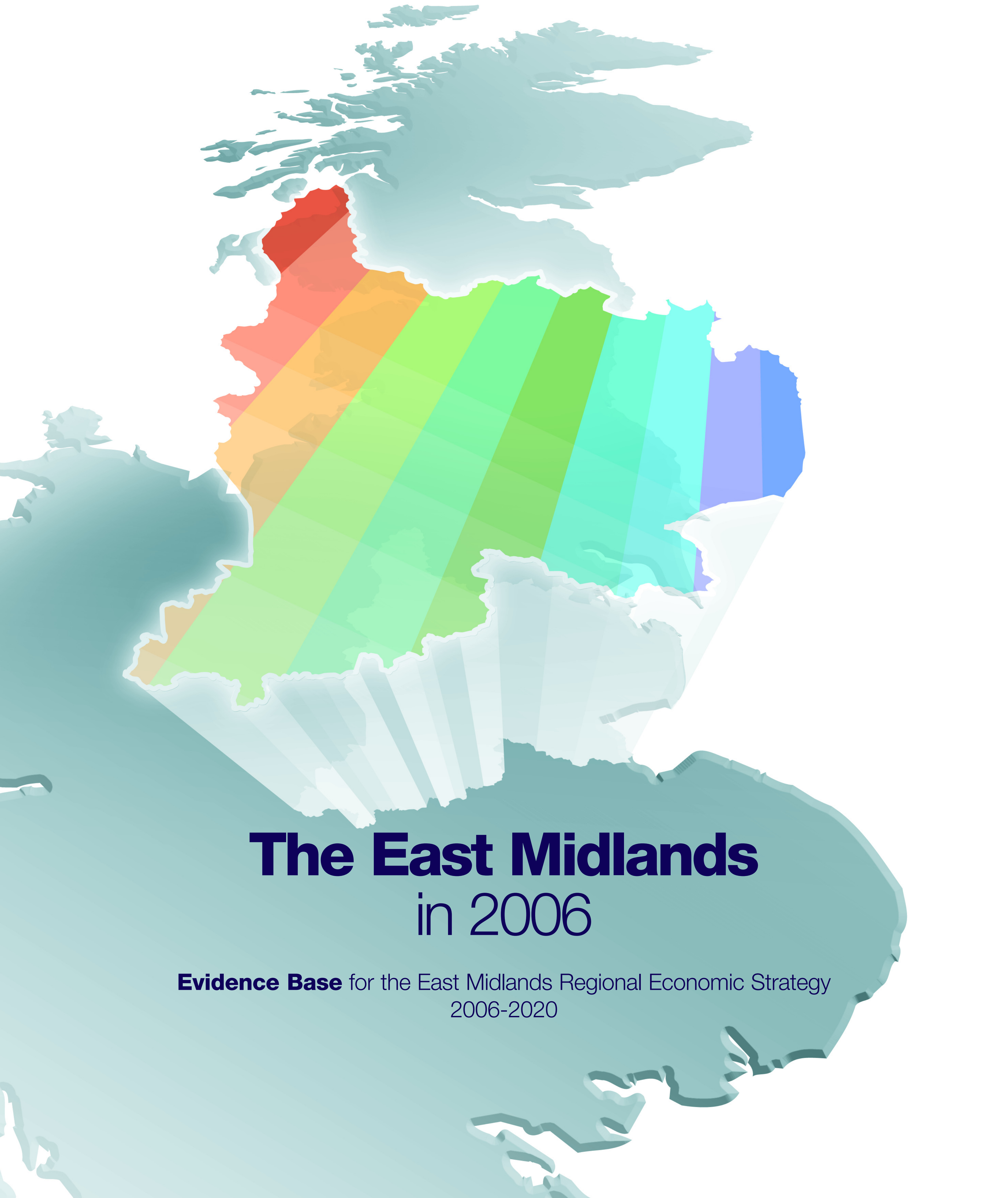
The East Midlands in 2006

Executive Summary & Introduction

A report prepared by *emda*

2006

east midlands development agency



The East Midlands in 2006

Evidence Base for the East Midlands Regional Economic Strategy 2006-2020

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East Midlands Development Agency *(emda)* would like to acknowledge the contribution of the following organisations to the development of The East Midlands in 2006:

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Foreword

I am delighted to introduce "The East Midlands in 2006", the comprehensive evidence base which supports and informs the new Regional Economic Strategy (RES). It demonstrates with great clarity the importance of the three structural themes at the heart of the Strategy: raising productivity, ensuring sustainability and achieving equality. It also provides a robust baseline against which we can measure our progress towards the ambitious 'flourishing region' vision set out in the RES.

The time, effort and resource devoted to the development of this evidence base by East Midlands Development Agency *(emda)* and our partners over the last 18 months provides a very clear demonstration of our collective commitment to evidence based policy making in the East Midlands. Production of a body of evidence of this scale would not have been possible without the many contributions received from partners within the region and the academic research community in general.

I would like to extend my thanks to all of the organisations and individuals that have contributed to its development.

At the launch of the East Midlands RES Review in May 2005, John Healey MP, Financial Secretary to the Treasury, set out his view on the importance of a sound evidence base:

the credibility of the RES will be *"reinforced if it is underpinned by sound evidence...and in return, regions will get a stronger voice in future spending decisions… A good evidence base for a good Regional Economic Strategy will include trend data on regional growth, it will include projections and patterns of public spending in the region, it will include labour market data that is rich and also includes inactivity and it will include information on the key drivers of growth and of productivity, skill levels, business investment levels, R&D…*[1]*"*

I am confident this evidence base has fulfilled and surpassed these requirements.

Dr Bryan Jackson OBE
Chairman
East Midlands Development Agency

[1] John Healey MP, Financial Secretary to the Treasury, speaking at launch of the *East Midlands RES Review*, 24 May 2005, Nottingham

Introduction

The East Midlands in 2006 is the Evidence Base that has been produced to underpin the development of the East Midlands Regional Economic Strategy (RES). It presents a statistical portrait of the East Midlands that has informed the identification of key challenges that the RES must address in order to create and sustain a 'flourishing region'. The East Midlands in 2006 reflects the latest available official data and also feedback received from partners and stakeholders during the RES consultation and in response to the publication of the Interim Evidence Base in September 2005. This Evidence Base has been subject to peer review by independent academics and a sounding group comprised of regional and national stakeholders.

In developing this 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 the coherent regional picture necessary to inform the RES and satisfying legitimate demands for local detail. The editorial stance taken in the preparation of this report has been to provide the level of sub-regional data necessary to 'tell the regional story' – considerations of space and utility prevent us from presenting every indicator used for all local areas. In practice this has meant that for many of the indicators used, we present the regional position and then highlight the extremes of sub-regional performance – good and bad. In parallel with the preparation of this report, *emda* has developed an on-line data tool in partnership with the Lincolnshire Research Observatory. This tool, accessible from **www.emintelligence.com**, is intended to complement the analysis presented in this report by providing flexible access to many of the datasets utilised in the preparation of this report for a variety of sub-regional geographic areas.

In addition to the statistical portrait of the region presented in East Midlands in 2006 and also available from **www.emintelligence.com**, *emda* has published a compendium of 'policy think pieces' commissioned from a range of independent academic experts. No attempt is made to summarise these papers here, although they have been referenced throughout this report in order to support our analysis of the region. The views expressed in these papers are those of their authors and do not necessarily represent the views of *emda* or other regional organisations. They address key themes relevant to the RES and were used to stimulate discussion of possible priorities and actions for inclusion in the RES during the development process. Collectively these papers have made an influential contribution to the development of evidence based RES policy.

In light of the complex and interrelated economic, social and environmental challenges that the region will face during the lifetime of the RES, this report is necessarily broad in its scope. Some elements of this report provide 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 economic wellbeing and quality of life.

In Section 1 – The demography of the East Midlands, we describe the demographic characteristics of the East Midlands addressing age, ethnicity, gender, migration and health. We then assess population trends and consider future population projections. A principal policy concern to emerge from this analysis is the impact of demographic ageing – total dependency ratios are increasing with major implications for service provision and economic participation.

In Section 2 – Economy and productivity, we use the Government's 'Five Drivers of Productivity' framework to assess the performance of the East Midlands Economy. We also examine the region's industrial structure and present a number of independently produced scenarios for the future development of the East Midlands economy over the next 10 years. The productivity of the East Midlands economy still lags that of the UK, albeit the gap has closed in recent years. The East Midlands has both strengths and weaknesses across the Drivers of Productivity and many of these are interrelated. We also highlight the importance of sectorally targeted intervention if the productivity gap is to be closed.

In Section 3 – The East Midlands labour market, we present a detailed analysis of employment and skills and their contribution to productivity. This section confirms that the region exhibits the characteristics of a 'low pay low skill equilibrium', with low aggregate demand for skills coupled with high employment rates. These high employment rates suggest that getting more people into work is unlikely to drive future productivity growth – the challenge is much more one of improving the quality of employment in the region.

In Section 4 – Deprivation and economic inclusion in the East Midlands, we assess the nature and extent of deprivation within the region and consider a range of factors relating to economic inclusion. Relative deprivation tends to be concentrated in the urban areas, coalfields and the Lincolnshire Coast. Pockets of deprivation exist alongside relative affluence in many parts of the region.

In Section 5 – Transport, infrastructure and development, we cover transport and communications, land use and housing. We highlight the importance of good quality infrastructure – including transport links, employment land and the built environment – to the efficient operation of a regional economy. Notable trends in the East Midlands include a greater reliance on car travel and less use of public transport than in other regions; a forecast decline in demand for industrial floorspace and growth in demand for office floorspace in the region; and a higher than average increase in house prices, yet a relatively low proportion of affordable new homes.

In Section 6 – The East Midlands environment, we focus on some of the relationships that exist between economic development and the environment, looking at the way in which the environment is both affected by and affects society and economic activity. Topics covered include climate change and its impact on the East Midlands; energy production; waste generation and treatment; water supply and flood risk; the economic importance of the region's exceptionally rich geology; and the decline in biodiversity and landscape quality in some parts of the region.

The full RES Evidence Base, including The East Midlands in 2006, can be downloaded from **www.emintelligence.com**

Executive summary

Executive summary

The demography of the East Midlands

1. Introduction

This section of the Evidence Base provides a portrait of the demographic characteristics of the East Midlands region. It comments on population structure in terms of age, gender and ethnicity, and analyses historic trends and forecast population growth.

2. Population structure

The population of the East Midlands, totalling 4.3 million people, is similar in structure to the English average. Eighteen percent of East Midlands residents are in the school age group, 63.1% are in the working age group and 18.9% are of pensionable age.

There are distinct differences within the region. The south of the region and the main towns and cities have higher proportions of the population in the working age group, whilst the more rural parts of the region have higher proportions in the pensionable age group.

The proportion of people who identified themselves as belonging to an ethnic minority group in the 2001 Census was lower in the East Midlands than the English average, at 9% compared to 13%.

3. Population living in urban and rural areas

The East Midlands is the third most rural region in England, with 29.5% of the total population resident in rural settlements, over 10 percentage points higher than the English average of 19.4%.

Almost 70% of people in the East Midlands live in settlements of greater than 10,000 people. This is lower than the English average.

4. Population trends

Between 1994 and 2004, the East Midlands population grew at a greater rate than the English average, increasing by 5.1% compared to 3.9%. This growth significantly exceeded that of the other northern and midlands regions, but was less than the growth in southern regions.

The 8.8% growth in the pensionable age group in the East Midlands was the second largest of all regions, behind the East of England. The working age group in the region also grew at an above average rate.

Sub-regionally, Rutland experienced the largest population growth in this period, whilst both Nottingham and Leicester Cities experienced overall population decline.

Projections suggest that the East Midlands population will reach 4.8 million by 2028, and will continue to grow at a greater rate than the English average, increasing by 13%, compared to 11% in England.

The East Midlands is projected to experience the greatest increase in the pensionable age group of all English regions – a growth of 63.4% between 2003 and 2028. It is also the only region in the north and midlands projected to experience growth in its working age group. These projections suggest that the age profile of the East Midlands will move away from the English average towards an older population profile.

The growth in the pensionable age group will drive a considerable increase in total dependency ratios, which will increase from close to the English average in 2003 to significantly above the average in 2028, particularly in Lincolnshire.

5. Components of population change

Between 1997 and 2003, 84% of the population growth seen in the East Midlands was due to migration, compared to an English average of 56%. However, in the twelve months prior to the 2001 Census, only 12% of East Midlands residents had moved, most of whom had moved within the region.

The total number of live births to mothers resident in the East Midlands in 2003 fell from the 1997 level, with women in the region now choosing to have children later. The number of deaths has remained stable between 1997 and 2003.

6. Milton Keynes South Midlands (MKSM)

Large scale housing developments associated with the MKSM Growth Area are expected to have a considerable impact on the East Midlands population, especially in Northamptonshire. By 2021, it is proposed that some 169,800 new homes will have been built in the Growth Area in addition to housing development already planned in affected regions.

7. Transitory and migrant populations

The ODPM Caravan count, used to estimate the number of travellers, found that there were 1,365 caravans in the East Midlands in January 2005, which is equivalent to 3.2 caravans per 10,000 people – similar to the English average.

Trends in work permits for migrants from non-European Economic Area countries suggest that there has been an increasing demand for migrant labour in recent years. Applications for work permits increased by 42% between 1999 and 2000. The greatest numbers of permits issued were in the health and medical sectors, computer services, and business services. Evidence suggests that migrants fill shortages at either end of the occupational spectrum. Skilled migrants fill vacancies in health, computer services and education, whilst lower skilled economic migrants play an important role in addressing shortages in unskilled, temporary and casual employment in the agricultural and hospitality sectors.

People who were not born in the UK make up 6.2% of the population of the East Midlands, compared to 8.9% in the UK. However, the non-UK born population makes up a larger proportion of the working age population, at 7.3%. Leicester City accounts for the largest proportion of the East Midlands population who were not born in the UK, whilst Derbyshire has the lowest proportion.

8. Health, disability and physical exercise

East Midlands residents have slightly poorer health than average, with 68% reporting themselves as having good health compared to 69% in England. The proportion of the population who reported their health as ‘not good’ was higher in the coalfields and the Lincolnshire coast, and lower in the south of the region. The proportion of residents with a limiting long term illness is also higher in the East Midlands, at 18.4% compared to 17.9% in England.

The East Midlands has the highest proportion of adults classed as obese of all English regions, at 24.8% compared to an English average of 21.4%. This is particularly high for women, at 26.3%. In the East Midlands, as in England, the proportion of adults participating in sport at least once in the four weeks prior to interview fell between 1996 and 2002.

More people over 50 in the East Midlands than in England felt that their health often impinged upon their life, at 17% compared to 14%.

The East Midlands has higher levels of mortality due to circulatory diseases, accidents and suicides than the English average, but levels of mortality due to cancer are lower than average.

Economy and productivity

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 a number of scenarios for the next ten years.

2. Productivity

Despite making progress during the last decade, there is still a productivity gap between the UK and its major competitors in the developed world, where output per hour worked is significantly greater than in the UK.

There are significant differences in productivity within the UK. In 2004 output per hour worked in the East Midlands was 98.5% of the UK average, and the gap has been closing since 1999. This means that the East Midlands is ranked fourth among the English regions, behind London, the South East and East of England.

3. Drivers of productivity

The Government has identified five drivers of productivity: investment, innovation, skills, enterprise and competition. Skills is covered in the following section, '*The Labour Market*'.

Investment

Levels of investment by companies in the East Midlands are lower than average and there is a distinct sectoral split: investment by manufacturing companies is above average but is relatively low in the service sector. This is a source of concern given that growth is forcast to be fastest in the service sector during the next decade.

Innovation

Innovation can be described as the successful exploitation of new ideas – either new products or new processes. The available data paints something of a mixed picture for the East Midlands. Levels of research and development (R&D) are relatively high but appear to be concentrated in a small number of large global R&D intensive companies, and there is a long tail of companies who undertake very little or no R&D. Government and higher education funded R&D is relatively low in the East Midlands.

In addition, the proportion of turnover attributed to new or improved products is below average in the region.

Enterprise

As well as start up activity, enterprise can take place within existing businesses. Levels of total entrepreneurial activity in the region have increased since 2002, while the VAT business registration rate, though increasing, remains below the UK average. The East Midlands has improved its relative position in recent years.

Competition

The more efficient regulatory systems are and the stronger the competition regime, the more efficiently the economy works. Exporters will be more exposed to competitive pressures, and the data suggest that in the East Midlands exports account for a greater share of economic output than any other English region apart from the North East.

The East Midlands has areas of strength and weakness across these drivers of productivity. Because of the complex linkages between the individual drivers, regional policy aimed at any one will impact on all.

4. Industrial structure of the East Midlands

There were over 125,000 VAT registered businesses in the East Midlands at the beginning of 2005. The VAT registered business stock has increased by around one eighth between 1994 and 2005. There has been a decline in the number of businesses in production activities and an increase in the number of businesses in the service sector during this period.

The data show that the manufacturing sector in the East Midlands accounts for 23.2% of economic output, which is well in excess of the UK average of 15.9%. Key manufacturing sub-sectors in the region include Food & Drink and Transport Equipment. The service sector is correspondingly smaller than average. The Business Services sub-sector does, however, account for a tenth of economic output in the region.

There are a number of sectors in the region with productivity levels above the UK average. These include: Agriculture, Forestry & Fishing, Minerals, Metals, Transport Equipment, Food & Drink, Construction, Wholesaling and Hotels & Catering.

Based on a number of criteria the new RES has identified Transport Equipment, Food & Drink, Construction and Health as priority sectors in the East Midlands.

5. Future prospects for the East Midlands economy

Our base scenario is for economic growth in the East Midlands of an average of 2.6%pa for the period 2004-14, which is in line with the UK average.

Employment growth is expected to be 0.4%pa during the same period, also in line with the UK average. The fastest growing regions in the country are expected to be London, the South East and the East of England.

There are a number of risks to this baseline. In our downside macroeconomic scenario, which is based on an oil price spike of $90 per barrel in 2006, economic growth would fall to just 0.9% in the short term in the East Midlands before increasing towards the baseline figure in the long term. This would lead to a significant loss of potential output and would have a significant impact on the labour market – a reflection of the industrial base of the East Midlands economy.

Our upside macroeconomic scenario, which is based on continuing strong growth in the USA, would be for growth of 3.4% in 2005/06 before converging on the baseline in the longer term. There would be additions to potential output and employment under this scenario but these would not be of the same magnitude as the losses under the downside scenario.

Our RES ‘policy on’ scenario, which is based on full implementation of the MKSM growth area plan and the East Midlands achieving UK levels of productivity during the lifetime of the new RES, suggests economic growth of 2.8%pa for the period 2004-14. This is 0.2 percentage points per annum above the baseline scenario.

Significant differences are forecast by sector in the region. The fastest growing sectors in the region are expected to be: Communications, Business Services, Electrical & Optical Equipment, Health, and Banking & Insurance. The slowest growing sectors in the region are forecast to be: Textiles & Clothing, Fuel Refining, Wood & Wood Products, Other Mining and Paper, Printing & Publishing.

The East Midlands labour market

1. Introduction

This section assesses the labour market in the East Midlands, with a particular focus on skills as a driver of productivity. It concentrates on the labour force, represented either by the economically active population or those in employment.

2. The international context

Employment rates in the UK currently exceed those of the USA, Japan, France and Germany. However, the UK lags its international competitors on measures of productivity and workforce skills. The high rates of employment in the UK mean that there is little room to improve future economic performance simply by getting more people into work. Hence improving the quality of employment and productivity is central to driving future growth.

3. Employment in the East Midlands

Employment rates in the East Midlands have remained very stable since 1999, and have consistently exceeded the national average. In 2004, 75.4% of the working age population in the East Midlands was in employment, compared to 74.2% in the UK. The region has the fourth highest employment rate out of the nine English regions. Unemployment remains below the UK average, at 4.3% compared to 4.9% in 2004.

However, there are substantial sub-regional variations. Employment tends to be lower in the cities and higher in rural areas and in the south of the region. However, these broad trends mask areas of deprivation in rural areas associated with remote rurality and dependence on weak local labour markets, such as East Lindsey.

Women make up a slightly larger proportion of employment in the East Midlands than in the UK, at 46.7% compared to 46.5%, and this is forecast to remain the case to 2014. The proportion of employees working part-time is projected to increase by 2014.

4. Skills and qualifications

The East Midlands can be described as being in a ‘low pay low skill equilibrium’, with a lower than average proportion of the workforce possessing higher level qualifications and an above average proportion with no qualifications. The region compares far better on measures of intermediate skills, being at or above the UK average in Level 2 and Level 3 qualifications.

However, there is evidence of a lower level of demand from employers for qualifications at an intermediate level, pointing to an increased polarisation in the skills required from the workforce.

Sub-regionally, rural districts have significantly higher proportions of adults with higher level qualifications and lower proportions with no qualifications than urban districts. However, these headline figures mask pockets of low skills in rural areas.

The older age groups in the workforce are significantly more likely to have no qualifications than in the UK. This is a key concern, as forecast data suggests that 80% of the workforce needed in 2012 is already in employment, meaning that a substantial number of older workers with no qualifications will remain in employment over the next decade.

5. Occupational structure of employment

The occupational structure of employment in the East Midlands is more heavily weighted towards lower tier occupations, requiring few or no qualifications, and comparatively under-represented in higher tier occupations, usually requiring higher level qualifications. The occupational structure of employment has shifted significantly in the region, reflecting the decline of primary and manufacturing sectors across the UK and the shift to more service orientated activities.

The East Midlands is forecast to remain comparatively more reliant on lower tier occupations than elsewhere in the UK, despite some growth in higher tier occupations. Employment in the Skilled Trades will decline markedly between 2004 and 2014, whilst by far the greatest growth will be in Personal Service Occupations. These trends suggest that the East Midlands skills profile could become more polarised in the future.

6. Employer demand for skills

The East Midlands has a lower than average proportion of total employment in the most knowledge intensive 'K1' sectors (employing more than 40% graduates) and one of the highest shares of employment in 'K4' sectors (employing less than 15% graduates). Knowledge intensive employment is more concentrated in the public sector than in other regions, whilst private sector demand for higher level skills appears weak when compared to other regions.

Over half of all the skills gaps identified by East Midlands employers amongst their current staff were in three lower tier occupations: Elementary Occupations; Process, Plant and Machine Operatives; and Sales and Customer Service Occupations. Additionally, employers reported that over two thirds of managers in the East Midlands lack management skills, which is more than double the English average. However, East Midlands employers were more likely to look to recruitment to address their skills problems than to invest in training their current staff, particularly in lower tier occupations. Survey data suggests that much training is either exclusively related to specific aspects of the trainee's current job or is statutory health and safety training, rather than training in transferable skills.

7. Earnings

Median earnings for people working in the East Midlands were 6.6% less than the UK median in 2005, at £17,713 a year compared to £18,961. Additionally, the difference between male and female earnings was greater in the East Midlands than in any other English region. Earnings are less dispersed in the East Midlands than in the UK, but this is principally due to more depressed earnings at the top end of the scale.

Residents in the East Midlands are paid more on average than those who work in the region, suggesting that many higher paid workers commute to work outside the region. However, the earnings of those living in urban areas are below the earnings of those working in urban areas.

8. Policy implications

The analysis of the East Midlands labour market supports the view that the 'low pay low skill equilibrium' persists, with a low demand for skills coupled with high employment rates. A ready supply of workers with few or no qualifications enables some businesses in the region to maintain a competitive strategy on the basis of low cost. The consequence of this is a less productive, less innovative regional economy, employing lower paid, lower skilled workers. Therefore, the problem in the East Midlands is not so much one of low levels of qualifications in the labour force, but the low level of demand for skills from employers. This is a function of the markets in which many East Midlands businesses operate, and the business models and competitive strategies adopted.

Deprivation and economic inclusion in the East Midlands

1. Introduction

This section of the evidence base assesses deprivation, economic participation and economic inclusion in the East Midlands. Many parts of the East Midlands can be described as being in a state of full employment or near full employment, but there are communities that still suffer from unemployment and poverty.

2. Deprivation in the East Midlands

The most severe levels of multiple deprivation in the East Midlands are to be found in the region's major urban centres, the coalfields area and in some of the remote rural areas of the region, such as the Lincolnshire coast. In very general terms there is a north-south split within the region, with lower levels of deprivation in the south than the north. However the district based analysis hides the fact that pockets of great prosperity and severe deprivation exist side by side in many parts of the region.

3. Labour market participation in the East Midlands

Although levels of economic activity and employment rates in the East Midlands are above the national average, and unemployment rates below average, there are a number of groups who do not participate fully in the labour market. Economic activity and employment rates tend to be lower than average among those with a disability, those from ethnic minority groups, those aged 50 or above and women. There is also a spatial dimension, whereby levels of participation are lower than the regional average among residents of the region's major urban centres.

Levels of unemployment are generally low in the East Midlands, but tend to be above average among those with disabilities, those from ethnic minority groups and those aged between 16 and 24. A number of people have also been identified as 'hidden' unemployed – those individuals who, despite being willing and able to work, have moved onto other benefits or out of the benefits system. Levels of hidden unemployment are estimated to be highest in the coalfields area of the region.

Large numbers of benefit claimants can be an indicator of low levels of income and low levels of economic activity. The proportion of benefit claimants in the East Midlands tends to be below the national average. It should be noted that benefits generally account for a greater proportion of income among women than men.

4. Barriers to participation and economic inclusion

There are a range of barriers to participation and economic inclusion, and these include access to and take up of learning opportunities, access to childcare provision, and access to services in the remote rural parts of the region, such as parts of Lincolnshire and the Peak District. These barriers may be similar in all parts of the region, whilst others may be more location specific. It should also be noted that many individuals face multiple barriers to participation.

Official data on adult learning is limited but shows that levels of adult learning in the East Midlands are below the UK average. Men and those with a disability are less likely to participate.

There is a concern with the costs of childcare in the East Midlands, and one in eight parents cite the availability of childcare as a barrier to employment. Almost two fifths of workers in the East Midlands have access to some sort of flexible working arrangement. These arrangements are regarded in a positive manner by employers, who see the benefits in terms of a happier workforce, higher retention and lower levels of staff turnover.

Transport, infrastructure and development

1. Introduction

This chapter of the Evidence Base covers transport and communications, land use and housing, highlighting how the efficient operation of the regional economy depends on the provision of good quality infrastructure – including transport links, employment land, and the built environment. The location choices of firms and households are often largely determined by access to transport links, cost and ease of transport, and availability of property, whether housing or business premises.

2. Construction

A proxy for the value of transport and infrastructure activity is the value of construction contractors' output. The total value of all construction undertaken in the East Midlands in 2004 was £7,030 million – more than double the figure for 1994.

3. Transport and communications

Traffic growth in the East Midlands has been higher than average – increasing by 25.4% between 1994 and 2004. People in the region also rely more on private transport than in other regions. Work and business related journeys account for less than 20% of all trips undertaken in the region.

In 2003-2004, £464.7 million was spent on roads in the East Midlands. The proportion of expenditure on local roads, motorways and trunk roads is higher than for England as a whole.

The number of bus and light rail journeys declined by approximately 2.5% in the East Midlands in the decade to 2005, while there was an increase in England as a whole. However, the East Midlands had one of the highest regional growth rates for rail patronage. In addition, 47% of all train journeys originating in the East Midlands are to a destination in the region.

The number of people killed or seriously injured on East Midlands roads between 1994 and 2004 declined from 3,905 to 2,970 – a reduction of over 23%. Traffic speeds in the East Midlands are higher than the average for England during the morning and evening peaks, suggesting that congestion is less of a problem in the region. Congestion is a particular problem for the urban areas of the East Midlands, while in rural areas limited accessibility to key services is of more concern.

The East Midlands is an attractive location for distribution activity, with a number of key infrastructural assets – such as the M1 and Nottingham East Midlands Airport (NEMA). Freight lifted by road increased by 4.2% between 1994 and 2004 (significantly less than the average for England) and more than half of this freight was transported within the region.

At NEMA there has been a substantial increase in both the number of air transport movements and passenger traffic in the last decade. NEMA's share of total air freight in England also increased, from 3.6% to 11.2% over the decade 1994-2004. The airport specialises in express freight movements.

Approximately 93% of residential delivery points in the East Midlands can receive broadband, although the proportions are much lower in rural areas.

4. Land and property

Changes in floorspace indicate that there has been a movement away from larger to smaller factories in the East Midlands, while retail outlets have tended to become larger. The number of offices has increased, as has the amount of floorspace they occupy. Rental values for industrial units have increased in most parts of the region since 2001, as have rental values for retail premises, which are significantly higher than for industrial units.

It is forecast that there will be a decline in demand for industrial floorspace, and a significant increase in demand for office floorspace in the East Midlands over the 10-15 years from 2002. In 2003/04, over 3000 hectares of land in the region had been committed for employment purposes, of which just over two thirds was greenfield land.

Many new and early-stage businesses make use of incubator accommodation and small workshop premises in the East Midlands, often with public sector support. Once fully operational, most firms' property requirements can be met by the market either within second hand or newly built accommodation.

Key sectors within the regional economy have particular employment land requirements. Aerospace companies are currently constrained by a restricted supply of suitable employment land. In the food and drink sector, early stage producers are restricted by the fact that basic start-up accommodation often does not meet the high standards of hygiene and cleanliness required by the industry. Incubation and innovation centres play an important role in the healthcare sector. BioCity in Nottingham is the UK's largest such centre for bioscience.

5. Housing

The average house price in the region has almost doubled over the past five years, from £79,085 to £155,286 – a much higher rate of increase than in England and Wales as a whole. Average house prices in Rutland are by far the highest in the East Midlands, while the lowest are in Nottingham City. Houses in the region are somewhat more affordable than nationally: the average house price to income ratio in the East Midlands in 2004 was 7.2, compared to 7.9 in England as a whole.

The number of residences in the East Midlands increased from 1.6 million in 1991 to 1.8 million in 2004. During this time, the proportion of owner occupied residences increased, while the proportion of privately rented and social housing declined. Rates of owner occupation are higher in rural areas.

Regional Planning Guidance has set a target of 25% of all new dwellings to be affordable, but less than 10% of all new homes built in the region in 2003/04 were defined as such. Currently 68% of all private sector homes in the region are classified as 'decent', while 65% of vulnerable households are living in decent accommodation.

The number of households in the East Midlands is projected to increase by 448,000 by 2026, with one person households accounting for 70% of the annual growth.

The five regions surrounding the East Midlands exert considerable influence on the spatial pattern of the region's housing markets. On average around 14,500 houses are completed each year in the East Midlands, the majority of which are built at densities of less than 30 dwellings per hectare. Dwelling provision since 2001 has exceeded annual targets except in Northamptonshire.

The East Midlands environment

1. Introduction

This section of the evidence base focuses on some of the relationships that exist between economic development and the environment, looking at the way the environment is both affected by and affects economic growth and society.

2. Economic growth and environmental impact

The environment acts as a source of inputs for economic activity (raw materials and fuels for example), and a sink for some of the outputs (waste, air emissions and so on.) Environmental hazards such as flooding can constrain economic growth in some areas, while the environment also provides amenities that contribute to individuals' quality of life.

3. Climate change

Average annual temperatures in central England have risen by almost 1°C over the last 100 years, with the three warmest years on record all occurring since 1998. Forecasts from Defra indicate that annual temperatures averaged across the UK may rise by between 2 and 3.5°C by the 2080s, with winters becoming wetter and summers drier, while sea levels around the UK will continue to rise. Climate change will have wide-ranging impacts, both on the natural environment and on economic and social activity.

Changes to the climate in the East Midlands are expected to be amongst the most substantial in England. Daily average temperatures are projected to rise by up to 5°C by the 2080s, while summer rainfall could decrease by up to 60% in the south of the region with winter rainfall increasing by up to 30%. These changes could result in more flooding within the region, much of which is already low-lying. Crop production is also likely to be affected by warmer temperatures.

4. Greenhouse gas emissions

Greenhouse gas emissions in the East Midlands fell between 1990 and 1999, linked to the introduction of more efficient electricity generation processes. Fuel and Power Production contributes up to 80% of emissions in the region, while the second largest source of greenhouse gases is the minerals industry. Since 1998, emissions have exhibited little change, reflecting the continued demand for electrical power. Carbon dioxide emissions in the East Midlands exceed the English average.

5. Air quality and pollution incidents

Air quality in the East Midlands is generally better than the national average, although less good along main road routes. Total emissions of PM10s and sulphur oxides have fallen substantially since 1998, driven by reductions in emissions from the Fuel and Power Production sector. Emissions of nitrogen oxides have tended to fluctuate since 1998, reflecting the fact that these emissions are much more difficult to control with technological improvements.

In 2003, 99 'major' or 'significant' pollution incidents took place in the East Midlands. The largest proportions where the source could be identified were from industry. There were 433 confirmed pollution incidents affecting air in 2003, a reduction of almost 20% since 2002.

6. Energy

The majority of energy in the East Midlands is generated from fossil fuels. The region includes the Notts-Derby and Leicestershire Coalfields, which generate between a third and a quarter of national production. The region's coal-fired power stations account for 10-15% of UK generating capacity. The East Midlands remains an important region for UK onshore oil production and also contains Britain's largest onshore gas field.

The region has seen a small increase in the generation of electricity from renewable sources in recent years but does not generate as much as other regions.

7. Waste

The total waste arisings in the East Midlands were 20.4 million tonnes in 2002-3, 10.8% of the total for England. Forty-eight percent of this waste was produced by construction and demolition, 40% came from industry and commerce and 12% from municipal and household sources. The amount of waste deposited in landfill in the East Midlands is slightly higher than the average for all English regions, but the proportion of all waste which is recycled – 43% – is the same as in England as a whole.

8. Water

Currently over 1,150 million litres of water per day (Ml/d) are abstracted for public water supplies in the East Midlands, 350 Ml/d for industrial uses and 90 Ml/d for spray irrigation. Population growth could lead to a 40% increase in demand for abstraction by 2025. The percentage of rivers of good biological and chemical quality increased significantly in the East Midlands between 1990 and 2004, but the quality of river water in the region remained below the average for England.

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.

9. Geology and mineral resources

The geology of the East Midlands, in terms of the geological periods and rock types represented, is arguably without parallel elsewhere in midland and southern Britain. The region's mineral wealth is a reflection of the diversity of the bedrocks, while the superficial geological deposits of sand and gravel are also of significant economic importance to the region. Key 'geohazards' in the region include shrink-swell clays, emission of radon gas and landslides. The East Midlands contains some of the largest fault systems in England, with small to moderate earthquakes occurring every few years.

The East Midlands is the largest aggregates producer and exporter in the UK, reflecting its central location and the ready availability of suitable hard rocks in the region. Crushed rock, and to a lesser extent sand and gravel, is exported in large quantities to other regions. The East Midlands is also a major producer of limestone, sandstone, bricks, fireclay, gypsum, fluorspar and cement for the construction industry.

10. Biodiversity, landscape, cultural heritage and agriculture

Biodiversity has declined faster in the East Midlands than in any other English region, and continues to be threatened by intensive farming practices and climate change. A comparatively low proportion of the region's land area is designated as Sites of Special Scientific Interest (SSSI), although the condition of these sites is improving. The total land area designated as national park or Area of Outstanding Natural Beauty (AONB) in the East Midlands is the lowest of all English regions.

Within the region, the highest concentrations of environmental and cultural assets are in the Peak District and along the Lincolnshire coast. The overall quality of the East Midlands landscape has declined in recent years, with a significant increase in light pollution and decline in areas of tranquillity. The East Midlands has a rich and diverse historic environment, including former industrial sites, country houses, historic parks, and archaeological remains. There are over 1,500 Scheduled Ancient Monuments and almost 30,000 listed buildings in the region. However, this important heritage is often undervalued and under threat.

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. Over 1.2 million hectares (ha) of land are in agricultural use, employing over 40,000 people and supporting a range of ancillary rural businesses. However, it is projected that 21,100 ha of land within the region will change from rural to urban use to help accommodate the anticipated 4.4 million new households in England by 2016.