and lowest in Derbyshire Dales.

In Derbyshire the percentage of working age people claiming work related benefits in February 2009 stood at 12.6%, the same as regionally but slightly below the national average of 12.9%. The former industrial north-east of the county has particularly high levels of people claiming out of work benefits, whilst the rural district of Derbyshire Dales has relatively low levels.

According to the 2007 Indices of Deprivation, 12.6% of Lower Super Output Areas (LSOAs) in Derbyshire fall within the most deprived fifth in England, lower than the regional figure of 16.8%. By district, Bolsover (31.3%) and Chesterfield (30.9%) have the greatest proportions of LSOAs falling in the most deprived 20.0% in England, and Derbyshire Dales (2.3%) and South Derbyshire (3.7%) the lowest.

### 9.3.7 Transport and infrastructure

The labour market in Derbyshire is not as self-contained as the other authorities within the region, possibly due to the close proximity to the cities of Derby, Sheffield, Nottingham, Manchester and Leicester. In 2007 it was estimated that 21.7% of Derbyshire's workforce resides outside of the county, and around 11.1% of Derbyshire's working residents are employed out of the county.

Focusing on business land use, Derbyshire has a different profile to that regionally and nationally, reflecting some of the differences in industrial structure already noted. Specifically, it has a greater proportion of factory space and a lower proportion of office space than the East Midlands and England. It also has a lower proportion of warehouse space than regionally, and a lower proportion of retail space than nationally.

April 2008 data highlighted that Derbyshire, at £38 per square metre, had a lower rateable value for business land than the East Midlands figure of £45 per square metre and the England figure of £66 per square metre.

### 9.3.8 Environment

In 2007, CO<sub>2</sub> emissions per capita in Derbyshire were higher than the East Midlands. The large proportion of manufacturing businesses in Derbyshire, the presence of power generation sites, the prevalence of solid walled housing, the presence of major road routes – such as the M1 – and higher average altitude within the county, are likely factors in the variation.

In 2008-2009 the amount of unrecycled household waste per household in Derbyshire was 622 kilograms. There are different approaches to recycling across the county and this is partly reflected in the variation of values by district. Chesterfield and South Derbyshire show the lowest levels of waste, and Bolsover the highest. Over the period 2002-2003 to 2008-2009, there has been a 10% decline in the amount of unrecycled waste at the county.

### 9.3.9 Health and crime

Mortality rates for Derbyshire in 2007 were 583.1 deaths per 100,000 population, similar to that in the East Midlands (585.0) but marginally higher than for England (579.4). Within the county, districts within the north-east, Bolsover, Chesterfield and Erewash have the highest mortality rates and Derbyshire Dales the lowest. Between 2001 and 2007, Bolsover has also shown the lowest rates of improvement. Chesterfield and Derbyshire Dales have shown the greatest.

In 2007-2008 crime rates in Derbyshire were significantly below those of both the East Midlands and England. Across the region, crime rates are greater in the more urban areas, and lower in the more rural. This is apparent within Derbyshire, where two of the most urban districts – Chesterfield and Erewash – show the highest rates, and the most rural – Derbyshire Dales – shows the lowest.

### Key issues and challenges

- Whilst overall population growth in Derbyshire over the next 10 years is likely to be fairly modest, it will be important to continue to respond to the needs of an increasingly ageing population.
- Projected population growth across the county varies considerably. The challenge for Derbyshire is to ensure the sustainable development of all communities.

- Ensuring a supply of affordable housing is a key issue in parts of Derbyshire where house prices are considerably higher than the county average.
- The decline of traditional industries has left a concentration of areas in the county where there are higher levels of unemployment and deprivation. Continuing to support these areas will be a key priority for Derbyshire.
- The industrial structure of Derbyshire's economy remains heavily dependant upon the manufacturing sector. A key challenge for the future will be to support these businesses to embrace new industrial technologies and develop higher value added activity, enabling them to compete strongly in global markets.
- There is a need to improve the overall skills levels of Derbyshire's workforce in order to enhance economic performance and attract investment into the area.

## **9.4 Leicester and Leicestershire Sub-regional Profile**

### **9.4.1 Introduction**

This profile covers Leicester City and Leicestershire County. The sub-region has a Multi Area Agreement (MAA) reflecting the strong economic linkages between Leicester City and the surrounding county. Leicestershire County comprises seven district/borough councils: Blaby, Charnwood, Hinckley and Bosworth, Harborough, Melton, Oadby and Wigston and North West Leicestershire.

The sub-region enjoys a central UK location with good transport links and has three excellent universities and a strong further education sector. Leicestershire has a diverse, high quality natural environment with a range of attractive settlements and a significant rural economy. Leicester City sits at the heart of the sub-region and is a multi-cultural city, which has recently benefited from significant investment with the new High Cross Retail Centre, Curve Theatre, the New Business Quarter and the Cultural Quarter.

There is marked variability in economic and social conditions across the sub-region, which is highlighted in this profile.

### **9.4.2 Demography**

Population estimates for 2008 show that the Leicester and Leicestershire sub-region has just over 21% of the population of the East Midlands, with 940,500 residents. Leicester City has over a third of the population of the MAA area (294,700). The built-up area of Leicester conurbation extends into Leicestershire, particularly into Oadby and Wigston, and parts of Blaby and Charnwood districts.

The rate of population growth between 1998 and 2008 is below the East Midlands average, at 6.4% compared to 7.3%, as is the projected growth over the period 2006-2016, at 9.9% compared to 10.5%. However the estimated annual population change indicates much higher growth rates for the years from 2003 onwards. Leicester City and Charnwood figures show a strong increase since 2003, which has influenced population projections. This reflects migration being an important contributor to change in these areas in recent years. However, in Leicester City the large school age group (accounting for 20.8% of residents in Leicester City compared to 18.4% of the population in the East Midlands) reflects the high birth rates in this area, and natural change is likely to be an increasingly important contributor to population growth in Leicester in the future. Leicester City has the youngest age profile of any Local Authority in the East Midlands.

The presence of diverse ethnic groups is a distinctive feature within the local economy. Some ethnic groups have been present for more than one generation, especially those of Indian origin. The area has also seen many new communities develop in recent years. The estimated proportion of ethnic minorities of Leicester City accounted for 37.1% of the total resident population in 2007, for Oadby & Wigston this figure is nearly 17.1% and in Charnwood district this is about 10.1%.

### 9.4.3 Housing

As the recent collapse of sub-prime lending in the USA has demonstrated, local housing markets, and fluctuations in local housing markets, rarely happen in isolation. Over the 11 years between 1997 and 2008, changes to house prices in Leicester and Leicestershire generally followed national and regional trends. Over this period, Leicestershire's housing market remained more competitive than that of Leicester City and the East Midlands as a whole, with house prices that have remained between 80% and 90% of the England average (compared to 70-80% in the East Midlands). In 2008, average house prices in Leicestershire were estimated at £184,400. The equivalent figure for Leicester City was much lower at £144,600 and for the East Midlands it was £163,300. Average house prices were highest in Harborough district, at £230,000 in 2008. This was the only district in the sub-region where average house prices exceeded the national average of £220,300.

The ratio of lower quartile house prices to lower quartile earnings is a useful proxy for gauging housing affordability. As with house prices, trends in house price affordability between 1997 and 2008 were consistent across national, regional, Leicester City and Leicestershire County scales. However, house prices for Leicestershire (with an affordability ratio of 7.3) can be regarded as less affordable than house prices in Leicester City (ratio of 6.6), the East Midlands (ratio of 6.6) and England (ratio of 6.9). Over the last 11 years, affordability ratios in Leicester City were consistently below the national levels.

#### 9.4.4 Economy and productivity

The Leicester and Leicestershire sub-region has a diverse economy. The area has undergone considerable transformation in the latter quarter of the 20th century, away from the manufacture of textile products. However, by national standards, manufacturing remains relatively important to the sub-regional economy. High tech manufacturing is a significant feature of the Charnwood district economy. Although service sector employment has grown in recent years; the banking, finance and insurance sector is relatively under-represented compared to the national average, accounting for 18.8% of employment in Leicester and Leicestershire in 2008, compared to 22.9% in England. However, this proportion is level with the East Midlands average (18%).

Leicester City's economic structure is different to that of Leicestershire. In particular, Leicester City has a greater dependence on public sector jobs than Leicestershire. Furthermore, in terms of employment, Leicester's wholesale, retail and repairs sector is smaller than that of both Leicestershire and Great Britain. The official statistics do not yet reflect the impact of the new High Cross retail shopping centre in Leicester City.

On the major enterprise indicators – such as business birth rates per 10,000 population – the sub-region performs relatively well when compared with similar Local Authority areas, with a rate of 53.4 in Leicester City and 51.5 in Leicestershire compared to an East Midlands average of 46.7 in 2008. However, three year business survival rates in Leicester City fall behind those of Leicestershire. Poor business survival rates are not necessarily a bad thing, as they often suggest high levels of business churn, and so entrepreneurial activity. However, self-employment rates for Leicester City are low compared to overall start-up activity, which suggests that there is a challenge to be addressed in the future. Leicestershire County, and particularly Harborough district, performs better across all the enterprise indicators. The county, and particularly the district of North West Leicestershire, has enjoyed significant growth in its transport and communications sector, which by national and regional standards is overrepresented in terms of both jobs and businesses. This is linked to the presence of East Midlands Airport, employment land availability and proximity to the motorway network.

#### 9.4.5 Labour market

Unemployment in Leicester is the highest in the East Midlands at 11.4%, whereas unemployment in Leicestershire County is relatively low at 4.8%. Blaby and Harborough districts have the lowest unemployment rates. Qualification levels in Leicester City fall considerably below national and regional average, although recent progression rates to Higher Education are good in the City.

On indicators of education and skills, 22.1% of Leicester residents have no qualifications, significantly higher than the national average of 11.9%. Those with no qualifications in the sub-region are more likely to be unemployed, in a

BME group, or over 50. With 30% of Leicester residents born outside the UK, this has a large impact on qualifications, particularly adults new to Leicester. Conversely, Leicestershire has a relatively low proportion of residents with no qualifications at 11.3%. This is lowest in Melton (7.3%).

In 2009 the workplace median earnings are similar in Leicester City (£456) and in Leicestershire (£457.40). Low wages in the City are likely to be due to the relatively low numbers of residents employed in knowledge-based sectors, such as financial and business services. In Leicestershire out of town business parks, the town of Loughborough and a number of market towns all make important contributions to the sub-regional economy.

#### **9.4.6 Deprivation and economic inclusion**

In 2008, 72.3% of Leicester residents are economically active, which is lower than national and regional averages, and Job Seekers' Allowance (JSA) claimant rates are amongst the highest in the region and have increased as the labour market effects of the recession have become apparent. The claimant rate for Leicester City in March 2010 was 6.7%, compared to 4.1% in the East Midlands overall. This represents an increase of 0.7 percentage points, or 1,432 additional claimants compared to the same month a year earlier. The county of Leicestershire, however, continues to have a relatively low proportion of the population claiming JSA, at 2.8% in March 2010. This proportion is lowest in Harborough, at 2%. In some areas of the City, such as the New Parks ward, a third of residents are claiming a work related benefit.

According to the 2007 Index of Deprivation, 46.6% of Lower Super Output Areas (LSOAs) in Leicester and 1.3% in Leicestershire are in the most deprived fifth of LSOAs in England. As a sub-region, 15.8% of LSOAs are within the most deprived quintile, which is lower than regional and national averages. However, two of the most deprived neighbourhoods in the entire country for both the Income domain and the Education domain of the ID2007 are within Leicester City.

#### **9.4.7 Transport and infrastructure**

When compared to the other Upper Tier Local Authorities in the East Midlands, Leicestershire seems relatively self-contained, ranking just behind Lincolnshire and Northamptonshire on its proportion of working residents who work locally (95%) and the proportion of its workforce who commute into the county (21%). By contrast, a higher proportion of Leicester City's workforce (47%) commute to the City. Interestingly, of the three cities in the East Midlands, Leicester is the most self-contained, with 79% of its residents working within the City.

In terms of access to public transport, Leicester City performs favourably when compared with other Upper Tier Authorities in the sub-region. Eighty five percent of its working age population can easily access public transport. The average for Leicestershire is 80.0% in 2008.

#### 9.4.8 Environment

Between 2002-2003 and 2008-2009 levels of residual household waste per household in Leicester and Leicestershire have fallen. In 2008-2009 levels of residual waste per household were 642 kilograms in Leicester and 577 kilograms in Leicestershire. CO<sub>2</sub> emissions in 2007 were 6.6 tonnes per head in Leicester and 8.9 tonnes per head in Leicestershire, which is level with the regional average.

#### 9.4.9 Health and crime

There is a clear distinction between mortality rates in Leicester City and Leicestershire. Between 2001 and 2007, mortality rates in Leicester City have been above the national average, roughly at around 684.3 per 100,000 people. Although rates improved year-on-year since 2003, they compare poorly with Leicestershire's mortality rates between 2001 and 2007, which ranged from around 550 and 620 deaths per 10,000 people. With the exception of Rutland, Leicestershire had the lowest mortality rates of all Upper Tier Authorities in the East Midlands, with Leicester, along with Nottingham, performing poorly by both regional and national standards.

Between 2003-2004 and 2008-2009, crime rates have fallen for all Upper Tier Local Authorities in the East Midlands. As might be expected, Leicestershire's crime rate remains relatively low (at 37.8 per 1,000 people in 2008-2009) whilst Leicester City's was 82.5 per 1,000 people in 2008-2009. It should be noted that this data is from the British Crime Survey comparator crimes and only represents around 60% of all reported crimes.

#### Key challenges and issues

- Maintaining a diverse economic structure, but increasing knowledge-based employment to increase wealth generation and improve earnings, especially in Leicester City. It will be important to support indigenous business growth and also attract high quality businesses to the sub-region.
- Maximising the opportunities arising from the current investment in the sub-region, especially in Leicester City, and the presence of three world class universities in the sub-region.
- Addressing the low levels of qualifications in Leicester City and ensuring that people throughout the sub-region have the relevant skills needed by employers both for now and in the future.
- Improving levels of business start-ups, survival rates and growth rates.
- Addressing the marked variability in economic and social conditions across the sub-region.

- Tackling the high levels of worklessness in some areas of the sub-region in the context of the current economic climate.
- Delivering housing growth of all types and tenures and addressing specific housing needs across the sub-region, including the regeneration areas of the City, the Principal Urban Area (PUA), sub-regional centres (Coalville, Melton, Hinckley, Loughborough and Market Harborough) and rural areas.

## 9.5 Lincolnshire Sub-regional Profile

### 9.5.1 Introduction

Lincolnshire offers a good quality of life for most of its residents, although there are pockets of severe deprivation in the county. Lincolnshire has also proved a popular destination for people from outside of the county to live, work and study because of characteristics that reflect a relatively high quality of life.

The extent and nature of population growth continue to present a number of challenges, particularly in terms of service provision and dependency ratios given the projected rate of growth in the population aged 65+, along with challenges in retaining younger people (and their skills).

Although Lincolnshire performs well on a number of 'quality of life' factors at a county level, this should not hide the fact that at lower geographical levels there are areas of lagging performance on a number of issues such as unemployment, crime, health, and air quality. Immediate opportunities to address some of these localised issues do exist in Lincolnshire, with the presence of the food processing and farming industries and tourism assets. Longer term, the over-arching issue for Lincolnshire is targeting the necessary resources to enable efficient service delivery in the right areas at the right time whilst maintaining the county's quality of life.

### 9.5.2 Demography

Lincolnshire's population, at 698,000 people in 2008, is the third largest in the region, and has increased by 11.5% since 1998 (the second largest rate of increase in the region behind Rutland, which has significantly smaller population) compared to 7.3% in the East Midlands overall.

At 5,921 sq. km (the fourth largest county in England), Lincolnshire still has only 118 people per sq km, compared to 284 in the East Midlands. Because of this sparsity, Lincolnshire is classified as one of the most rural counties in England by Defra. Of the seven Local Authority Districts within the county, four (East Lindsey, North Kesteven, South Holland and West Lindsey) are classified as "Rural-80" (the most rural category, where 80% of the population

live in rural area settlement) with only Lincoln classified as being urban under “Other Urban”, the smallest category of urban area.

Whilst birth rates have increased over the last few years, in-migration has continued to be the main driver of population growth in Lincolnshire. The profile of migrants into and out of the county are significantly altering its demography. Since 1998 older people (65+) have made up an increasingly larger proportion of our population, whilst the proportion of younger people (0-19) and those of working age has declined.

Population projections up to 2016 show that these trends are set to continue, with those aged 65+ making up a larger proportion of the population. The total population is projected to grow by 13% between 2006 and 2016, reaching approximately 775,500 people, which will mean planning for large changes in a relatively short time period.

Whilst this level of population growth is high compared to regional and national rates of growth (10.5% and 7.8% respectively), sparsity will remain an issue for the county into the future. In the year 2016 the population density will still be under half that of the current population density in the East Midlands overall.

Experimental statistics on ethnicity show that Lincolnshire’s population has also become more ethnically diverse. In 2001, Black and Minority Ethnic groups made up only 1.9% of the total population. It is estimated that in 2007 this figure had increased to 2.7%. Given the nature of recent international migration, it is also important to note that people who would identify their ethnic group as ‘White’ include international migrants from both Portugal post 2001 and the eight Central and Eastern European Accession States countries post 2004. Analysis of National Insurance data shows that close to 26,000 people from EU Accession States entered the county between 2004 and 2008.<sup>8</sup>

### 9.5.3 Housing

In line with the projected population increases, the number of households is also projected to grow, by 18% from an estimated 295,300 in 2006 to approximately 349,000 households in 2016. That this growth in households is projected to be higher than that of the population in general would suggest a significant increase in single person households over this period, which can be associated with increasing numbers of older people.

Relatively cheap housing has acted as one of the catalysts for population growth in the county. Whilst Lincolnshire house prices are among the lowest in the region based on 2008 mean house price data, this does not necessarily make them affordable to all. Whilst the average house price is 2.3% lower in Lincolnshire than regionally, average weekly wages in the county (workplace based) are around 8% lower than regional levels. So whilst housing may

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<sup>8</sup> Footnote: EU Accession States are the A8 and Romania, Bulgaria, Malta and Cyprus.

appear more affordable to those entering the county, for people living and working in the county, affordability is still an issue.

#### 9.5.4 Economy and productivity

Rapid growth and change in the county population has also impacted on one of the key economic indicators of an area's prosperity, Gross Value Added (GVA) per head. Large numbers of those entering the county are of retirement age, so whilst increasing the population they do not contribute to the economy in a way which is recognised by this measure, the overall effect of which is to lower GVA per head. The effect has been that whilst data shows that the Lincolnshire economy has increased in value year-on-year since 1997, and is currently estimated to be worth approximately £9.7bn, it still lags behind the region and most of the UK in terms of per-head and per-worker comparisons.

It should be noted that GVA does not measure the income available to private households in an area. This means that pension income, social security benefits, and the incomes of people who live in an area but work outside of it (out-commute) are not counted. Therefore in Lincolnshire with its high proportion of older people and out-commuters, Gross Disposable Household Income (GDHI – which measures the amount of money that individuals have available for spending or saving) would arguably provide a more meaningful measure of local prosperity. Based on this measure the latest figures for 2007 show that Lincolnshire's GDHI stands at £13,221 per head, which is comparable to the regional average of £13,268 per head but less than the UK average of £14,334.

Lincolnshire's current position is also a result of its traditional industry make-up, which is in turn related to its geography and topography. Its coastline, combined with the amount and quality of historic and natural assets, has meant that a large part of the economy is reliant upon tourism. Similarly, one of Lincolnshire's most productive natural assets is its soil, with nearly half of all agricultural land in the county is classified as being of Grade 1 or 2. This has helped ensure the size and importance of the agricultural industry in the county, regionally and nationally, and to a lesser extent the food manufacturing industry.

As a result of this high proportion of lower skilled industries and jobs, Lincolnshire has a low percentage of residents employed in the upper tier occupational groups (professionals, associate professionals, and managers) – 36.5% compared to a regional average of 39%. This low figure is compounded by the fact that a number of these employees resident in the county will be commuting to higher skilled jobs elsewhere.

Whilst business start ups per 10,000 of the population in Lincolnshire are low when compared to the rest of the region, small businesses (employing 1-10 people) make up almost 90% of the total stock of county businesses and employ a quarter of the total workforce.

Lincolnshire also has one of the highest percentages of businesses with fewer than 250 employees, yet approximately a fifth of the workforce is employed by businesses employing 250 plus (with around a quarter of these large businesses being in the public sector). The county economy is therefore vulnerable to the potential effects of losing large employers (both immediate in terms of job losses to the localised area, and knock on effects in terms of supply chains).

Similarly, Lincolnshire is more vulnerable to the loss of smaller firms and the subsequent impacts at a local level. The rural and sparse nature of the county means that a comparatively small job loss announcement (less than 20 redundancies) by a business in a small market town will still have a significant impact on the local community.

### **9.5.5 Labour market**

Whilst a high proportion of employment is in lower skill, and thus lower paid activities, Lincolnshire has historically maintained stable and above average rates of employment.

According to the Annual Population Survey for the period January to December 2008, the employment rate of the resident working age population was 77%, close to the Government's aspirational target of 80%, and above the regional average of 75.9%.

With unemployment currently increasing in the county, reflecting the current economic climate, the claimant count unemployment rate in Lincolnshire has increased in line with regional and national rates and more importantly remains below them (3.7% compared to 4.0% in the East Midlands and nationally).

Whilst Lincolnshire has a low percentage of its working age population qualified to and equivalent of an NVQ Level 4 or above when compared to regional and national averages, it also has a low proportion of the working age population with no qualifications. However, it has a relatively similar proportion of the 19-59 to 64 population without a Level 2 qualification compared to the regional average.

### **9.5.6 Deprivation and economic inclusion**

According to data from the Annual Population Survey, just over 81.9% of Lincolnshire's working age population were economically active in 2008, one of the highest in the region and above regional and national rates.

A snapshot of DWP benefits data in February 2009 shows that the percentage of people claiming work-related benefits is lower in the county and is comparable to the overall regional rate at 12.2% compared to 12.5% and 12.9% for England. This figure though will be higher than normal for the year based on the seasonal nature of employment in the county, particularly in

terms of the over representation, in employment terms, of the county tourism industry compared to the region.

With a number of factors including housing, income, skills, and employment, being used to measure deprivation, it is not surprising to learn that Lincolnshire has just over 10% of its lower super output areas (LSOAs) in the most deprived quintile in England. This proportion though is less than most other areas in the region apart from Leicestershire.

Potentially more significant is the pattern of deprivation in the county which shows a distinct east/west divide. Levels of deprivation in 2007 were highest in the more remote parts of the county i.e. on and around the east coast, with pockets in the more urbanised areas in the west. These areas of high deprivation in the county remain relatively unchanged from those identified in the 2004 Indices of Deprivation.

### **9.5.7 Transport and infrastructure**

Moving goods and people around and through the county can be a problem. Although Lincolnshire does not suffer from the congestion that affects many other places, it is the sheer size of the county network with over 9,000 km of roads together with the nature of the network (which is in the main characterised by minor roads and very few trunk roads) which can reduce its effectiveness.

As a result of this relatively poor road infrastructure, Lincolnshire has experienced a number of major food producers, and main suppliers to supermarkets, move to areas just outside of the county in order to be able to deliver on a 'just in time basis'. These issues, together with the dispersed population, also combine to make it difficult to deliver an all encompassing, inclusive and effective public transport system. This has resulted in above average car ownership in the county as people are unable to rely solely on public transport.

Results from the Annual Population Survey suggest that the out-commuting of workers is not such an issue for Lincolnshire, with only 2% of the workforce commuting to jobs outside of the county. Further data suggests that 11% of people working in the county commute in from areas outside the county.

In terms of its business property infrastructure, Lincolnshire has the third highest number of premises in the region, yet the square metres these premises cover is the lowest in the region amongst the county areas (440 sqm), suggesting that on average premises in the county tend to be smaller than anywhere else in the region (regional average 520 sqm). The rateable value per square metre of these county premises is the second lowest in the region at £39, against a regional average of £45.

### 9.5.8 Environment

The county's topographical nature i.e. mainly flat land with some areas below sea level, combined with its coast, increase the risk of flooding from severe storms and rainfall. As a result, the Environment Agency has highlighted Lincolnshire at particular risk to flooding.

The increased risk of coastal flooding which will be brought about by climate change, and the potential rises being forecast in sea levels, is of particular concern to those living and working in and around the coastal areas of the county.

One of the many positive aspects afforded Lincolnshire by the lack of industrial development and limited road network is good air quality. CO<sub>2</sub> emissions per capita in Lincolnshire were estimated to be 7.7 tonnes in 2007. This represents a 0.2 tonnage reduction in county emissions per capita compared to 2006. The fact that the figure for CO<sub>2</sub> emissions per person isn't lower is a result of the sheer size of the county and the need for motor vehicle transport to access most services.

Encouragingly, the county has achieved significant progress in recycling and waste reduction. This is demonstrated by the fact that Lincolnshire residents produced the lowest amount of residual waste per household (540 kg) in 2008-2009 of any area in the region.

### 9.5.9 Health and crime

Whilst health inequalities across the county persist, as a result of both demographic patterns and prevailing wage rates (which subsequently influence lifestyle), the all age all cause mortality rate per 100,000 population for Lincolnshire has actually fallen over time in line with trends across the region and is currently comparable to the regional and national averages (580.1 per 100,000 population in 2007 compared to 585.0 regionally and 579.4 nationally).

Lincolnshire's low crime rate has already been identified as a key component in the quality of life it offers. Based on the British Crime Survey 2008-2009 overall crime rate, Lincolnshire has the third lowest crime rate in the region (39.8 British Crime Survey key crimes per 1,000 population), with only Leicestershire and Rutland having lower crime rates (37.8 and 23.4 crimes per 1,000 population respectively). The crime rate in Lincolnshire is also much lower than regional and national averages (52.3 and 49.7 crimes per 1,000 population respectively), though there are crime hotspots in the more urban areas such as Lincoln (73.7 crimes per 1,000 population).

## Key challenges and issues

- Managing demographic shifts towards an older population and the consequences of the spatial distribution of the population.
- Driving up GVA by driving businesses up the value chain.
- Breaking the low wage / low skills / low productivity cycle and addressing levels of deprivation exacerbated by remoteness.
- Mitigating the risks of flooding which could have a major impact on future development and other key drivers of economic growth.

## 9.6 Northamptonshire Sub-regional Profile

### 9.6.1 Introduction

This profile covers Northamptonshire County, which comprises seven districts: East Northamptonshire, Wellingborough, Kettering, Corby, Daventry, Northampton and South Northamptonshire.

Northamptonshire was designated as a Growth Area in 2003 under the Government's Sustainable Communities Plan and is part of the Milton Keynes South Midlands (MKSM) sub-region. It is the fastest growing County in England, and will be required to play a significant role in meeting the Government's national objectives towards increasing housing supply.

The overarching economic vision for the county is set out in the Sub-Regional Economic Strategy (SRES). Its vision is that by 2015, Northamptonshire will be one of the most successful and competitive sub-regions in Europe and will be recognised fully as such by visitors, employers, investors and residents. In order to achieve this vision, the SRES states that Northamptonshire will: raise levels of productivity, skills and investment; increase employment; ensure communities are able to overcome barriers to participation and reduce socio-economic deprivation; develop cross boundary relationships for effective partnership working; and develop and apply a strong, identifiable Northamptonshire brand.

### 9.6.2 Demography

The current population of Northamptonshire is approximately 776,500 (17.5% of the total population of the region). Between 1998 and 2008, the population has grown by 11.3%, which exceeds the average rate of growth experienced in the East Midlands, at 7.3%, and the average for England, at 5.4%.

This rate of increase has been driven by a combination of strong migration, both international and domestic, and natural change. Northamptonshire has a relatively young population and thus natural change is making an increasing

impact on population growth. In 2008, 19.8% of the Northamptonshire population were in the school age group and 62.5% were in the working age group, compared to 18.4% and 61.9% in the East Midlands. Conversely, the county has a lower proportion of people in the pensionable age group. Population projections produced by the Office of National Statistics and independent forecasts produced by Northamptonshire County Council based on local housing trajectories suggest that the population of the county could rise to about 900,000 by 2026. The majority of this population growth could occur within a broad corridor, running approximately south-west (from Daventry and Towcester) to north east (Corby and Wellingborough/Rushden) with Northampton at the centre.

The projections indicate a significant possible increase in the population for Corby in particular. Initial projections indicate that Corby's population is set to rise to 66,600 by 2031 – a 17.0% increase from 2008 figures. Other areas of high growth are Northampton, Daventry, Kettering and Wellingborough, which are projected to experience a 21%-29% increase in their populations between 2008 and 2026.

### 9.6.3 Housing

In 2008, the mean house price in Northamptonshire was £178,600, 19% lower than the national average but slightly higher than the East Midlands mean house price (£163,300).

However this county figure hides the large disparities between Northamptonshire's seven districts. For example, in Corby the mean house price was £145,100, but in South Northamptonshire it was £252,900.

Between 2006 and 2016, Northamptonshire has the highest projected rate of growth in the number households in the East Midlands, at 19.9%. At a district level South Northamptonshire has the highest projected growth in the region, at 27.6%.

On the Government's preferred measure of affordability, the ratio of lower quartile house prices compared to lower quartile earnings, Northamptonshire is relatively unaffordable. In 2008, the ratio was 7.3, compared to 6.6 in the East Midlands overall. However, this masks very high ratios within the county, with the highest ratio in the region in South Northamptonshire, at 9.7.

### 9.6.4 Economy and productivity

The largest employment sector in Northamptonshire was distribution, hotels and restaurants, accounting for 76,000 jobs and for 24.1% of employment (compared to 23.5% in the East Midlands). Banking, finance and insurance and public administration, education and health also accounted for significant proportions of employment, around 21%-22% in each case.

As a whole, Northamptonshire has also seen a growth in the concentration of employment in the construction industry and, given the level of demand for construction in the area, there is an increasing drive to ensure this growth is sustained.<sup>9</sup>

Northamptonshire has the highest rate of business births per 10,000 population in the East Midlands, at 56.5 in 2008, compared to 46.7 in the East Midlands and 57.2 in England.

### **9.6.5 Labour market**

Northamptonshire has one of the highest rates of employment in the region, at 79.5% of the resident population in 2008, compared to 75.9% in the East Midlands and 74.2% in England.

The county also has a higher proportion of employment in upper tier occupations (which combines managerial, professional and associate professional SOC occupational groups), at 40.1% compared to 39.0% in the East Midlands.

The skill profile of Northamptonshire suggests a more highly skilled workforce than elsewhere in the region. In 2008, 27.7% of the working age population (19 to retirement age) of Northamptonshire were qualified to at least an equivalent of an NVQ Level 4 compared to 27% in the East Midlands. However, there is a slightly higher proportion of residents in the county who have no qualifications, at 14.2% compared to 12.8% in the East Midlands. This could suggest a certain amount of skill polarisation, which could be due to a concentration of employment in lower skill logistics and construction activities, alongside the high skill service sector employment.

In 2009 the median workplace based gross weekly pay in Northamptonshire was £452.40. Wellingborough had the lowest median pay in Northamptonshire at £414.70 per week and South Northamptonshire the highest at £475.70. Between the districts, Kettering has the highest annual percentage increase in gross weekly pay at 12.6% between 2006 and 2009, whereas South Northamptonshire had the lowest annual percentage increase in pay of 2.9%.

### **9.6.6 Deprivation and economic inclusion**

Economic activity rates in Northamptonshire are amongst the highest in the East Midlands, at 83.6% in 2008 compared to 80.8% in the East Midlands.

Claimant count unemployment has historically been low in Northamptonshire, but it has been increasing in recent months at a faster rate than the regional and national averages as a result of the labour market impacts of the recession. The proportion of working age residents in Northamptonshire

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<sup>9</sup> Source: Draft Strategic Northamptonshire Economic Action Plan (SNEAP) consultation document, 2008.

claiming Job Seekers' Allowance (JSA) was 1.9% in March 2004, one of the lowest rates in the region. More recent data (December 2009) suggests this has risen to 3.9%, which is now close to the East Midlands average of 4%. This could be due to the impact of the collapse of the housing market and subsequent fall in demand for house building affecting employment in Northamptonshire disproportionately, given the importance of construction to employment in the county.

### 9.6.7 Transport and infrastructure

In line with the high population growth experienced in Northamptonshire, road traffic in the county increased by 20% between 1997 and 2006, the highest traffic growth of any county in England. This is compared to other East Midlands counties; Lincolnshire (17% growth between 1997 and 2006), Nottinghamshire (14%), Leicestershire (13%) and Derbyshire (10%).<sup>10</sup>

Detailed transport modelling work was undertaken to inform the Core Spatial Strategy for North Northamptonshire. This forecast that a 51% increase in the number of households between 2001 and 2021 will lead to a 58% increase in the demand for travel. With the continuation of existing transport policies and land use patterns it is forecast that this would increase car use by 79%. These forecasts suggest that by 2031 car use could be more than double what it was in 2001.

According to 2007 Annual Population Survey data, Northamptonshire has a high proportion of employed residents who work in the area. However within the county there is a high amount of variation – from 78% in Northampton and 74% in Corby to 42% in South Northamptonshire and 44% in East Northamptonshire. These figures indicate that travel to work journeys cross district boundaries, with Northampton and Corby attracting relatively high number of workers from outside their administrative areas.

### 9.6.8 Environment

In 2007, greenhouse gas emissions – measured in CO<sub>2</sub> equivalent per capita – were higher in Northamptonshire than in the region overall, at 9.2 tonnes per head compared to 8.9 tonnes in the East Midlands. This could be due to the contribution of road transport to emissions in Northamptonshire, given the major transport routes running through the county (e.g. the M1).

However, in Northamptonshire the amount of residual (i.e. non-recycled) waste was 627 kilograms per household, the third highest among the East Midlands' counties and Unitary Authorities.

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<sup>10</sup> Source: House of Commons Publications (2008) Written Answers to Questions: Tuesday 15th January 2008. Data not provided for Unitary Authorities.

## Key challenges and issues

- Ensure that the planned population and housing growth is jobs-led, and that the conditions for creating a 100,000 plus increase in jobs (2001-2021) is supported through a range of transformative economic development interventions. This must be accompanied with improvements in infrastructure and services.
- Provide and bring forward sufficient quality, quantity and distribution of employment land and premises to meet the needs of new and growing businesses, given high business birth rates, and support town centre regeneration.
- Increase the shift of the economy towards knowledge and technology intensive and low carbon sectors, which will support the increase in productivity levels and will in turn support the growth in new jobs, improving wage rates for employment based in the county.
- Improve basic and intermediate skills in the adult workforce, given the higher than average proportion of the workforce currently with no qualifications.
- Manage increasing levels of traffic congestion and thus reduce emissions related to road transport and reducing total per capita emissions.
- Reduce disparities between the districts. For example South Northamptonshire is one of the most affluent districts in the region, yet by comparison, Corby is one of the more disadvantaged.

## 9.7 Nottingham City Sub-regional Profile

### 9.7.1 Introduction

Nottingham City Unitary Authority is a densely populated local authority lying at the heart of the most populous conurbation in the East Midlands. The administrative boundaries of the Unitary Authority understate the physical extent of the conurbation, which extends southwards into Rushcliffe District, westwards into Broxtowe, and north and eastwards into Ashfield (especially Hucknall) and Gedling. For this reason, Nottingham City is described in terms of both the UA boundary itself and the wider Nottingham Core Housing Market Area (HMA). This also reflects policy realities on the ground: Nottingham City works with other authorities on a number of issues, particularly in the transport and planning fields.

## 9.7.2 Demography

In 2008 the population of Nottingham City was 292,400, 6.6% of the East Midlands total. Nottingham Core HMA had a population of 737,600, which is 16.6% of the total regional population.

Nottingham's population is characterised by the highest proportion of its population who are of working age of all the regional Unitary and County authorities, at 69.4%. Conversely it has a lower than average proportion of 0-15 year olds and older people (16.7% and 18.4% respectively). This is partly explained by geography, but also the draw of the two universities and work – an increase in university students and international migration have been key factors in the increase in the proportion of working age in recent years, from 64.1% in 2001.

Nottingham City has experienced a population growth of 15% between 1998 and 2008, and it is anticipated that growth from 2006 to 2016 could be higher if house building recovers and the expansion of the universities continues.<sup>11</sup>

## 9.7.3 Housing

Nottingham City has the lowest mean average house price of all the Unitary and County Authorities in the region, at £125,000. This is less than 60% of the average for England. The Nottingham Core HMA includes a wider range of communities by incorporating some of the more prosperous suburbs in Rushcliffe and Broxtowe, as well as large, more deprived housing estates on the outskirts of the conurbation. For this wider area the average price is £149,200, closer to but still below the regional average of £163,300.

Between 1996 and 2008 average house prices in Nottingham rose by 166%. Nottingham City is one of the more affordable locations in the East Midlands, as indicated by the ratio of lower quartile prices to lower quartile incomes. However, this has to be qualified – lower cost housing is still almost five times the average income of lower paid residents, indicating that extremely challenging housing market conditions persist for many.

## 9.7.4 Economy and productivity

Nottingham City has 10,220 local units (an indication of the business population) in 2009. Of these the largest proportions are in property and business services at 26.5%, and retailing with 14.3%. This is a similar picture

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<sup>11</sup> Although the broad trends suggested by the Official Statistics are considered correct, it should be noted that growth between 1998 and 2008 is considered to be understated by the Mid-Year Estimates, due to an undercount in the 2001 Census, particularly amongst young adults in inner city areas. The 2006-2016 projections reflect the strong growth in the recent years driven by inward migration and record levels of house building which may not continue at the same pace.

to the other Unitary Authorities in the region. Public administration, education and health accounts for 13.1% of local units in Nottingham City – higher than the other Unitary Authorities in the region.

There are 181,400 jobs based in Nottingham City workplaces. This is equivalent to 55% of all workplace jobs in the Nottingham Core HMA, compared to just 39% of its population. Whilst it is recognised that the Nottingham Core is an over-simplification of commuting patterns, particularly to the west, it gives a crude indications as to the importance of Nottingham City as an employment destination (see also the transport and infrastructure section).

In Nottingham City, the greatest numbers of workplace jobs are found in two sectors, which account for nearly 30% each. According to the official figures banking, finance and insurance accounts for some 47,400 jobs, which accounts for 26.1% of all workplace jobs. The other significant sector is public administration, education and health, which accounts for 61,400 jobs, 33.8% of total employment. Together these categories includes some of the City's largest employers, including Capital One, Experian, Nottingham City Council, the two universities and the NHS hospital trust, as well as the regional offices of a number of Government departments and agencies. Health also includes a growing number of private sector biomedicine and healthcare companies, some of which are located at specialist premises, for example BioCity and Nottingham Science Park.

Only 6.8% of workplace employment within Nottingham City is in manufacturing, nearly seven percentage points lower than the next lowest of the regional Unitary and County Authorities in the East Midlands. In part this reflects the tight boundaries of the Unitary Authority vis-à-vis the physical extent of the conurbation (with production activity tending to be located on the outskirts), but this is not the sole reason. Manufacturing only accounts for 10.1% of employment across the Nottingham Core HMA, illustrating the decline of manufacturing and heavy industry and transformation of the economy over the past three decades.

Nottingham City has a lower rate of new enterprise formation than the regional average, at 38 per 10,000 population compared to 46.7. This rate is similar to other East Midlands Unitary Authorities, and represents a large jump from 41.3 per 10,000 in 2006.

Of the Unitary and County Authorities in the region, Nottingham City has the highest proportion of local units employing 250 or more employees. It has a relatively low proportion of enterprises that are less than two years old (16.6%) and a higher proportion of more mature enterprise. Enterprises of more than 10 years old account for 40.1% of the total. This may reflect previously low business formation rates, but recent significant improvements may mean a shift in the future.

### 9.5.5 Labour market

At 64.8%, the employment rate for Nottingham City is comparatively low in 2008. Whilst the rate is affected by the large university population this is not the sole reason, as unemployment in some neighbourhoods also remains high.

ILO unemployment across Nottingham City is 9.2% of the working age population – above the regional average of 6.0%.

Nottingham City has a relatively low proportion of residents with high level qualifications. At 24.6% this is 2.44 percentage points lower than the regional average. Across the Nottingham Core HMA the rate for is comparable with England, and higher than the regional average.

Within Nottingham City there is a high proportion of people with no qualifications. At 17.9% of the working age population this is higher than regional and national rates of 12.8% and 11.9% respectively. The rate without qualifications has shown significant improvement though, having fallen from 22.5% in 2001.

On average, jobs based in Nottingham City are higher paid than jobs held by City residents. Median workplace based pay in Nottingham City is £481.30 per week, higher than the East Midlands average (£456.60), although below the England level. By contrast Nottingham City residents earn below the regional median (£416.70 per week and £460.50 respectively).

Within Nottingham City 33.7% of employed residents are employed in upper tier occupations, 35.5% are employed in intermediate tier occupations and 30.4% are in lower tier occupations. The proportion of employment in upper tier occupations is below the regional average, but across Nottingham Core HMA the proportion is similar to the regional average at 41.4% and 39.0% respectively.

### 9.7.6 Deprivation and economic inclusion

In Nottingham City, 71.2% of the working age population are economically active in 2008. This is comparatively low, again this reflecting the presence of the two universities, but also high numbers on workless benefits such as Incapacity Benefit.

As with the other Unitary and County Authorities in the East Midlands, there has been a significant increase in the level of Job Seekers' Allowance claimants – from 3.6% in January 2008 to 6.2% in March 2010. By March 2010, 12,617 residents were claiming JSA, an increase of over 1,000 individuals in a 12 month period.

At 17.7%, Nottingham City has the second highest rate of working age people claiming work related benefits of all Unitary and County Authorities in the

region in February 2009. More than half of them (8.5%) are claiming Employment and Support Allowance and Incapacity Benefits, and more than 5.0% are claiming Job Seekers' Allowance.

Using the 2007 Index of Deprivation, Nottingham ranks as the 13th most deprived authority nationally. Sixty percent of all Lower Super Output Areas fall within the most deprived quintile nationally. No LSOAs fall in the least deprived quintile.

### **9.7.7 Transport and infrastructure**

Three quarters of Nottingham's working residents hold jobs based in the city, lower than the other County Authorities, but a similar proportion to the other two Unitary Authorities in the region. A relatively high proportion of Nottingham City's workforce is drawn from people living outside the area. At 57% this is the highest in the region and 10 percentage points above the next authority, demonstrating its importance as a commuting destination within the wider Nottingham economy.

Within Nottingham City the level of access to work by public transport is very good.

When looking at bulk premises, Nottingham City has the highest number of offices and greatest floorspace of the Unitary and County authorities in the region. It also has the greatest amount of retail floorspace. Nottingham City has the second lowest amount of factory floorspace, reflecting the low level of manufacturing jobs now based there.

The rateable value for retail premises is the highest in the region, indicating the high level of demand for retail space. The rateable value for office space is the second highest in the region, behind Northamptonshire.

### **9.7.8 Environment**

Nottingham City has one of the lowest CO<sub>2</sub> emissions per capita in the region at 6.4 tonnes, compared to a regional average of 9.3 tonnes. The city also performs relatively well in terms of residual (non-recycled) waste per capita, at 613 kilograms per household in 2008-2009. Performance has improved – this figure represents a decrease of 42% on 2002-2003 levels.

### **Key challenges and issues**

- A high proportion of working age residents have no qualifications in comparison to other areas. Improving the qualifications and skills of local residents will be critical to enable the economy to grow and modernise further, and to ensure local residents have access to the more sustainable, better paid employment on offer.

- Relatively high unemployment exists within Nottingham City and, as with elsewhere across the region, this has increased as the national economy has contracted. There is a challenge to provide a growing number of people and their families with the support they need following the recession, and to help them find work as is soon as possible.
- A comparatively high proportion of working age residents are economically inactive, and for many in this group they will experience multiple deprivation, presenting additional barriers to re-entering the workplace.
- Despite relatively low house prices compared to elsewhere in the region, house prices have risen dramatically over the last 10 years and, in the context of relatively low resident earnings, housing remains unaffordable for many.
- Nottingham City is not without opportunities. A large number of businesses and jobs are based within the authority, and it is a source of employment for people across a much wider area. This is demonstrated by the high proportion of Nottingham City's workforce drawn from beyond its boundaries. Access to work by public transport is also very good, enabling residents to access employment in a relatively sustainable manner.
- Enterprise formation is low, but had improved considerably prior to the recession. Whilst this is positive, many new businesses are finding the current economic climate testing.

## **9.8 Nottinghamshire Sub-regional Profile**

### **9.8.1 Introduction**

This profile covers the two-tier administrative area of Nottinghamshire, which comprises the County Council and seven district/borough councils. A separate profile covers the Unitary Authority area served by Nottingham City Council.

### **9.8.2 Demography**

Whilst population growth between 1998 and 2008 and projected growth to 2016 in Nottinghamshire are both below the East Midlands average, the fact that the increases are based on a very large existing population of 776,500 means that the actual numbers involved will have a significant impact on the infrastructure of the county.

The mid-2008 population was 17.5% of the East Midlands total. Between 1998 and 2008, the county's population increased by 4.7% between 1998 and 2008, a much slower rate than the region as a whole (7.3%).

The population of Nottinghamshire is projected to increase by 8.7% between 2006 and 2016 compared to the East Midlands (10.5%). During this period, the district of Gedling is projected to grow at the slowest rate, at 5%, whilst Newark & Sherwood is projected to grow most, at 12.3%.

### 9.8.3 Housing

The data on house prices reveals significant variations between higher house prices in the south and east of the county, especially in those districts bordering Nottingham City, and lower prices in the north west of the county, in Ashfield, Mansfield and the western part of Bassetlaw. However this pattern may be changing with, for example, new higher specification housing being built along the Nottingham-to-Mansfield rail corridor, in places such as Hucknall and Kirkby-in-Ashfield.

In 2008 the mean house price in Nottinghamshire was £154,100, below both the regional mean of £163,300 and the national mean of £220,300. Mean prices in the districts ranged from £119,400 in Ashfield to £213,300 in Rushcliffe.

The ratio of lower quartile house prices to lower quartile incomes provides a guide to the affordability of property in an area. In 2008 the ratio was 6.2 in Nottinghamshire compared with 6.6 in the region and 7 in England, showing that property in Nottinghamshire is slightly more affordable than either the regional or the national averages. Within the districts, Mansfield had the most affordable property, with a ratio of 5.5, whilst Rushcliffe had the least affordable, with a ratio of 9.3.

### 9.8.4 Economy and productivity

Nottinghamshire underwent major sectoral change in the last quarter of the 20th century, with the decline of the mining and textile industries and the resulting job losses. The service sector has emerged as a major employer, sitting behind the public sector as the biggest employer.

- The largest industry groups in Nottinghamshire are finance, property and business services, with 6,260 local units, and accommodation, food and arts, entertainment and recreation, with 3,595 units.
- In employment terms, public administration, education and health provides the most jobs, at 76,700 in 2008, followed by distribution, hotels and restaurants, at 66,900.

The rate of births of new enterprises per 10,000 population in 2008 in Nottinghamshire was 41.7, lower than the regional and national rates of 46.7 and 57.2 respectively. Within the districts, Mansfield had the lowest rate, with 37.2, and Rushcliffe the highest, with 54.2.

### 9.8.5 Labour market

The spatial variation in employment rates and qualification levels correlates closely with other socio-economic indicators for the county, with higher levels of performance in the south of the county, and lower levels in the north and west. Qualification levels in the worst performing districts are significantly below the regional and national averages.

The employment rate in Nottinghamshire during 2008 was 75.9%, level with the East Midlands average and greater than in England overall (74.2%). Rates in the districts ranged from 73.8% in Newark and Sherwood to 78% in Rushcliffe.

Model based estimates of unemployment for 2008 show Nottinghamshire had an unemployment rate of 4.5%, with substantial differences in the districts, ranging from 2.7% in Rushcliffe to 5.2% in Ashfield.

The proportion of Nottinghamshire residents working in upper tier occupational groups in 2008 was 42.1%. This was above the East Midlands average of 39%, but below the England average of 43.7%. Proportions of employment in these occupations across the districts ranged from 29.9% in Ashfield to 60.1% in Rushcliffe.

The percentage of the working age population with qualifications equivalent to an NVQ Level 4+ in Nottinghamshire was 29.0% in 2008. This compared with 27.0% in the East Midlands and 30.5% in England. Rates in the districts ranged from 17.1% in Ashfield to 51.2% in Rushcliffe.

The percentage of the working age population with no qualifications during 2008 was 11.4% in Nottinghamshire, 12.8% in the East Midlands and 11.9% in England. In the districts, only 2.7% of working age residents in Rushcliffe had no qualifications, whilst 19.4% had no qualifications in Bassetlaw.

Median gross weekly pay for people working in Nottinghamshire was £446 in 2009, below both the regional and national medians of £456.60 and £488.70 respectively. Within the districts, pay ranged from £404.30 in Mansfield to £470.80 in Rushcliffe.

### 9.8.6 Deprivation and economic inclusion

In Nottinghamshire during 2008, 80.5% of the working age population were economically active, compared to 80% in the East Midlands and 78.9% in England. Within the districts, Bassetlaw had the lowest rate, at 78.2%, and Gedling had the highest, at 82.6%.

Claimant count unemployment in Nottinghamshire between December 2007 and December 2009 has followed a similar pattern to other areas in the region. Rates were fairly static until autumn of 2008, but there have been month-on-month increases since. In March 2010, Nottinghamshire had a claimant rate of 3.6%. In the region, only Leicestershire and Rutland have lower rates, at 2.8% and 1.7% respectively. The comparable rates for the East Midlands and the UK are 4.1% and 4.2% respectively.

In Nottinghamshire, during February 2009 12.6% of the working age population were claiming work related benefits. In the East Midlands the rate was 12.5% and in England it was 12.9%. In the districts the rate ranged from 6.6% in Rushcliffe to 18.0% in Mansfield.

The 2007 Indices of Deprivation reflect the spatial nature of deprivation across the county, with the greatest deprivation occurring in parts of the county that have experienced the effects of the decline of traditional manufacturing industries, whilst the least deprived are areas where people are employed in public administration and other service sectors. In Nottinghamshire 9.5% of Lower Super Output Areas (LSOAs) were in the most deprived quintile in England, compared to 16.8% for the East Midlands and 20.0% for England. Rushcliffe had the lowest proportion of LSOAs in this group, at 0%, whilst Mansfield had the highest, at 42.4%.

### **9.8.7 Transport and infrastructure**

Almost 9 out of 10 Nottinghamshire residents in employment remain in the county for their work. Results from the Annual Population Survey show 88% of all residents of Nottinghamshire who were in employment were working in Nottinghamshire, while 79% of the workforce of Nottinghamshire lived in Nottinghamshire.

Accessibility to employment by public transport has slightly decreased in Nottinghamshire between 2005 and 2008, from 81.3% to 80%. Access to employment by public transport was higher in Nottingham, where 85% of the working age population had access to work by public transportation.

### **9.8.8 Environment**

Per capita CO<sub>2</sub> emissions for 2007 show a figure of 7.6 tonnes in Nottinghamshire compared with 8.9 tonnes in the East Midlands. Districts range from 4.9 tonnes in Gedling to 10.1 tonnes in Newark & Sherwood.

In 2008-2009, residual waste in Nottinghamshire was 660 kilograms per household. There were substantial variations between the districts, from 455.0 kilograms per household of residual waste in Rushcliffe compared to 681.0 kilograms per household in Bassetlaw.

### **9.8.9 Health and crime**

All age all causes mortality rates for Nottinghamshire between 2001 and 2007 follow a very similar pattern to those of the region and the country.

Overall crime rates for Nottinghamshire between 2003-2004 and 2008-2009 follow the same pattern as the East Midlands and England. Over this period it has fallen from 72.0 to 54.4. During 2008-2009 the rates in the districts ranged from 33.6 in Rushcliffe to 75.1 in Mansfield.

## Key challenges and issues

- There is a need to respond to the implications of a growing population in the county.
- There is a clear socio-economic divide in the county that can be roughly characterised as a north-south split. There is a need to improve the worst performing areas to bring them closer to the best performing ones.
- Across the county there is a need to improve the overall skills and qualification levels of the population to improve the county's competitiveness.
- Responding to the recession offers the county an opportunity to develop emerging industries to give a diverse economy as well as offer opportunities to those communities and individuals who have been affected by the decline of traditional industries.
- Improving the quality of life across Nottinghamshire, ranging from the housing offer through to lower crime rates and better public transport will make it more attractive to potential new businesses and investors.

## 9.9 Rutland Sub-regional Profile

### 9.9.1 Introduction

Rutland is one of the smallest Local Authorities in the East Midlands, covering 382 square kilometres, 2.5% of the total surface area of the region. This is significantly smaller than the five county council areas, and smaller than many of their constituent Local Authority Districts. It has by far the smallest population of the nine Upper Tier Local Authority areas. However, Rutland is one of the most prosperous parts of the region. It has experienced significant population growth over recent years, and is forecast to continue growing at a similar rate in the future. As Rutland has the highest average house prices in the region, this increased demand could further exacerbate affordability problems in the area.

Rutland's largest town is Oakham, whilst Uppingham is also an important local centre. Stamford, which is just over Rutland's eastern border with Lincolnshire, also provides an important employment centre for the area. Tourism is an important activity in the local area. A key asset includes Rutland Water, one of the largest man made reservoirs in Europe, which provides two water sports centres (including Rutland Sailing Club, which is a Royal Yachting Association training centre and hosts several inland international sailing events), a nature reserve, and also a popular fishing centre.

Rutland is well connected, with good rail links from Oakham train station to Leicester and Peterborough, which are both in easy commuting distance for many of Rutland's residents. Moreover, the A1 runs across the eastern corner of Rutland, meaning that the Unitary Authority enjoys good links to London, the East of England and the South East.

### 9.9.2 Demography

With 39,200 residents in 2008, Rutland accounts for the smallest share of the East Midlands population of all the Upper Tier Authorities, at 0.9%. Rutland has experienced a growth rate of 6.6% over the decade 1998-2008. This is compared to the regional average of 7.3%.

Rutland is also projected to experience an above average rate of growth over the next decade, at 11.2% between 2006 and 2016. This compares to a rate of 10.5% for the East Midlands overall.

Rutland has experienced significant growth in the pensionable age population group, with the proportion of residents in this age group increasing from 19.3% of the total population in 1998 to 22.7% in 2008. This trend has been driven by significant in-migration of older people from elsewhere in the UK.

### 9.9.3 Housing

Rutland has the highest mean house prices in the region, at £285,800 in 2008. This compares to the regional mean of £163,300. House prices in Rutland are currently 130% on an index where the English average is equal to 100%. On the Government's preferred measure of affordability, which compares house prices in the lower quartile of all house prices in an area to earnings in the lower quartile of all earnings, Rutland is the least affordable Upper Tier Authority in the region. In 2008, Rutland had a lower quartile house prices to lower quartile earnings ratio of 8.9, compared to an East Midlands average of 6.6.

### 9.9.4 Economy and productivity

Rutland had 1,950 local business units registered for VAT or PAYE in 2009, which is 1.1% of the total business population in the region. The largest proportion of employment in 2008 was in public administration, education and health, at 33.9%, which exceeds the proportion employed in that sector in the East Midlands (26.9%). Distribution, hotels and restaurants is also an important employment sector in the area, employing 26.4% of Rutland's workforce compared to 23.5% in the East Midlands overall. Conversely, there is a lower proportion of employment in transport and communications in Rutland compared to the East Midlands (2.5% and 5.6% respectively) and banking, finance and insurance (13.5% compared to 18.0% in the East Midlands average).

Rutland has a business birth rate that is higher than the regional average, with 55 businesses registered per 10,000 population in 2008 compared to 46.7 in the East Midlands. However, this is still below the England average of 57.2.

### **9.9.5 Labour market**

Rutland has historically had a very high rate of employment. In 2008, 78.4% of the working age population were in employment, compared to 75.9% in the East Midlands. This rate is lower than in 2007 and this reflects to the impact of the recession.

More recent data is available for the proportion of people claiming Job Seekers' Allowance (the unemployment 'claimant count'), which shows a small rise over the last year. The latest figure for March 2010 shows just under 400 people claiming unemployment benefits, which is 1.7% of the working age population of Rutland. This is up very slightly on the same time the previous year (by 0.1 percentage points). Rutland remains well below the average for the region (4.1% in March 2010) and has the lowest claimant count of the nine Upper Tier Authorities. However, as stated above, the public sector, which includes defence, is a major employer in the area. In December 2009, the Government announced the phased closure of RAF Cottesmore, which could have significant consequences for local businesses and employment.

Rutland has a relatively highly skilled workforce, with 32.5% of adults between 19 and retirement age qualified to an equivalent of an NVQ level 4 or higher, compared to a regional average of 27%. This is the highest proportion of the nine Upper Tier Authorities in the region. Rutland has a similarly high share of the resident workforce employed in upper tier occupations (managerial, professional and associate professional), at 49.5% compared to 39% in the East Midlands.

An outcome of this relatively highly skilled workforce and access to higher skill employment opportunities is an above average work based pay in Rutland, with a median weekly pay of £506.60 in 2009, compared to £456.60 in the East Midlands.

### **9.9.6 Deprivation and economic inclusion**

There is a limited amount of deprivation in Rutland. Economic activity rates are amongst the highest in the region, at 81.7% in 2008, compared to a regional average of 80.8%. This is particularly high given the area's large number of retirees and also the presence of two large public schools, meaning that there are high proportions of younger people in full-time education and high proportions of older people having left the labour market.

Rutland has the lowest proportion of its working age population claiming out-of-work benefits or income support (Job Seekers' Allowance, Incapacity Benefits, Disability Living Allowance, etc.) at 5.2% in February 2009,

compared to 12.5% in the region overall. On the 2007 Index of Multiple Deprivation Rutland has the lowest proportion of Lower Super Output Areas that fall within the most deprived fifth of LSOAs in England of the nine Upper Tier Authority areas, with no LSOAs in this band.

### **9.9.7 Transport and infrastructure**

Accessibility to public transport is relatively low in Rutland, with 76.0% of working age residents having access to public transport in 2008. This is the lowest proportion of the nine Upper Tier Authority areas. There is a relatively high incidence of commuting out of the area: in 2007 some 61% of residents also worked in the area, which is again the lowest of the nine Upper Tier Authority areas (in Lincolnshire, also a relatively rural county, this proportion is 98%).

### **9.9.8 Environment**

In 2007, emissions of Carbon Dioxide (CO<sub>2</sub>) per capita were extremely high for Rutland, at 35.4 tonnes of CO<sub>2</sub> per resident, compared to a regional average of 8.9. The total amount of emissions in 2007 in Rutland was 1,357 tonnes of CO<sub>2</sub>, which was only 3.5% of the East Midlands total.

Industry and commercial sources were the largest contributors towards CO<sub>2</sub> emissions within Rutland, producing 80.4% of Rutland's CO<sub>2</sub> emissions and resulting in per capita emissions from industrial and commercial sources that were seven times that of either the East Midlands or the UK.

Residual waste reduced dramatically in 2008-2009 following the introduction of a new kerbside recycling scheme throughout Rutland. The recycling rate increased from 28.8% in 2007-2008 to 52.9% in 2008-2009. This reduced the residual waste per household to 583kg.

### **Key challenges and issues**

- Rutland has experienced rapid growth in the population of older people, which will have implications for future demand for social care and other infrastructure required to support this changing demographic balance.
- Car ownership in Rutland is very high and the proportion of homes with two or more cars is also one of the highest in the East Midlands. Higher fuel prices and the need to reduce carbon emissions, means that realistic alternatives to car use must be developed for the future. The rural nature of Rutland means that public transport is both a key problem and the potential solution. The key transport hubs of Oakham and Uppingham need to be developed with public transport links to connect outlying villages and neighbouring towns and nearby cities.

- There needs to be a better understanding of the skills gaps within the county through closer engagement with employers and with education providers.
- Broadband speeds across the county are slow, particularly in the more rural areas. In order to provide faster and more reliable services to both residents and businesses, investment must be made in the infrastructure for broadband and emerging technologies.

# Glossary

## **Age specific birth rates**

The number of births per 1,000 women in each age group.

## **Annual Business Inquiry (ABI)**

A survey of employers in the UK. All businesses with more than 250 employees are surveyed, while smaller enterprises are sampled. The ABI is a key source of data on industrial sectors and for calculating regional Gross Value Added (GVA).

## **Annual Population Survey (APS)**

A new survey introduced by the Office for National Statistics in 2004. It includes all the main variables previously provided by the Labour Force Survey (LFS) and is published on both a rolling quarterly and annualised basis.

## **Annual Survey of Hours and Earnings (ASHE)**

This survey provides information about the levels, distribution and make-up of earnings and hours worked by employees in all industries and occupations. The survey was developed to replace the New Earnings Survey (NES) from 2004.

## **Area of Outstanding Natural Beauty (AONB)**

A precious landscape designated for special protection because of its outstanding qualities. These could include its flora, fauna, historical and cultural associations, as well as scenic views.

## **Aquifer**

A body of rock through which appreciable amounts of water can flow.

## **Biodiversity**

Literally means 'the variety of life', and includes all the different plant, animal, fungus and micro-organism species worldwide, the genes they contain, and the ecosystems of which they form a part.

## **Brownfield land**

'Brownfield' is a term generally used to describe previously developed land, which may or may not be contaminated.

## **Census Output Area (OA)**

Census Output Areas (OAs) are used across the UK as the basic output unit for the 2001 Census and other small area datasets, such as benefits data. For the purpose of analysis, OAs are usually aggregated up to larger geographies known as Super Output Areas (SOAs).

**Civil Aviation Authority (CAA)**

The UK's independent aviation regulator, with all civil aviation regulatory functions (economic regulation, air space policy, safety regulation and consumer protection) integrated within a single specialist body.

**Claimant count**

The claimant count is the number of people claiming Jobseeker's Allowance. The claimant count rate is the number of claimants as a percentage of resident working age population in that area.

**Comparative advantage**

Countries and regions differ in the amount and types of resources that they have, meaning that they have differing strengths. This is comparative advantage.

**Comprehensive Spending Review (CSR)**

The first Comprehensive Spending Review was carried out in 1998, and the second will report in 2007. It represents a long-term and fundamental review of government expenditure.

**Dependency ratio**

Expresses the population who can work, and thus generate income to support others, against those who are either too young or too old to work.

**Disabled, Disability Discrimination Act (DDA)**

The Disability Discrimination Act defines the disabled as people who have a long-term health problem or disability which has a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities.

**Disabled, Work Limiting**

People who have a long-term health problem or disability which affects the kind or amount of paid work they might do.

**Earnings, residence and workplace based**

Estimates of incomes earned by either members of the population resident in a given area, or those working in that area.

**East Midlands Life and Work Survey**

Undertaken in 2003 on behalf of the East Midlands Observatory, this was a household survey of 14,000 East Midlands residents aged 16-74 (both economically active and inactive), principally covering employment, learning and skills issues.

**Economic Activity Rate**

Economic activity rates are used to describe overall participation in the labour market, and refer to the proportion of the working age population who are in employment or unemployed.

**Employment Rate**

The proportion of working age people who are in employment.

### **English House Condition Survey**

The main source of information on the condition and energy efficiency of all types of housing in England. The survey is carried out by the ONS on behalf of the Office of the Deputy Prime Minister (ODPM). Since April 2002 the survey has been running on a continuous basis, with fieldwork conducted in four 2-month periods throughout the year.

### **Employment and Support Allowance (ESA)**

This is a benefit for people whose ability to work is limited by ill health or disability. ESA is paid for those who pass the work capability tests. Those who don't pass this test can claim Jobseeker's Allowance or another benefit. ESA can be paid from the age of 16, and it can be paid until pension age to those who live in Great Britain (apart from some temporary absences).

### **Ethnic minority group**

This term can refer to any ethnic group in the population other than 'White British'. Other ethnic groups defined in the Census are White Irish; Other White; White & Black Caribbean; White & Black African; White & Asian; Other Mixed; Indian; Pakistani; Bangladeshi; Other Asian; Black Caribbean; Black African; Other Black; Chinese; Other Ethnic Group.

### **European Commission**

The body that embodies and upholds the general interest of the European Union, and is the driving force in the Union's institutional system. Its four main roles are to propose legislation to the European Parliament and the Council, to administer and implement European Community policies, to enforce Community law (jointly with the Court of Justice) and to negotiate international agreements, mainly those relating to trade and co-operation.

### **Eurostat**

Statistical office for the European Communities, providing statistics and information about and for the European Union.

### **Eurozone**

The subset of European Union member states which have adopted the euro, creating a currency union.

### **Externalities**

The economic activities of one person or business can impact upon the activities of others. These spillover effects are known as externalities and can be positive or negative.

### **Fireclay**

Fireclays are sedimentary mudstones that occur as the 'seatearths' that underlie almost all coal seams. Seatearths represent the fossil soils on which coal-forming vegetation once grew.

**Fluorspar**

The commercial term for the mineral fluorite (calcium fluoride,  $\text{CaF}_2$ ), which is the most important and only UK source of the element fluorine. There are three main grades of fluorspar – acid, metallurgical and ceramic.

**Freight lifted**

Freight 'lifted' is the weight of goods carried on the transport network, excluding the weight of trailers, locomotives and wagons. It does not take into account distance travelled, and is expressed in tonnes.

**FTE employment**

Full-time equivalent employment, which, for the purposes of this Evidence Base is the sum of full-time employment, self-employment and 40% of part-time employment.

**Geothermal energy**

Energy from the heat inside the earth.

**Government Office Region (GOR)**

Government Offices for the Regions were established across England in 1994. There are currently 9 GORs in England. Scotland, Wales and Northern Ireland are not subdivided into GORs but are listed with them as regions in UK-wide statistical comparisons.

**Greenfield land**

Land on the edge of a town or city, or away from larger urban areas. It is land that is undeveloped, but has development proposed for it.

**Greenhouse gases**

Gases in the atmosphere that are capable of absorbing infrared radiation or heat, thus preventing it escaping back into space. In doing so they raise the temperature of the lower atmosphere and the Earth's surface which is in contact with it. This warming process is called the natural greenhouse effect. Greenhouse gases can be natural or man-made.

**Gross Domestic Product (GDP)**

A commonly-used measure of output in national economies. It can be calculated in three ways: as the sum of all incomes, all expenditures, or all production.

**Gross Value Added (GVA)**

Gross value added is the recognised measure of economic output used at regional level. It is a measure of output at basic prices, whereas GDP is a measure of output at market prices. The difference between the two is down to the treatment of taxes and subsidies. GDP is equal to GVA plus taxes minus subsidies.

**Gypsum**

Also known as calcium sulphate, gypsum is the most common sulphate mineral. Most gypsum deposits have been formed by the evaporation of seas and salt lakes.

**G6/G7**

The G6 group of leading industrialised countries comprises the UK, France, Germany, Japan, the USA and Italy, while the G7 includes Canada.

**Hereditament**

A legal term for any kind of property which can be inherited.

**Highways Agency**

An executive agency of the Department for Transport, responsible for looking after England's motorways and trunk roads.

**HM Land Registry**

A government agency which registers title to land in England and Wales, and records dealings (for example, sales and mortgages) with registered land.

**Housing associations**

Housing associations are the main providers of new affordable homes to rent and to buy, and are run as not-for-profit businesses. There are over 1,500 housing associations in England, currently managing around 2 million homes. Most housing associations are small and own fewer than 250 homes.

**Housing Corporation**

The national government agency that funds new affordable housing and regulates housing associations in England.

**Identifiable / non-identifiable expenditure**

Identifiable expenditure is that which has been incurred for the benefit of individuals, businesses or communities within particular regions. Non-identifiable expenditure is that which benefits the whole of the UK, such as defence.

**Igneous rocks**

These rocks form when molten rock (magma if it is below the Earth's surface or lava if it has erupted from a volcano) solidifies. Common igneous rocks include basalt, pumice and granite.

**Incubator accommodation**

Premises provided specifically for businesses which have just started up or are at an early stage in their development. Office or laboratory space is rented out to firms at relatively low rates, with key services (eg. broadband internet) provided.

**Index of Multiple Deprivation (IMD)**

A relative summary measure of multiple deprivation at a small area level. It is derived from a combination of indicators under seven different headings,

known as domains: income; employment; health and disability; education, skills and training; barriers to housing and services; the living environment; and crime. The latest version of the IMD was published by the ODPM in 2004.

### **Jobseeker's Allowance (JSA)**

The benefit which is paid to people under pensionable age who are available for, and actively seeking, work.

### **Labour Force Survey (LFS)**

A survey of individuals produced by the Office for National Statistics. In 2004 the LFS was incorporated into the new Annual Population Survey (APS), providing a boosted annual sample of at least 5000 economically active people per Local Authority District/Unitary Authority. The LFS is available to a Local Authority District level from 1999 to 2003.

### **Learning and Skills Council (LSC)**

The Learning and Skills Council was a [non-departmental public body](#) responsible for funding and planning education and training for those aged over 16 in England, aiming to raise participation and attainment. The LSC was replaced by the Young Peoples Learning Agency and the Skills Funding Agency.

### **Limiting long-term illness**

A long-term illness which limits the activities of an individual. A question relating to this was introduced in the Census in 1991.

### **Listed buildings**

Buildings identified by English Heritage for inclusion on statutory lists of buildings of 'special architectural or historic interest' compiled by the Secretary of State for Culture, Media and Sport. Buildings are classified as Grade I – of exceptional interest; Grade II\* - particularly important and of more than special interest; and Grade II – of special interest, warranting every effort to preserve them.

### **Local Authority District (LAD)**

Local Authority Districts have responsibility for planning, housing, highways, building, environmental health, refuse collection and local service delivery. The 239 LADs (also known as non-metropolitan districts) form the lower tier of the two-tier local government structure found in many parts of England, with the higher tier being the 34 non-metropolitan (shire) counties. There are 36 Local Authority Districts in the East Midlands.

### **Location quotient**

This is a measure of relative concentration of particular industrial sectors within the UK. It is calculated as: the proportion of a sector in the regional economy divided by the proportion of a sector in the national economy.

**Lone parents on Income Support**

Lone parents aged 16 to 59 years old who are responsible for a child under 12 years, work less than 16 hours a week are not in full-time study, do not get Jobseeker's Allowance, do not have savings, have low income and live in Great Britain can claim Income Support (IS).

**Market failure**

Market failure occurs when the conditions required for the achievement of the market efficient solution fail to exist or are contravened in some way.

**Metamorphic rocks**

Rocks produced by the alteration of pre-formed rocks by pressure, temperature and migrating fluids, often in environments deep in the Earth's crust. The main groups of metamorphic rocks are marble, slate, quartzite, gneiss and schist.

**Mid-Year Population Estimates (MYE)**

These are produced each year for England and Wales by the Office for National Statistics. The estimates are based on the latest Census of Population, with allowances for under-enumeration, and updated to reflect subsequent births, deaths, migration and ageing.

**Milton Keynes South Midlands (MKSM)**

The Government has designated the Milton Keynes South Midlands (MKSM) sub-region as a major growth area over the next 25 years. The MKSM Growth Area comprises areas around the towns of Luton, Dunstable, Aylesbury, Bedford, Milton Keynes, Northampton, Wellingborough, Kettering and Corby.

**Multi-factor productivity (MFP)**

See Total factor productivity.

**National Employer Skills Survey (NESS)**

The National Employer Skills Survey (NESS) was commissioned by the former Learning and Skills Council (LSC) in partnership with the Department for Education and Skills (DfES), the Skills for Business Network and Regional Development Agencies. The NESS 2009 is the latest in a series of employer surveys which includes NESS surveys conducted in 2003, 2005 and 2007. The NESS 2009 incorporates responses from just over 79,000 employers in England.

**National Park**

Twelve national parks have been designated since the 1949 National Parks and Access to the Countryside Act. They include the Peak District in the East Midlands. National Parks cover approximately 10% of the total land area of England and Wales.

**National Travel Survey (NTS)**

A continuous survey on personal travel, undertaken by the Department for Transport, providing data to answer a variety of policy and transport research

questions. The Survey has been running on an ad hoc basis since 1965 and annually since 1988.

### **National Vocational Qualification (NVQ)**

These are work-related, competence based qualifications. They reflect the skills and knowledge required to do a job effectively, and show that a candidate is competent in the area of work the NVQ represents. There are 5 levels of NVQ. Level 2 is equivalent to 1 A Level or 5 GCSEs, Level 3 approximates to 2 or more A Levels, and Level 4 equates to a First or Masters degree.

### **NOMIS**

The online database system for the Office for National Statistics, providing access to official government statistics relating to labour market and demographic topics.

### **NUTS areas**

Nomenclature of Units for Territorial Statistics (NUTS) areas were created by Eurostat as a hierarchical classification of spatial units used for statistical production across the European Union. In the UK, NUTS 1 areas correspond to Government Office Regions; NUTS 2 areas refer to counties (some grouped); and NUTS 3 areas are counties, unitary authorities or groups of Local Authority Districts.

### **Office for National Statistics (ONS)**

The government agency responsible for providing statistical and registration services for England, and for the UK in collaboration with the statistical agencies of the devolved administrations. It produces a wide range of key economic and social statistics which are used by policy makers across government.

### **Out-of-work benefits**

This is the group of benefits that collectively cover those people who are not in work and include:

- Those jobseekers who claim Jobseeker's Allowance;
- Those who claim Employment and Support Allowance (ESA) and Incapacity Benefit or Severe Disablement Allowance;
- Those Lone Parents on Income Support; and
- Others on Income-related benefits such as other Income Support (including IS Disability Premium) or Pension Credit.

### **Output Area (OA)**

See Census Output Area.

### **Polycentric region**

A polycentric region is one that has at least two urban centres of comparable significance, that are not part of the same built-up area, do not duplicate functions, and are characterised by substantial interaction in terms of flows between the centres.

**Population density**

A measure of the number of people in a given area (usually a square kilometre).

**Population, pensionable age**

Commonly used age banding describing women aged 60 and over, and men aged 65 and over.

**Population, school age**

Young people aged 15 and under.

**Population, working age**

Women aged between 16 and 59 and men between the ages of 16 and 64.

**Precipitation**

A term used to describe any moisture which falls from the air to the ground.

**Priority need households**

Those households whose members may have difficulty finding suitable accommodation without help, or are defined as vulnerable, because they are pregnant, under 18, elderly, mentally ill, disabled, responsible for dependent children, at risk of violence or harassment because of their religion, sexuality, race or ethnic origin, at risk of domestic abuse, the victims of an emergency like a fire or flood, and so on.

**Public Service Agreements (PSAs)**

Public Service Agreements set out the key improvements that the public can expect from government expenditure. They are three year agreements, negotiated between each of the main government departments and HM Treasury during the Spending Review process. Each PSA sets out a department's high-level aim, priority objectives and key performance targets.

**Regional Competitiveness Indicators (RCIs)**

Devised by the Department for Trade and Industry (DTI), these are factors that contribute to regional competitiveness, and can be measured statistically. They are published bi-annually as *Regional Competitiveness and State of the Regions Indicators*.

**Regional Spatial Strategy (RSS)**

Published in March 2005, the purpose of the Regional Spatial Strategy is to provide a clear, agreed, long-term spatial vision for the region up to 2021. It replaces the Regional Planning Guidance for the region (published in January 2002.) The Strategy aims to address five main priority areas: Housing (affordable housing on brownfield land); Economy and Regeneration (policies on employment land and town centres); Natural and Cultural Resources (new targets on biodiversity, waste reduction and management, and flood risk); Regional Transport Strategy (aiming to reduce the need to travel, reduce traffic growth and improve public transport); Monitoring and Review (initial priorities of the next RSS review).

**Registered social landlord (RSL)**

A term introduced by the 1996 Housing Act applying to housing associations registered with the Housing Corporation. RSLs have access to the Social Housing Grant which allocates public funding for the capital costs of providing housing.

**Renewable energy**

A term used to describe energy flows that occur naturally and continuously in the environment, such as energy from wind, waves or tides.

**Right to Buy**

A government scheme which allows council tenants to buy their home for less than its full market value, because the length of time they have spent as a tenant entitles them to a discount.

**Rural and Urban Area Classification**

Introduced in 2004 as a joint project between the Commission for Rural Communities (CRC), Defra, the ONS, ODPM and the Welsh Assembly. It was delivered by the Rural Evidence Research Centre at Birkbeck College (RERC). Output Areas are classified by morphology – as Urban (>10,000 population), Rural town, Village, Dispersed (hamlets and isolated dwellings); and by context – as sparse or less sparse.

**Rural and Urban Definition**

A District level classification, recommended by the Department for Environment, Food and Rural Affairs (DEFRA) as a method for describing the level of rurality within Local Authority Districts and Unitary Authorities in England. The classification provides a six-fold grouping of districts, of which five classifications apply in the East Midlands region.

**Shift-share analysis**

Shift-share analysis is a technique that allows for the decomposition of growth rates into their constituent parts.

**Shrink-swell clay**

Land underlain by shrink-swell clay will swell when wet and shrink as it dries out. This can cause damage to both property and highways, and is exacerbated by extreme variations in weather conditions.

**Skills Funding Agency (SFA)**

The Skills Funding Agency was established by the Apprenticeships, Skills, Children and Learning Act 2009 to fund and regulate further education and skills training in England. The SFA's mission is to ensure that people and businesses can access the skills training they need.

### **Single Capital Pot (SCP)**

Introduced in March 2002, the Single Capital Pot (SCP) is a cross-service allocation mechanism intended to deliver the bulk of capital support to local authorities. It replaced previous separate allocations of funding for transport, housing, education and health, and the intention is that the bulk of local authority capital support will eventually be distributed in the same way.

### **Social housing**

Affordable housing for rent, provided by local authorities and housing associations.

### **Standard Industrial Classification (SIC)**

The Standard Industrial Classification was first introduced to the UK in 1948 for use in classifying businesses by the type of economic activity in which they are engaged. It is a hierarchical classification which provides a framework for the consistent classification of businesses into industrial groups.

### **Standard Occupational Classification (SOC)**

The Standard Occupational Classification is a way of grouping job types. It is broken down into three areas: major groups, minor groups and constituent unit groups. The SOC system classifies jobs by their skill level and skill content, encompassing the qualifications, training and work experience required to be competent to perform tasks associated with that job.

### **Strategic Environmental Assessment (SEA)**

Strategic Environmental Assessment is a process to ensure that significant environmental effects arising from policies, plans and programmes are identified, assessed, mitigated, communicated to decision makers, monitored, and that opportunities for public involvement are provided. The SEA Regulations require that Statutory Consultation Bodies be consulted. These are the Countryside Agency, English Heritage, English Nature and the Environment Agency

### **Super Output Area (SOA)**

See Census Output Areas (OAs).

### **Three Cities sub-region**

An area centred around Derby, Leicestershire and Nottingham. It is made up of Derby City Unitary Authority, South Derbyshire district, Erewash district; all districts in Leicestershire county, except Melton district and Rutland Unitary Authority; Nottingham Unitary Authority, Gedling district, Broxtowe district and Rushcliffe district.

### **Total Factor Productivity (TFP)**

Total Factor Productivity is the contribution of residual factors to total productivity after the contributions of capital and labour have been accounted for. This residual covers factors such as skills, technology, organisation, competition and economies of scale, but is very difficult to measure.

### **Transport Innovation Fund (TIF)**

Launched by the Government in 2004/05, the Transport Innovation Fund has two elements: Congestion TIF and Productivity TIF. The former will see Local Authorities or groups of Authorities bidding for funding to explore demand management and road user charging schemes in the region to help reduce congestion. The latter, which accounts for the majority of TIF monies over the next decade, will see the Department for Transport identify and help fund transport schemes which will contribute to national productivity.

### **UK Commission for Employment and Skills (UKCES)**

Established by Government in April 2008, the UK Commission for Employment and Skills is a key recommendation in [Lord Leitch's 2006 review of skills](#). The UK Commission was originally created by the merger of two predecessor organisations, the Sector Skills Development Agency and the National Employer Panel.

### **Unemployment rate**

The preferred measure of unemployment, based on the International Labour Organisation (ILO) definition, is the proportion of economically active people of working age who are not currently in employment but are seeking and available for work. This measure is less affected by changes to the benefit system.

### **Unitary Authority (UA)**

Unitary authorities (UAs) are areas with a single tier of local government (as opposed to the two-tier county : district structure.) In practice the term is only applied to the 22 UAs established across the whole of Wales in 1996 and the 46 UAs established in parts of England between 1995 and 1998. There are 4 Unitary Authorities within the East Midlands (Derby, Leicester, Nottingham and Rutland.)

### **Valuation Office Agency (VOA)**

An executive agency of HM Revenue and Customs. Its main functions are to compile and maintain the business rating and council tax valuation lists for England and Wales; to value property in England, Wales and Scotland for tax purposes; to provide statutory and non-statutory property valuation services in England, Wales and Scotland; and to give policy advice to Ministers on property valuation matters.

### **VAT registered business**

As of April 2005, a business is required to register for VAT when it has a turnover of more than £60,000. VAT data is commonly expressed as either the stock of VAT registered businesses in a given area, or as a 'registration rate'. This is expressed as the number of VAT registered businesses per 10,000 resident population in a given area.

### **Venture capital**

Resource that is available for investment in new enterprises.

**Waste recovery**

A broad term to describe the process by which waste is converted either into a usable form (through recycling or composting, for example) or energy is derived from the waste.

**Young People's Learning Agency (YPLA)**

The YPLA was established by the Apprenticeships, Skills, Children and Learning Act 2009 and launched in April 2010. The YPLA is responsible for planning, allocating and funding education and training for all 16 - 19 year olds in England.

## Acronyms

<b>ALMO</b>	Arms Length Management Organisation
<b>AMM</b>	Abandoned Mine Methane
<b>AONB</b>	Area of Outstanding Natural Beauty
<b>APS</b>	Annual Population Survey
<b>AQS</b>	Air Quality Strategy
<b>ASHE</b>	Annual Survey of Hours and Earnings
<b>BERD</b>	Business Enterprise Research & Development
<b>BGS</b>	British Geological Survey
<b>BRE</b>	Building Research Establishment
<b>BTEC</b>	Business and Technician Education Council
<b>BVCA</b>	British Venture Capital Association
<b>CABE</b>	Commission for Architecture and the Built Environment
<b>CBI</b>	Confederation of British Industry
<b>CBM</b>	Coal Bed Methane
<b>CCS</b>	Carbon Capture and Storage
<b>CET</b>	Central England Temperatures
<b>C&amp;D</b>	Construction and Demolition
<b>CFTE</b>	Completion of Full-Time Education
<b>CHP</b>	Combined Heat and Power
<b>CLG</b>	(The Department of) Communities and Local Government
<b>CMM</b>	Coal Mine Methane
<b>CSR</b>	Comprehensive Spending Review
<b>DASR</b>	Direct age-standardised mortality rate
<b>DBFO</b>	Design, Build, Finance and Operate
<b>DCMS</b>	Department for Culture, Media and Sport
<b>DDA</b>	Disability Discrimination Act
<b>DECC</b>	Department for Energy and Climate Change
<b>DEFRA</b>	Department for Environment, Food and Rural Affairs
<b>DfES</b>	Department for Education and Skills
<b>DfT</b>	Department for Transport
<b>DLA</b>	Disability Living Allowance
<b>DSL</b>	Digital Subscriber Lines
<b>DTI</b>	Department of Trade and Industry
<b>DWP</b>	Department for Work and Pensions
<b>EA</b>	Environment Agency
<b>EEA</b>	European Economic Area
<b>EHCS</b>	English Housing Conditions Survey
<b>EMRA</b>	East Midlands Regional Assembly
<b>ESRC</b>	Economic and Social Research Council
<b>ETI</b>	Energy Technologies Institute
<b>ETPs</b>	Employer Training Pilots
<b>EU</b>	European Union
<b>ELC</b>	European Landscape Convention
<b>EMPHO</b>	East Midlands Public Health Observatory
<b>EMRLCA</b>	East Midlands Regional Landscape Classification Assessment

<b>ESA</b>	Employment and Support Allowance
<b>FACS</b>	Families and Children Study
<b>FBA</b>	Furnace Bottom Ash
<b>FGD</b>	Flue Gas Desulphurisation
<b>FTE</b>	Full-time equivalent employment
<b>GCSE</b>	General Certificate of Secondary Education
<b>GIS</b>	Geographical Information System
<b>GDP</b>	Gross Domestic Product
<b>GEM</b>	Global Entrepreneurship Monitor
<b>GNVQ</b>	General National Vocational Qualification
<b>GOEM</b>	Government Office for the East Midlands
<b>GQA</b>	General Quality Assessment
<b>GVA</b>	Gross Value Added
<b>GW</b>	Giga Watts
<b>GWP</b>	Global Warming Potential
<b>HA</b>	Housing Association
<b>HBAI</b>	Household Below Average Income
<b>HCA</b>	Homes and Communities Agency
<b>HMA</b>	Housing Market Area
<b>HMT</b>	Her Majesty's Treasury
<b>HND</b>	Higher National Diploma
<b>HRP</b>	Household Reference Person
<b>HSE</b>	Health Survey for England
<b>IB</b>	Incapacity Benefit
<b>ICT</b>	Information and Communications Technology
<b>IEA</b>	International Energy Authority
<b>IER</b>	Institute of Employment Research
<b>ILO</b>	International Labour Organisation
<b>IMC</b>	International Mining Consultants
<b>IMD</b>	Index of Multiple Deprivation
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IPPR</b>	Institute of Public Policy Research
<b>IS</b>	Income Support
<b>JSA</b>	Jobseeker's Allowance
<b>kW</b>	kilo Watt
<b>kWh</b>	kilo Watt hour
<b>LAA</b>	Local Area Agreement
<b>LAD</b>	Local Authority District
<b>LDCs</b>	Least Developed Countries
<b>LDED</b>	Local Democracy, Economic Development and Construction Act
<b>LFS</b>	Labour Force Survey
<b>LSC</b>	Learning and Skills Council
<b>LSOA</b>	Lower Super Output Area
<b>LSVT</b>	Large Scale Voluntary Transfer
<b>MFP</b>	Multi-Factor Productivity
<b>MKSM</b>	Milton Keynes South Midlands
<b>MPAN</b>	Meter Point Administration Number
<b>MW</b>	Mega Watts
<b>MYE</b>	Mid-Year Population Estimates

<b>NALS</b>	National Adult Learning Survey
<b>NASA</b>	North American Space Agency
<b>NEET</b>	Not in Education, Employment or Training
<b>NEMA</b>	Nottingham East Midlands Airport
<b>NESS</b>	National Employer Skills Survey
<b>NET</b>	Nottingham Express Transit
<b>NHPAU</b>	National Housing and Planning Advice Unit
<b>NI</b>	National Indicator
<b>NIESR</b>	National Institute of Economic and Social Research
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NUTS</b>	Nomenclature of Units for Territorial Statistics
<b>NVQ</b>	National Vocational Qualification
<b>NVZ</b>	Nitrate Vulnerable Zone
<b>OA</b>	Output Area (Census)
<b>ODPM</b>	Office of the Deputy Prime Minister
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>ONS</b>	Office for National Statistics
<b>PDNA</b>	Peak District National Park Area
<b>PFA</b>	Pulverised Fuel Ash
<b>PFI</b>	Private Finance Initiative
<b>PSA</b>	Public Service Agreement
<b>ppb</b>	Parts per billion
<b>PPG</b>	Planning Policy Guidance
<b>PPS</b>	Planning Policy Statement
<b>PSA</b>	Public Service Agreement
<b>QUELS</b>	Quality of Employment Land Supply Study
<b>R&amp;D</b>	Research and Development
<b>RCI</b>	Regional Competitiveness Indicator
<b>RDP</b>	Residential Delivery Point
<b>RELPS</b>	Regional Employment Land Priorities Study
<b>RES</b>	Regional Economic Strategy
<b>R-ISEW</b>	Regional Index of Sustainable Economic Well-being
<b>ROC</b>	Renewable Obligation Certificate
<b>RSL</b>	Registered Social Landlord
<b>RSPB</b>	Royal Society for the Protection of Birds
<b>RSS</b>	Regional Spatial Strategy
<b>SAP</b>	Standard Assessment Procedure
<b>SCP</b>	Sustainable Communities Plan
<b>SDA</b>	Severe Disablement Allowance
<b>SEA</b>	Strategic Environmental Assessment
<b>SEN</b>	Special Educational Need
<b>SHE</b>	Survey of English Housing
<b>SIDs</b>	Small Island States
<b>SIM</b>	Scenario Impact Model
<b>SMEs</b>	Small and Medium-Sized Enterprises
<b>SNPP</b>	Sub-National Population Projections
<b>SOA</b>	Super Output Area
<b>SOC</b>	Standard Occupational Classification
<b>SSC</b>	Sector Skills Council

<b>SSP</b>	Sub-regional Strategic Partnerships
<b>SSSI</b>	Site of Special Scientific Interest
<b>SSVs</b>	Skills Shortage Vacancies
<b>TEA</b>	Total Entrepreneurial Activity
<b>TFP</b>	Total Factor Productivity
<b>TIF</b>	Transport Innovation Fund
<b>TSA</b>	Tenant Services Authority
<b>TSO</b>	The Stationery Office
<b>UA</b>	Unitary Authority
<b>UCG</b>	Underground Coal Gasification
<b>UKCES</b>	UK Commission for Employment and Skills
<b>UKCP09</b>	UK Climate Projections 2009
<b>UN</b>	United Nations
<b>UNFCC</b>	United Nations Framework Convention on Climate Change
<b>UPS</b>	United Parcel Service
<b>VAT</b>	Value Added Tax
<b>WBL</b>	Work Based Learning
<b>WRAP</b>	Waste and Resources Action Programme