Rurality, Productivity and Skills in the East Midlands

A research report prepared for *emda*

Andrew Atherton, Liz Price, David Gray and Gary Bosworth, Enterprise Research and Development Unit, the University of Lincoln

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east midlands development agency

RURALITY, PRODUCTIVITY AND SKILLS IN THE EAST MIDLANDS

Final Report

August 2010

Andrew Atherton, Liz Price, David Gray, Gary Bosworth
Enterprise Research and Development Unit (ERDU)
Lincoln Business School
University of Lincoln
Brayford Pool
Lincoln LN6 7TS
aatherton@lincoln.ac.uk/ lprice@lincoln.ac.uk
01522 886938

Table of Contents

Section 1	**Introduction**	**3**
Section 2	**Policy Context**	**6**
Section 3	**Review of Theory and Existing Studies**	**9**
Section 4	**Research Approach**	**13**
Section 5	**The Relationship between Rurality, Skills and Productivity**	**19**
Section 6	**A Wider View of Skills and Productivity in Rural Areas**	**28**
Section 7	**Skills, Productivity and Commuting Patterns**	**42**
Section 8	**Summary and Conclusions**	**47**
Appendices		**52**

Section 1 – Introduction

Background to the Project

1.1 This report sets out the findings of research into the relationship between rurality, skills and productivity in the East Midlands. The report has been prepared by the Enterprise Research and Development Unit (ERDU) at the University of Lincoln on behalf of the East Midlands Development Agency (*emda*).

1.2 The aim of this study is to develop a better understanding of the relationship between rurality, skills and productivity in the East Midlands. Through this report, *emda* is seeking to explore the linkages between skills and productivity in rural areas, and to identify whether there are factors associated with rurality or remoteness that inhibit the development of skills and productivity, or exacerbate the negative impacts of low skills on productivity.

1.3 The need for this research has been highlighted by two studies undertaken for *emda* in 2009. The 'Secondary Centres'[1] study undertaken by ERDU suggests that connectivity to large urban centres is a determinant of economic performance and, in particular, participation in the labour market. Remote rural areas, such as those in the east of Lincolnshire, are shown to have low levels of firm agglomeration compared with other more accessible rural areas of the region.

1.4 The 'Exploring the Links between Skills and Productivity' project undertaken by the Institute of Employment Research (IER)[2] shows that peripherality is associated with cost-penalties and other factors which affect productivity. The study highlights that low levels of skills in the workforce have a much greater effect on productivity in remote rural areas than in areas of 'high economic potential', i.e. those areas with high levels of agglomeration of population, labour and firms. The study also concludes that a causal relationship between skills and productivity is difficult to establish, and that it is not always clear what skills result in an increase in productivity.

1.5 Together the findings of these studies indicated a gap in the understanding of the relationship between skills, productivity and rurality in the East Midlands, and point to the need for additional research.

Aims and Objectives

1.6 The key aims of the project are:

- To explore and provide an understanding of the relationship between rurality, low skills and productivity;
- To test the relationship between rurality, low skills and productivity and, specifically, the effect of rurality and remoteness on skills and productivity;
- To identify the specific factors that may be associated with, or inhibit, skills and productivity in rural and/or remote areas;
- To provide a sub-regional analysis of these factors that enables rural and/or remote areas that are particularly disadvantaged by low skills and low productivity to be identified.

1.7 The findings will contribute to the evidence base for *The Regional Economic Strategy, A Flourishing Region,* which is the principal policy vehicle for achieving economic growth and success across the East Midlands. The RES evidence base, which is regularly reviewed and updated, helps to provide an understanding of the economic dynamics in the region and identify where policy intervention is needed. The findings of this research will contribute to that evidence base, and will assist *emda* and its partners in identifying the most appropriate policy intervention to improve skills and productivity in rural and remote areas of the region.

Key Concepts and Definitions

1.8 ***Productivity*** is a frequently used term that refers to the rate at which the economy adds value and the how effectively the economy uses the resources it has available. Productivity is important because it is a key driver of economic growth and, therefore, economic wellbeing and sustainability. The term 'productivity' is used in a number of ways: both at a national and a regional level; and also in referring to productivity within specific areas or populations, or at the level of the firm.

[1] Atherton. A., and Price, L. (2009) *Secondary Centres of Economic Activity in the East Midlands* undertaken by the Enterprise Research and Development Unit on behalf of *emda*

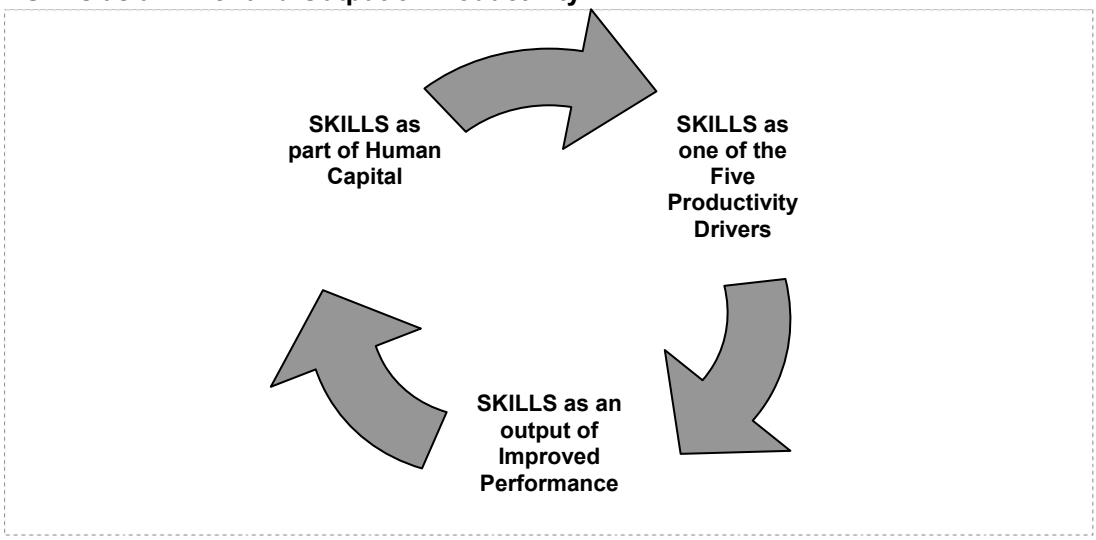
[2] Gambin L, Green A, and Hogarth, T, (2009) *Exploring the Links between Skills and Productivity* undertaken by the Warwick Institute for Employment Research on behalf of *emda*

1.9 Traditionally, income is a function of land, labour and capital and qualitative as well as quantitative changes in these factor inputs affect output, i.e. GDP measures. When considering the skills relationship with productivity, we therefore concern ourselves with wider factor input effects on GDP. In addition to these factor inputs, there are 'other' effects on productivity. Total factor productivity includes variables which are not direct inputs, but which can have an effect on output. These include factors such as improvements in technologies or infrastructure. In rural areas, total factor productivity variables may include spatial effects such as agglomeration and connectivity. These may provide 'externalities' that improve productivity, or may qualitatively improve the productivity of factor inputs.

1.10 ***Skills***, the ability of people to undertake specific tasks, are identified by the Treasury[3] as one of five key drivers of productivity which also include investment, innovation, enterprise, and competition. Skills are also a dimension, or indicator, of *human capital.* As indicated by Gary Becker[4], there are positive relationships between wealth and prosperity and overall levels of human capital, as measured by multiple indicators (normally education attainment).

1.11 The multiple role of skills within the skills-productivity relationship is conceptualised in figure 1.1. Skills are identified as one of the five direct drivers of productivity, in that increasing skills within the workforce improves efficiency and increases capacity. Skills are also an indirect driver of productivity as they affect other direct drivers; a skilled workforce is more likely to innovate and adopt new business practices, for example. Skills are identified as an output of improved performance, as firm growth can lead to increasing division or specialisation of tasks and therefore increase demand for skills. Skills can also be identified as a dimension of human capital. Localities with high level skills are associated with higher levels of economic well being, community capacity, and a greater propensity for new business creation.

Figure 1.1 – Skills as a Driver and Output of Productivity



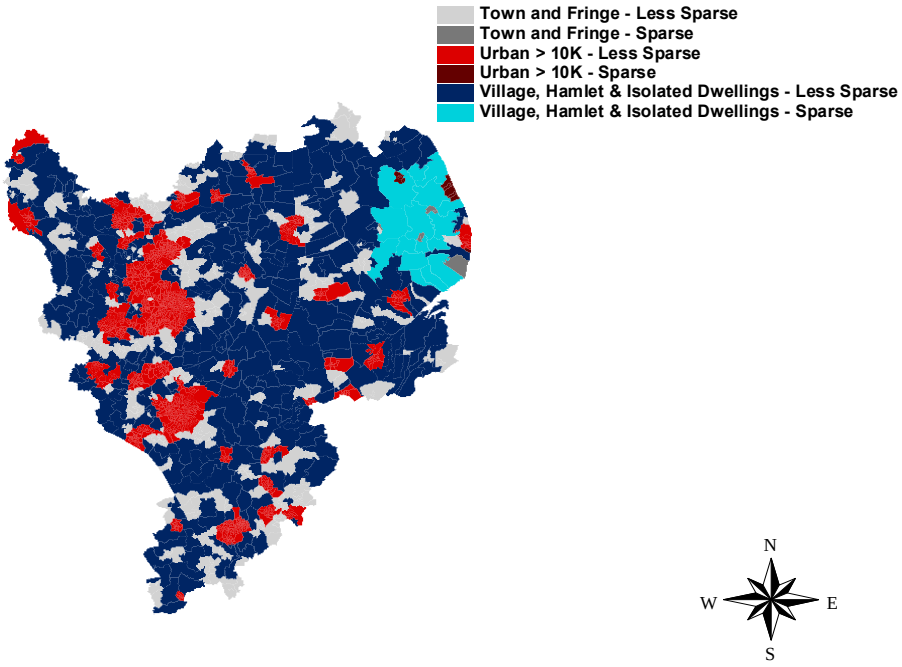
1.12 ***Rurality*** tends to be defined in terms of sparsity of population and size of settlement. Two typologies have been developed to classify rural and urban areas. These have been developed by DEFRA and the Office of National Statistics (ONS). The DEFRA rural and urban definitions (2004)[5] have been developed using analysis of population density and proximity to other nearby settlements. They provide a number of urban-rural classifications for various small geographies – including output area, super output area and ward. The classification is based around three types of morphologies, which are:

- Urban (population over 10,000)
- Town and Fringe
- Village, Hamlet and Isolated Dwellings

1.13 These are cross referenced against two context definitions, which are 'sparse' and 'less sparse' The classification system therefore takes into account settlement size, and the density and distribution of these settlements. The distribution of these areas across the region is illustrated in map 1.1 for lower super output areas.

[3] HM Treasury (2000) *Productivity in the UK: the Evidence and the Government's Approach*
[4] Becker, G (1993) *Human Capital: A Theoretical and Empirical Analysis,* 3rd edition, University of Chicago Press
[5] DEFRA (2004) *Rural and Urban Classification,* available from DEFRA website : *http://www.defra.gov.uk/evidence/statistics/rural/rural-definition.htm*

Map 1.1 – DEFRA rural-urban areas in the East Midlands by lower super output area



1.14 The ONS classification system has been developed to classify areas at local authority district level, and comprises six classes. These are Rural 80, Rural 50, Significant Rural, Other Urban, Large Urban, and Major Urban. The classification is based on the proportion of people within each local authority district that live in each type of settlement – whether large urban or small rural settlements.

1.16 Another dimension of rurality is *connectivity;* the extent to which localities are remote from, or proximate to, large urban centres and transport infrastructure. Many areas that are defined as rural by settlement size and sparsity are not necessarily remote from large urban centres. This is an aspect of rurality which we seek to examine in this study.

Section 2 – Policy Context

National Policy

2.1 Productivity is widely recognised as a driver of economic growth and, in turn, a determinant of economic prosperity and quality of life. At a European level, the importance of productivity is emphasised in the ***Lisbon Strategy***, launched in 2000, which sets out actions that member states need to take to deliver growth and better jobs.[6] The Strategy highlights that productivity in other parts of the world has grown faster than in Europe, and that Europe has under-invested in research and development. The latest version of the Strategy states that, on current trends, the potential growth of the European economy will halve over coming decades, in part because of low productivity.[7]

2.2 The need for the UK to continue to raise its level of productivity is recognised in recommendations set out by the European Commission in March 2009 to each of the European Union member states. For the UK, the recommendations include "*continue to implement plans to substantially improve skill levels and establish an integrated approach to employment and skills in order to raise productivity and increase opportunities for the disadvantaged"*[8]*.* In its ***National Reform Programme 2009***[9]*,* the UK Government sets out progress against these recommendations. These include a range of policies and initiatives related to adult learning and higher level skills, the creation of jobs for the long term unemployed and disadvantaged, investment in R&D, and promotion of innovation.

2.3 One of the policy initiatives highlighted in the Reform Programme is the ***Innovation Nation*** white paper, which was published in March 2008[10]. This states that, although productivity in the UK has been improving since 1997, it is still lagging behind other nations. Innovation, as a key driver of productivity, together with skills and investment in training, needs to be improved. Measures set out in the white paper include demand-side stimulation, such as use of government regulation to prompt innovation in businesses, and supply-side measures, such as the use of innovation vouchers to help businesses access 'knowledge institutions' and easier access to innovation finance. The white paper acknowledges that innovation policy has traditionally focused on high-tech manufacturing and so, by implication, shown more of an urban focus. However, it emphasises the importance of place in developing new innovation policy, and the importance of supporting activities at different spatial levels.

2.4 In ***New Industry, New Jobs***[11]***,***published in 2009, the Government makes a commitment to invest in British firms to ensure their continued competitiveness. It states there are four immediate priorities for reform in Britain, which are innovation, skills, finance and infrastructure. The accompanying report, ***Jobs of the Future***[12], outlines where new jobs are likely to be created in the economy and where government investment is likely to be focused. The nature of these sectors, which include low carbon economy, advanced manufacturing, and retail, will clearly have implications for rural areas.

2.5 The ***Enterprise Strategy***[13] shows that enterprise creation and activity has made a significant contribution to the growth of productivity in the UK. It outlines 5 drivers of enterprise, which include culture; knowledge and skills; access to finance; regulation; and business innovation. Globalisation is highlighted as both a challenge and an opportunity for enterprise in the UK, as it provides strong competition but also access to new markets. The rate of new business creation and survival, although at a higher rate for the last ten years compared with previous years, still lags behind the United States.

2.6 ***The Leitch Review***[14]***,*** produced in 2006, highlighted that poor skills are a key contributor to the UK's lagging productivity. The Review showed that focusing on high and intermediate skills, in particular, has a significant effect on productivity in the workplace. The UK Government has a number of policies to support skills at different educational levels, and in academic and vocational subjects and contexts. For example, activities set out in the ***Higher Education White Paper***[15] and the recently published ***Higher Education Framework***[16]

[6] EC (2004) *Extracts from the Presidency Conclusions on the Lisbon Strategy*
[7] EC (2005) *Working Together for Growth And Jobs: a New Start for the Lisbon Treaty*, p 4
[8] EC (2009) *Council Recommendation on 2009 up-date of the broad guidelines for the economic policies of the Member States*
[9] HM Treasury (2009) *Lisbon Strategy for Jobs and Growth: UK National Reform Programme 2009*
[10] DIUS (2008) *Innovation Nation*
[11] BIS (2009) *New Industry, New Jobs*
[12] BIS (2009) *Jobs of the Future*
[13] BERR (2008*) Enterprise: Unlocking the UK's Talent*
[14] HM Treasury (2006) *The Leitch Review of Skills, Skills in the UK: the Long Term Challenge*
[15] DfES (2003) *The Future of Higher Education*
[16] BIS (2009) *Higher Ambitions: the Future of Universities in a Knowledge Economy*

include significant expansion of participation in HE, particularly among those from poorer backgrounds, and increasing collaboration between business and HE institutions.

2.7 The ***National Skills Strategy: Skills for Growth***[17] published in 2009, emphasises the role of skills in driving prosperity, social mobility, and business productivity. The strategy cites work by Reenan et al (2005) which calculates that a one percentage point increase in the proportion of employees trained is associated with an increase in productivity of 0.6 percentage points. The strategy includes proposals to further increase achievement of higher level qualifications, expand apprenticeships, focus training on growth sectors, promote investment in skills as part of business support, and give RDAs a lead role in developing regional skills strategies. The Skills Strategy also launches an annual ***National Strategic Skills Audit***, the first of which will be undertaken by the UK Commission for Employment and Skills in 2010.

Policy for Productivity in Rural Areas

2.8 The rural/urban dimension of productivity is not immediately obvious in policy at a European and national level. A clear ethos of the Lisbon Strategy is the need to raise productivity to reduce disadvantage and economic disparities, and deliver prosperity for all citizens of the European Union. There is an emphasis on increasing opportunities for those who are *disadvantaged in the labour market*, such as lone parents, older workers, and those who lack qualifications. Clearly, rurality and remoteness can present challenges to those who are already disadvantaged in the labour market.

2.9 At a sub-national level, a number of government departments including the Treasury, BIS, CLG and DEFRA are responsible for policy related to productivity. BIS is the lead department for the ***Regional Economic Performance (REP) Public Service Agreement (PSA)*** to "*make sustainable improvements in the economic performance of all English regions and to reduce the persistent gap in growth rates between the regions*".[18] The PSA target includes a number of support measures in the areas of innovation, enterprise, skills, transport and planning. DEFRA leads on this PSA target for rural areas.

2.10 ***The Taylor Review***[19] conducted for CLG in 2008 identifies that, overall, rural economies are performing well with significant growth in knowledge intensive business services, largely reliant on ICT. The review shows that GVA from all rural districts combined equals that from England's cities and major urban areas outside of London. While business formation rates are higher in rural than urban areas, this tends to be in affluent and well connected rather than remote rural areas. Many peripheral and sparse rural districts have declining levels of GVA growth and these pockets of rural poverty and deprivation are not easily recognised. In addressing rural skills and productivity these "pockets" require greater attention alongside issues that concern the whole of the rural economy.

2.11 The ***Rural Advocate's Report***[20] sets out advice to Government on how rural economies can be strengthened. The report highlights a number of factors that inhibit rural business development, innovation and productivity:

- Rural businesses struggle to access government support or work in partnership to address the obstacles they face, such as planning, infrastructure, accessing services or training;
- In several remote areas, high levels of poorly skilled residents are evident. This is compounded by limited availability of HE, FE and training provision;
- Rural firms are less likely than urban firms to have staff that are not fully proficient at their jobs;
- Fewer 16-18 year olds are recruited by village firms than in urban businesses, and there are even lower rates of rural recruitment of graduates;
- In rural areas, 25% of hard-to-fill vacancies may be unfilled due to location and poor transport. Rural employers find it particularly difficult to recruit managers and professionals.

Regional Policy

2.12 The **Economic Strategy for the East Midlands:** ***A Flourishing Region 2006-2020*** **(RES)** highlights that productivity measured by GVA per head is highest in the principal urban areas of the East Midlands, but lowest in isolated areas such as North East Derbyshire and Lincolnshire. In its analysis of the challenges faced by the sub-regions, the RES outlines that there are "*significant disparities in performance and circumstances at local levels across the [Eastern] sub area*" and that districts in the central coalfields, north of Nottingham, are forecast to continue to experience lower GVA growth rates than other areas of the region.

[17] BIS (2009) *Skills for Growth: the National Skills Strategy*
[18] CLG (2006) *PSA Target 2: Regional Economic Performance*
[19] Taylor M, 2008 *Living Working Countryside; The Taylor Review of Rural Economy and Affordable Housing* (Department for Communities and Local Government, London)
[20] Burgess, S. (2008) *England's Rural Areas: Steps to release their economic potential* Advice from the Rural Advocate to the Prime Minister (CRC, Cheltenham)

2.13 The RES sets out three overarching PSA Targets which *emda* is required to work towards, alongside key government departments. These include the Regional Economic Performance Target set out above and PSA Target 4, which is shared with DEFRA and CLG, to "*reduce the gap in productivity between the least well performing quartile of rural areas and the English median*"[21]. The RES outlines a number of priority actions that will help to assist in the delivery of these PSA targets. These include actions related to Employment, Learning and Skills; Enterprise and Business Support; Innovation; and Economic Inclusion.

2.14 *emda* has also established *East Midlands Innovation*, a Council of representatives from academic, the public and private sectors that is tasked with growing the innovation and knowledge-focused economy of the region. The ***Regional Innovation Strategy***[22] includes actions to facilitate increasing demand for innovation among businesses in the East Midlands.

2.15 The ***Regional Spatial Strategy for the East Midlands (RSS***[23]***)*** sets out priorities for economic development, infrastructure and the environment across the region. Policies related to productivity and skills in rural areas include Regional Priority 6 which states that development opportunities in the rural economy should be encouraged, particularly farm-based enterprises and appropriate growth of new and existing rural businesses. Regional Priority 24 emphasises the need to diversity the economic base of rural areas to reduce reliance on traditional industries such as agriculture and forestry.

2.16 Rural business development and diversification is supported through the ***Rural Development Programme for England*** **(RDPE)**[24]**.** The Sector Skills Council for land-based industries, Lantra, is tasked with raising employer engagement, demand and investment in skills in the land-based sector. In its ***Sector Skills Agreement for the East Midlands***[25] it sets out actions for a range of organisations to address skills shortages in land-based industries.

[21] *emda* (2006) *A Flourishing Region: Economic Strategy for the East Midlands 2006-2020, p170*
[22] East Midlands Innovation (2006) *Regional Innovation Strategy*
[23] *Government Office for the East Midlands* (2005) Regional Spatial Strategy for the East Midlands
[24] The RDPE is administered by *emda* in the East Midlands
[25] Lantra (2007) *Sector Skills Agreement for the East Midlands region*

Section 3 – Review of Theory and Existing Studies

Measuring Productivity

3.1 In measuring productivity, it is important to distinguish between Total Factor Productivity and Labour Productivity. Total factor productivity is a function of land, labour and capital and other residual variables. Qualitative as well as quantitative changes in these factor inputs affect output. In exploring the relationship between skills and productivity, we are focusing on qualitative changes to the factor inputs of productivity.

3.2 In addition to these factor inputs, there are other effects on productivity which are not direct inputs but which have an effect on output. These include factors such as improvements in technologies or infrastructure and in a spatial sense include effects such as agglomeration and connectivity. These are 'externalities' that may affect productivity, or may affect the factor inputs.

3.3 Labour productivity is a measure of output by firms, such as GVA, represented per unit of labour. This is often represented as GVA per job, per worker, or per head of population. Labour productivity can be presented at the level of the firm, or within specific areas or populations. This is a distinction that ***Webber et al (2009)*** refer to as area-based and firm-based productivity and has implications for whether we are studying the wellbeing of a local population or the vitality of a local economy.

3.4 Agglomeration models assume that output depends upon the concentration of labour and capital in a specific location which gives rise to external effects/scale economies. Rural areas tend to perform poorly here and through cumulative causation processes, this can be self-reinforcing. ***Baxter et al (2007)*** state that labour availability influences firm location decisions and technology based companies require a combination of high-skilled, high-wage staff and lower paid process or assembly workers. They note that firms follow skilled workers who express preferences to live in rural environments. Lower wages and weaker unions confer an additional advantage upon rural locations with respect to lower-skilled occupation. However, the *'Secondary Centres of Economic Activity'* study conducted for *emda* in 2009 showed that agglomerations of firms were key to attracting labour, and that there were just a small number of exceptional cases where labour availability attracted firms.

3.5 Local Milieu Models, or endogenous models, are characterised by entrepreneurship, production flexibility, district economies and "some collective agents, which act as a catalyst for development" ***(Terluin 2003).*** These tend to rely on local institutions, are rooted in local culture and history and are often associated with more rural areas. Specific local characteristics can be favourable for profitable production but often have limited scope for larger scale development. ***Baxter et al (2007)*** also found that closer links to knowledge based institutions enhance innovative capacity in existing businesses and encourage them to stay in a local area. For new businesses, issues of infrastructure and proximity to markets were more greatly valued. New firms will locate in rural areas though, especially if they emerge from existing businesses and have strong local networks from the outset.

3.6 According to Bryden (1998) productivity is affected by immobile resources ***(Bryden 1998)*** such as social, cultural, environmental and 'local knowledge' capital. The interaction of these resources in the local context influences economic development. Bryden argues that it is difficult to develop a strategy for rural areas based on mobile resources as the ever increasing mobility of capital, skilled labour, information and other goods and services leaves areas of sparse economic activity more vulnerable to external changes.

3.7 The UK government's approach for promoting and measuring productivity focuses on what ***HM Treasury (2000)*** has identified as five productivity drivers. These are: Investment, Innovation, Skills, Enterprise, and Competition. At a regional level, productivity is measured using four headline indicators: Gross Value Added (GVA) per head; GVA indexed to the EU average; GVA per hour worked; and regional employment. These are supported by a number of indicators related to the five productivity drivers.

Understanding the Skills-Productivity Relationship

3.8 The relationship between skills and productivity in the East Midlands is explored in a report undertaken by ***Gambin et al (2009)*** for *emda*. The report sets out the Treasury perspective that regional differences in productivity derive primarily from differences in skills levels. Skills, therefore, receive considerable focus in national and regional policies to promote productivity. Gambin et al emphasise, however, the interdependence between the five treasury drivers and that skills need to be considered in context. Skills are a direct driver of productivity, but also an indirect driver. Higher skills can facilitate enterprise and innovation, for example, which in turn drive productivity.

3.9 According to the ***Treasury (2006)***, skills are thought to raise total factor productivity in a number of ways. Human capital is expected to increase the efficiency with which labour and capital are used; a better workforce is likely to be more productive and use physical capital more effectively. It is also more likely to generate new ideas and adopt new business practices.

3.10 The Treasury's focus on skills as the most important of the five drivers of productivity is not universally supported. ***Keep and Mayhew (2006)***, for example, provide a critique of what they consider to be the 'assumed' relationship between skills and productivity, and the relative importance of other factors in driving productivity. They suggest that the government's focus on skills is slightly misleading, as skills account for between one fifth and one eighth of the UK's productivity gap with France and Germany. The remainder is accounted for by a lack of investment in physical capital, R&D, infrastructure, and the way in which enterprises are managed and employees motivated. Their research shows that, despite improvements in skills in the UK, productivity has remained steady. The authors use the term "putting the skills cart before the economic development horse" to suggests that further investment in skills may be wasted without accompanying investment in capital and infrastructure and consideration of how and what skills improve workforce productivity.

3.11 The report by ***Gambin et al (2009)*** concludes that – even though the literature and their analysis in the East Midlands suggest that skills and productivity correlate strongly – it is difficult to establish whether this relationship is causal. Another gap in our understanding of this relationship is *which* skills results in an increase in productivity.

3.12 Analysis by ***Webber et al (2007)*** shows that the influence of skills on productivity is not stable across Great Britain. They suggest that, in areas of high 'economic potential' such as those in and around cities, low skills do not have as much of an adverse effect on productivity as in peripheral areas.

Approaches for Measuring *Rural* Productivity

3.13 DEFRA has a commitment to reduce the gap in productivity between the least performing quartile of rural areas and the English median by facilitating more cohesive and productive rural communities. According to ***Agarwal et al (2009),*** however, "there remains a dearth of knowledge of the underlying factors that explain the uneven geography of economic performance across rural England". This section sets out a number of approaches, identified in the literature, for measuring rural productivity.

3.14 A number of authors argue that the measurement of productivity at a rural or local level requires a different approach to the measurement of national or regional productivity. There are a number of reasons for this:

- The relevance of some drivers of productivity such as competition, which are intended to measure national performance, for measuring regional and local productivity
- The appropriateness of some economic indicators, such as employment rates, for rural areas which traditionally have high levels of employment
- The relative greater importance of transport and communications infrastructure for rural economies
- The limited availability of key indicators, such as GVA per head and R&D investment, at low geographical levels

3.15 In the report produced for *emda* in 2009, ***Gambin et al*** stress the difficulty of measuring skills stock in a region and related this to the output of that region. This is because the highly skilled tend to be more mobile than those with lower skills. This could pose a difficulty as described in the report – "*suppose people with 'high skills' reside in one region but work in another. This would skew the relationship between skills and productivity within the region that the person works to show high productivity without the person's skills being resident in the region whereas in the region of residence, the skills stock would appear greater but this individual would make no direct contribution to the region's output*." This is also likely to be the case when exploring the relationship between skills and productivity in even lower geographical areas, such as local authority districts and Super Output Areas. Early analysis suggests that the East Midlands suffers from significant flows of skills to work outside of the region's economy too.

3.16 In his report to DEFRA in 2003, ***Benneworth*** provides a review of regional productivity policy and measurement approaches from a rural perspective. In identifying the drivers of rural productivity, Benneworth argues some of the five Treasury drivers, such as competition, are not relevant below a national level. He identifies the key rural drivers as employment and skills, infrastructure, innovation, and enterprise.

These are grouped into four classes:

knowledge capital - provided through people, technology and artefacts
infrastructure capital – such as roads and businesses
common assets – benefits available to all firms able to access them
activity assets – benefits available only to those producing them through knowledge-based activity

	Common assets	**Activity assets**
Knowledge Capital	Employment and Skills	Innovation
Infrastructure Capital	Infrastructure	Enterprise

3.17 Benneworth proposes a series of Rural Productivity Performance Indicators (RPPIs) to enable reporting on rural productivity on an annual basis. These are intended to provide a balance between the four key drivers, and include indicators related to skills, employment in public services, capital investment, employment in knowledge intensive businesses, and overall business stock. These are intended to be correlated with a number of 'contextual indicators' which include demography, economic activity, income, accessibility, and land use. The report does emphasise, however, that there is a need for additional research into the key drivers of rural productivity.

3.18 ***Agarwal et al (2009)*** examine the determinants of economic performance in rural areas and argue that differential economic performance is multi-dimensional. They suggest that the availability and deployment of economic, human, social, and cultural/environmental capital are crucial for successful economic performance:

Economic Capital – productivity, employment, investment, enterprise, innovation
Human Capital – education, skills and entrepreneurship
Social Capital – social infrastructure, institutional thickness
Cultural/Environmental Capital – natural resource endowment, peripherality and remoteness, cost of environmental maintenance, pollution and congestion

3.19 Their study sought to compare and understand the reasons for differences in economic performance between local authorities that were classified as 'rural' under the DEFRA definition. The analysis included identification of *dependent variables*, which included earnings, employment, and labour market participation and *explanatory variables, which* included industrial structure, number of businesses, skills, and transport infrastructure. These were intended to cover the Treasury key productivity drivers but, as with the Benneworth study, competition was found to be less relevant and less easy to measure at a local level.

3.20 A number of studies have sought to compare productivity in different types of rural area. In their study of Economic Performance in Rural England, ***Curry and Webber (2009)*** employ different spatial definitions – the city region and the rural-urban definition – in exploring workplace labour productivity and capital stock. These are compared across the three most rural of the rural-urban definitions - Significant Rural, Rural 50 and Rural 80. Comparisons are also drawn between districts that fall within one or two or outside of a city region. The districts that are defined as Rural 80 and outside a city region are, therefore, identified as the most remote.

3.21 The city region concept is also used as a basis for analysis in a study undertaken by ***SQW/Cambridge Econometrics*** for DEFRA in 2006. This study compared urban, mixed and rural districts (again drawing on the DEFRA rural-urban categories) and identified whether these fell into one, two or outside of a city region. In measuring productivity, the study used primarily average earnings, employment, occupations, and skills.

3.22 In their analysis of spatial variation in business performance, ***Webber et al (2007)*** develop a variable to indicate 'economic potential', described as *"the potential interaction between one place and every other place in the set of n places".* This is calculated using the population of each administrative area and the distance between administrative areas, compared against the mean for all areas. The variable is intended to capture a number of possible effects on productivity, including agglomeration effects and peripherality. This index is then correlated against a range of 'production variables' such as capital, employment and skills.

3.23 Other frequently cited studies on differential productivity performance include ***Rice and Venables (2004)*** and ***Boddy et al***, and work to develop a rural competitiveness index by the ***Work Foundation and Huggins Associates (2006).*** These, together with the studies outlined above, will be used to inform the approach for this project.

3.24 Many of these studies focus on relatively large geographical levels, such as NUTS3 and local authority districts, partly because this is the lowest level for which data related to productivity and earnings is available. Because of the need to identify pockets of low skills and productivity in this project, we propose that lower

Super Output Area is used where data availability permits. However, for data on earnings and GVA this may not be possible.

Determinants of Rural Productivity – Findings from the Literature

3.25 Table 3.1 sets out the findings from our initial review of the literature. This sets out the key characteristics of rural areas related to the five key drivers of productivity: enterprise, innovation, investment, competition and skills. We have also added community capacity to reflect the institutional support available to firms and workers, and the effective management of firms. This fits with the 'social capital' and 'common assets' set out the studies above. Infrastructure and connectivity are identified through a number of studies as relatively more important for rural areas, and so have also been included as a productivity driver.

Table 3.1 - Determinants of Productivity in Rural Areas – Summary

Enterprise	▪ Independent ▪ Locally owned and managed ▪ Smaller than urban firms ▪ High rates of self-employment ▪ Increasing in-migrant role in starting businesses ▪ Longer established than urban firms
Innovation	▪ Generally less innovative than urban firms ▪ Evidence of increased innovation among the most remote rural firms ▪ Access to HE, FE and training providers important for innovation ▪ Labour intensive production discourages technological innovation ▪ Web access a key determinant of rural innovation ▪ Increasing agricultural restructuring and diversification
Competition	▪ A weak competitive environment ▪ Remote rural firms more likely to develop international/national markets ▪ Competitive environment traded for 'quality of life' – suppresses performance ▪ EU subsidies and supermarket supply chains constrain local competitive environment in agriculture ▪ Self-employed/independently owned firms are less efficient than multinationals
Investment	▪ The most rural areas have the least capital investment ▪ Lack of R&D, capital and infrastructure investment limits skills effect on productivity ▪ There is limited policy leverage on investment compared to skills
Community Capacity	▪ Rural businesses struggle to access government services and training ▪ Rural firms do not work effectively in partnership to overcome these obstacles ▪ The ability of firms to introduce changes is key to improving productivity ▪ The institutional make up of the community is important in driving rural development ▪ Local leadership is key to rural development ▪ Aspirations/attitudes are important: whether development is a threat or opportunity
Infrastructure/ Connectivity	▪ Limited affordable housing ▪ Slow diffusion of broadband infrastructure in most remote areas ▪ Remoteness appears to affect productivity more than rurality ▪ Journey time affects productivity more than distance ▪ Rural areas close to cities are more productive than remote rural areas ▪ Rural skills shortages can be attributed partly to location and poor transport ▪ There is less commuting in sparse/remote rural areas
Skills	▪ A net outmigration of younger age groups affects skills in rural areas ▪ Rural areas have an ageing population, which may affect skills ▪ Skills are affected by limited availability of HE, FE and training provision ▪ Small rural businesses attach less importance to training ▪ The most remote rural areas have seen the largest rise in non-UK migrants ▪ Higher level skills (level 4+) have the greatest effect on productivity ▪ Policies related to skills, innovation and leadership need to be bundled together to ensure firms benefit from technological change and training

Section 4 – Research Approach

4.1 The research for this study was undertaken using solely secondary data sources. The methodology comprised a three stage process: (1) Policy and Literature Review; (2) Secondary Data Appraisal; (3) Data Gathering and Analysis.

Stage 1: Policy and Literature Review

4.2 Stage 1 involved a comprehensive review and analysis of secondary sources to assess their relevance to the study, and their contribution to the design of the research approach. The sources included:

- **policy publications:** to explore current government understanding of the relationship between rurality, productivity and skills, and identify existing interventions to promote skills development and productivity in rural areas;
- **academic studies:** to identify theory related to skills and productivity, and existing thinking on the factors that affect skills and productivity in rural areas;
- **commissioned research:** to identify similar studies that have been undertaken in other regions, and existing methodological approaches for measuring rural productivity and its drivers.

4.3 The results of the review were presented to *emda* as part of an interim report, and are set out in Section 3.

Stage 2: Secondary Data Appraisal

4.4 The second stage of the research involved an appraisal of secondary data sources to determine the most appropriate variables to include in the study. The sources were appraised on a number of criteria, including geographical level of availability, date of publication, reliability at small geographical levels, and the extent to which they provide a valid measure of (i) rurality, (ii) skills, and (iii) productivity. The sources were not, however, limited to these three areas and incorporated those recognised through the literature to be drivers of skills and productivity.

Skills

4.5 In measuring skills, there is a reliance on proxy measures. The skills of residents are most frequently measured using NVQ levels which reflect the highest level of qualification obtained, rather than skills or competencies. In other words, only skills that are accredited are measured using this approach, and skills that have been learned 'on the job' but not accredited are not reflected. The Census 2001 and Labour Force Survey both measure the NVQ level of the highest qualifications obtained by total and working age population. These are regarded as robust sources for data on the skills base of the population.

4.6 Work-based skills, and the extent to which businesses in rural areas are able to recruit people with the skills they need, are also an important consideration. This data is available at local authority district level through the National Employer Skills Survey (NESS) which reports the proportion of firms with skills gaps and skills-shortage vacancies.

4.7 Data on NVQ levels from the Census and work-based skills from the NESS were gathered as the principal proxies for skills within the resident population and workplace. Within these sources, the proportion of the population with no qualifications, level 2 qualifications (appropriate for entry level to many jobs), and level 4/5 (higher level/professional) were identified as the most relevant. However, other skills levels were also analysed where appropriate.

Driver	Measure	Source
Residents' Skills Base	Proportion of Working Age Population with Higher Level Skills (NVQ 4/5)	Census 2001/LFS
	Proportion of Working Age Population with Intermediate Level Skills (NVQ 2)	Census 2001/LFS
Work-based Skills/ Competencies	% of Firms reporting skills gaps	NESS
	% of Firms reporting skills-shortage vacancies	NESS

Productivity

4.8 In measuring productivity, there is a need to consider different output measures, and the limitations of these for measuring productivity in small geographical areas and rural areas. GVA, which represents income generated within the economy, is based on workplace. However, it is often represented as GVA per head of population. This is problematic in the sense that not all residents in a given area work in the same area, so this measure can be misleading in areas where there are high levels of economic inactivity or commuting. The CRC[26] have also questioned the use of GVA for measuring prosperity and wellbeing, preferring to focus on the income of residents instead. This means that the wealth generated by out-commuters resident in an area can be captured.

4.9 For this study, we include measures of the productivity of firms in rural areas, and the income generated by residents living in rural areas. For residence-based productivity, we identified average weekly household income at MSOA level, and gross pay at LAD level. For firm based productivity, turnover per employee from the Inter-Departmental Business Register (IDBR) was sourced from the ONS Regional Team at *emda*. This data was made available at MSOA level. Data on turnover per employee was also sourced at LAD level.

Driver	Measure	Source
Residence-based Productivity	Average Weekly Household Income	Neighbourhood Statistcs
	Gross Weekly Pay	Labour Force Survey
Firm-based Productivity	Turnover per Enterprise	ONS/IDBR
	Turnover per Employee	ONS/IDBR

Rurality

4.10 In order to explore the skills-productivity relationship in rural and, in particular, remote rural areas we needed a clear methodology for identifying whether areas were rural and well connected or rural and remote. The DEFRA and ONS rural-urban classifications are recognised methods for identifying rural areas, and so these methods were incorporated into our analysis of productivity across different types of rural and urban area. However, neither classifications differentiate between areas that are well connected to large urban centres and areas that are more isolated. In order to understand which rural areas are also remote, it was important that other measures are included to reflect connectivity to large urban centres.

4.11 Two measures of connectivity were identified, which are distance to nearest large city, and population weighted by distance. The distances have been calculated in ArcView mapping software, using the centroid for each spatial area. The cities include the principal urban areas of the East Midlands, and those with more than 100,000 population immediately beyond the East Midlands boundary. This is consistent with the approach adopted for the 'Secondary Centres' study[27].

The cities include:

Coventry	Lincoln	Nottingham
Derby	Manchester	Oxford
Hull	Milton Keynes	Peterborough
Leicester	Northampton	Sheffield

4.12 'Distance to nearest city' provides a straightforward measure of the distance in kilometres (as the crow flies) from each spatial unit to the closest large urban area. 'Population weighted by distance' provides a combined measure of the distance to the large urban area but also the size of the urban area. It therefore gives an indication of how well each rural area is connected, but also the relative scale of its nearest city. This is calculated by dividing the total population of the urban centre by the distance from each spatial unit in kilometres.

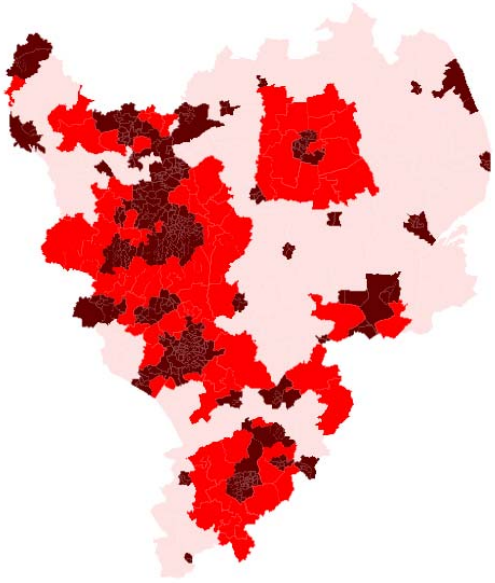
4.13 To develop a 'rural remoteness' indicator, the 'distance to nearest city' indicator has been combined with the DEFRA rural urban classification. Areas that have been identified as 'village, hamlet and isolated dwelling' and 'town and fringe' have been merged to create 'rural'. Town and fringe includes urban areas of less than 10,000 population, so includes smaller market towns. The 'rural' areas have been sub-divided into those that are within 20km of a large city, or beyond 20km. The Urban >10k population has been retained as urban.

[26] CRC (2008) *State of the Countryside*

[27] Atherton, A and Price, L (2009) *Secondary Centres of Economic Activity in the East Midlands* undertaken for *emda*

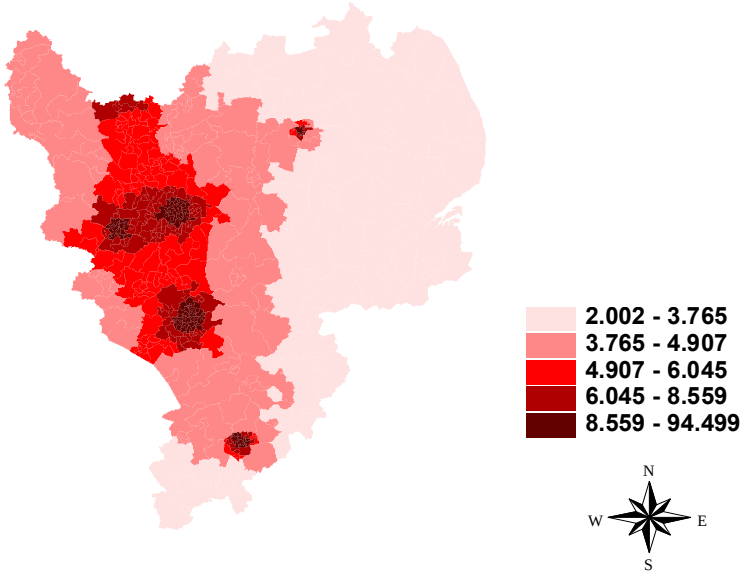
4.14 Map 4.1 sets out the rural remoteness indicator. 'Remote rural' areas are shown in pale pink, 'accessible rural' in red, and 'urban' in dark red.

Map 4.1 – Urban, Accessible Rural and Remote Rural Areas



4.15 Map 4.2 shows the 'population weighted by distance' indicator. This indicator has been used as an independent connectivity variable for exploring determinants of skills and productivity in rural areas.

Map 4.2 – Population weighted by Distance



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A Wider View of Productivity

4.16 Measures of other factor inputs of productivity were included in the analysis. These include those identified as factor inputs for productivity through the literature review, and those likely to have an influence on productivity in rural areas. According to many sources, data on competition and investment are difficult to obtain for small geographical levels. We have not included data on competition. Connectivity and transport infrastructure provides some indication of the level of government investment, but we have been unable to obtain information on private investment. The drivers that we have sought to measure are set out below.

4.17 ***Enterprise:*** including firm density and business age, derived through the IDBR, and business births, measured by VAT registration/deregistrations. Also, the industrial sector of firms, whether in high value or traditional industries, sourced from the IDBR.

4.18 ***Employment:*** the extent to which people in the local area are economically active and available to work, identified by the economic activity rate. The occupational area of employment is also explored. This provides another proxy for skills, but also the extent to which workers are working in 'specialised' or 'general' occupations.

4.20 ***Innovation:*** The report produced by Benneworth (2003) for DEFRA suggests that employment in knowledge-intensive businesses, and R&D activity are indicators of progress towards high productivity in rural areas. This data was not available at MSOA or LA level. Broadband demand was used as a proxy to indicate the propensity to adopt new technology in remote rural areas.

4.21 ***Connectivity and Commuting:*** explored through the 'distance to nearest city' and 'weighted distance' indicators. We have also analysed the area taken up by road and rail in each MSOA. Commuting data at LAD level has been used to explore the mobility of the workforce, and the extent to which employers source their workforce from local or sub-regional labour markets. Broadband coverage from Point Topic is included as an enabler of online transactions, cost savings, and e-commerce.

4.22 ***Investment in Skills:*** The Rural Advocate's report suggests that, in remote areas, limited availability of training provision compounds skills shortages. We have included data on employer investment in workforce skills, in terms of financial investment, time, and engagement with training providers, from the National Employer Skills Survey.

4.23 ***Cultural Factors:*** A number of studies[28] suggest that low aspirations in remote rural areas inhibit skills development, career progression, and business growth and diversification. For this reason, we seek to include other sources such as the 'Not Entering HE Rate' provided by the Index of Multiple Deprivation. The McLeod Review[29] also suggests that employee engagement is a key determinant of organisational performance. This relates to the culture of the organisation, and the extent to which employees are engaged in its strategic direction and have a say in how it is run.

Spatial Unit of Analysis

4.24 The data sources were appraised for availability at different spatial levels. Three datasets were created – one for each Lower Super Output Area (LSOA), Middle Super Output Area (MSOA), and Local Authority District (LAD).

4.25 **LSOA:** Our initial preference was to conduct analysis at LSOA level, as this enables the identification of rural 'pockets' where low skills have a greater effect on productivity. However, while data on skills, occupations and employment is available at this level, data that can provide a proxy to productivity – such as household income or business turnover – is not.

4.26 **MSOA:** A wide range of variables is available at MSOA level, from the Census, Annual Survey of Hours and Earnings, and the Inter-Departmental Business Register (IDBR). Unlike LSOA level, data is available for average household income and enterprise turnover at MSOA level. These can be used to provide a proxy for productivity, and can be used to explore the relationship with skills and other variables at a relatively low geographical level. Some of the 'qualitative' variables, however, such as National Employer Skills Survey and National Business Survey are not available at this level.

[28] Association of Teachers and Lecturers (2008) *Poverty and Social Exclusion in Rural Areas*; Lincolnshire Assembly *Lincolnshire Economic Strategy 2008-2012;*
[29] McLeod D and Clarke N (2009) *Engaging for Success*:

4.27 **LAD:** Of the three spatial levels, LAD enables analysis of the greatest range of variables. However, with 40 local authority districts in the East Midlands, there are concerns about the statistical significance of correlation testing at this level, particularly when these are sub-divided into rural and urban. We have conducted some initial regression analysis of key indicators – including skills, pay, rurality and connectivity – at this geographical level and have found that the relationships between variables are less clear than for MSOA level. This may be because the (relatively) large geographical spaces of local authority districts conceal sub-district variation in the variables.

4.28 For this reason, MSOA has been used as the preferred geographical level of analysis, while LAD has been used to show the 'bigger picture' and to reference smaller sample datasets such as the National Employer Skills Survey and Labour Force Survey.

Stage 3: Data Gathering and Analysis

4.29 Tables 4.1 and 4.2 set out the independent variables for analysis at MSOA level, together with two productivity indicators. In this table, skills can be considered independent *and* dependent. So, we have analysed the relationship of the productivity measures with skills, enterprise, employment, innovation etc, but also explore the relationship of skills with all the other drivers. As with the existing studies we have reviewed for this project, correlations/regressions have been run for these relationships.

Table 4.1: Analysis at MSOA level

Dependent Variable	**Measure**	**Source**
Residence-based Productivity	Average weekly household income	ASHE
Firm-based Productivity	Turnover per Employee	IDBR
Dependent Variable/Driver	**Measure**	**Source**
Residents' Skills	Proportion of Working Age Population with NVQ 4/5	Census
	Proportion of Working Age Population with NVQ 1/2	2001/LFS
	% employed as manager, professional, associate professional	
	% employed in skills trades	
Drivers	**Measure**	**Source**
Enterprise	Firm Population	IDBR
	Firm Density	IDBR
	Firm Size	IDBR
	Self-Employment	VAT data
	% agricultural units	IDBR
	% manufacturing units	IDBR
	% public administration units	IDBR
Employment	Economic activity rate	Census/LFS
	Claimant count rate	ONS
Innovation	Broadband Take Up	Point Topic
Communications Infrastructure	Distance to nearest large city (km)	AA
	Weighted population to nearest large city (km)	AA
	Broadband coverage	Point Topic
Rurality	Rural urban morphology	DEFRA
Deprivation (as an indication of cultural factors)	Difficulty of access to owner occupation indicator	IMD
	Not entering Higher Education rate	
	% with limiting long term illness	

4.30 Some data sources are only available at LAD level. Table 4.2 sets out the dependent and independent variables for analysis at this level. At this level, we have been able to explore the relationship of productivity with less tangible drivers, such as employee engagement, community leadership, and access to training and business support services.

Table 4.2: Analysis at LAD level/wider analysis

Dependent Variable	Measure	Source
Residence-based Productivity	GVA per head	ONS
	Gross Weekly Pay	ASHE
Firm-based Productivity	GVA by industry group	ONS
	Turnover per Employee and per Enterprise	IDBR
Dependent Variable/Driver	**Measure**	**Source**
Work-based Skills/ Competencies	% of Firms reporting skills gaps	NESS
	% of Firms reporting skills-shortage vacancies	NESS
Drivers	**Measure**	**Source**
Enterprise	Firm Births and Deaths	NOMIS
	Age of Firms	IDBR
	Size of Firms	IDBR
Innovation	% of firms involved in R&D	ABI
	Investment in R&D	ONS
	Access to Knowledge Institutions	EM Innovation
Connectivity and Commuting	Connectivity to large urban centres	AA
	Connectivity to transport hubs	AA
	Broadband coverage	Point Topic
Employment	Jobs Density	ONS
	Commuting data	Census 2001
Investment in Skills	% employers that offer apprenticeships	NESS
	Number of employer funded training days	NESS
	Expenditure on training	NESS
	Engagement with Further Education providers	NESS
Cultural Factors	Participation of 18 year olds in HE by domicile	POLAR/HEFCE
	Employee Engagement	Gallup

Section 5 – The Relationship between Productivity, Skills and Rurality in the East Midlands

Productivity

5.1 Table 5.1 compares the average for two proxies for productivity – weekly household income and turnover per employee – across urban, accessible rural, and remote rural areas. Rural areas demonstrate higher levels of income and turnover compared with urban areas. On both measures, rural areas that lie within 20km of a large urban are shown to perform better than those that are more remote.

Table 5.1 –Household Income and Turnover per Employee for Urban, Accessible and Remote Rural MSOAs

	Average Weekly Household Total Income Estimate	Turnover per Employee (£'000s)
urban	573.37	89.16
accessible rural	697.53	106.40
remote rural	627.82	92.82
Total	600.16	92.35

Source: ONS Crown Copyright, NeSS Model Based Income Estimates 2007/08 and IDBR 2009

5.2 Tables 5.2 and 5.3 show the local authority districts in the East Midlands with the lowest and highest gross weekly pay. The tables present data for variables that provide proxies for productivity: employee pay and enterprise turnover per employee. As the tables show, the relationship between pay and turnover per employee is not immediately clear at a local authority district level. This suggests that the locations where output is generated are different from where it is consumed.

5.3 Table 5.2 shows that the local authorities with the highest gross weekly pay are primarily rural, with Blaby as the only urban authority in the top ten earning districts in the region. Table 5.3 shows that the lowest earning districts are primarily urban, with the rural districts of Boston, Bolsover and East Lindsey in the bottom 10 earning authorities.

Table 5.2 – Pay, Turnover and GVA for the Local Authorities with the Highest Gross Weekly Pay

LA_NAME	Rural/Urban	Gross Weekly Pay (£)	Turnover per Employee (£'000s)
Rushcliffe	Rural	612	86
Derbyshire Dales	Rural	562	38
Daventry	Rural	545	110
Harborough	Rural	517	92
East Northamptonshire	Rural	514	120
Charnwood	Rural	505	101
South Northamptonshire	Rural	505	104
Rutland	Rural	504	127
Blaby	Urban	499	136

Source: ONS Crown Copyright, Annual Survey of Hours and Earnings 2009 and IDBR 2009

Table 5.3 – Pay, Turnover and GVA for the Local Authorities with the Lowest Gross Weekly Pay

	Rural/Urban	Gross Weekly Pay (£)	Turnover per Employee (£'000s)
Boston	Rural	369	85
Bolsover	Rural	384	155
Leicester	Urban	385	89
Corby	Urban	407	121
Ashfield	Urban	409	166
Chesterfield	Urban	410	50
Nottingham	Urban	416	81
East Lindsey	Rural	418	71
Mansfield	Urban	422	73

Source: ONS Crown Copyright, Annual Survey of Hours and Earnings 2009 and IDBR 2009

5.4 Tables 5.4 and 5.5 present the middle super output areas (MSOAs) with the highest and lowest average weekly household incomes respectively, together with turnover per employee. This data is presented solely for MSOAs that have been defined as rural, and so provides an indication of the most and least affluent rural areas in the region.

5.5 The MSOAs with the highest weekly household income are primarily in the west of the East Midlands, located around, but not very proximate to, the principal urban areas of Nottingham, Leicester, Northampton as well as Sheffield and Manchester. The MSOAs with the lowest incomes can be divided into those that in Lincolnshire, of which there are six, and those in the north Nottinghamshire and Derbyshire area. Of those in Lincolnshire, East Lindsey has three areas in the bottom 10 income group. The appearance of rural areas of Mansfield, Bolsover and North East Derbyshire suggest that the former coalfields area is associated with low incomes.

Table 5.4 – Household Income and Turnover per Employee for MSOAs with Highest Household Income

MSOA	Average Weekly Household Income	Lower Confidence Level	Upper Confidence Level	Turnover per Employee (£'000s)
South Derbyshire 004	950	820	1100	70
Rushcliffe 012	940	810	1080	70
South Northamptonshire 004	920	800	1070	120
Charnwood 016	920	800	1070	80
Gedling 001	920	800	1060	30
Rushcliffe 015	880	760	1010	90
Daventry 004	880	760	1020	80
Charnwood 008	860	750	990	100
Amber Valley 016	860	740	990	70
Harborough 006	850	740	980	90

Source: ONS Crown Copyright, Annual Survey of Hours and Earnings 2009

Table 5.5 – Household Income and Turnover per Employee for MSOAs with Lowest Household Income

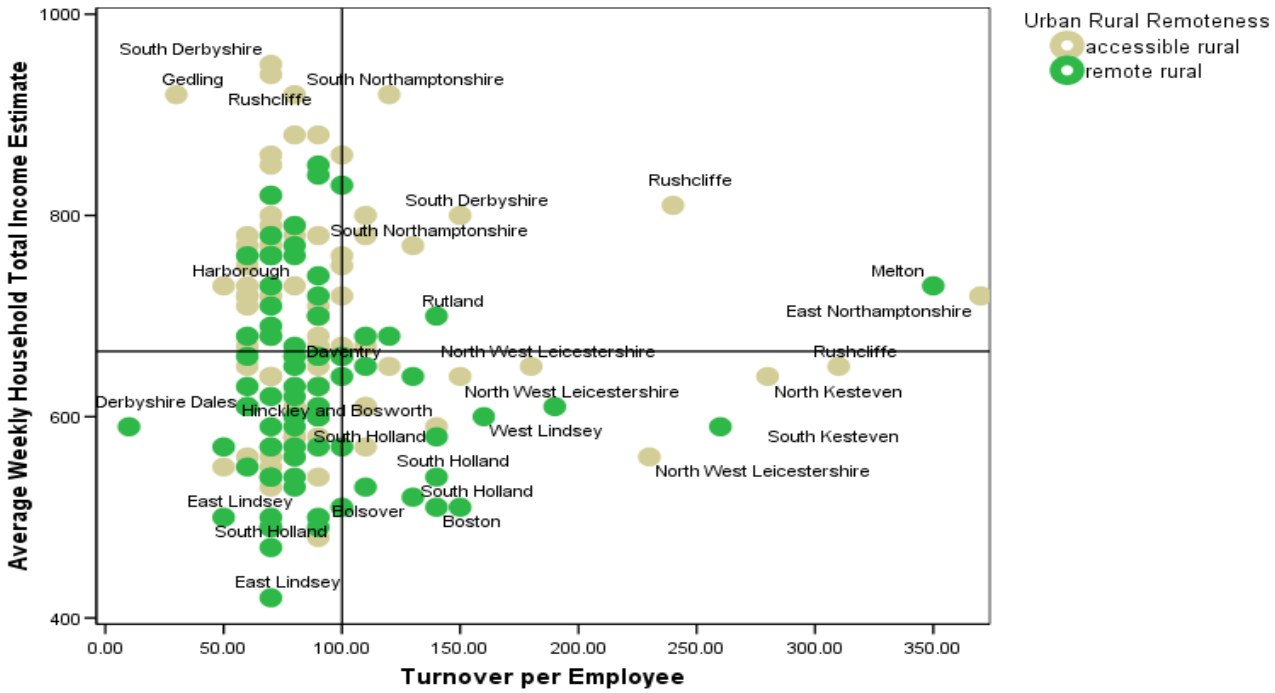
MSOA	Average Weekly Household Income	Lower Confidence Level	Upper Confidence Level	Turnover per Employee (£'000s)
East Lindsey 010	420	370	490	70
South Holland 003	470	410	540	70
North East Derbyshire 003	480	410	550	90
North Kesteven 007	490	430	570	70
Mansfield 001	490	420	560	70
Mansfield 002	490	430	570	70
Boston 007	490	420	570	90
East Lindsey 013	500	440	580	50
East Lindsey 017	500	430	570	70
Bolsover 003	500	440	580	90

Source: ONS Crown Copyright, Annual Survey of Hours and Earnings 2009

5.6 Graph 5.1 provides a comparison of household income and turnover per employee for Middle Super Output Areas in the rural areas of the region. The graph shows that there are just 10 out of 168 rural MSOAs where turnover and income are above the mean (in the top right quadrant). Of these, seven have been identified as accessible rural, and three as remote. These can be regarded as the areas of the region that are productive both in terms of workplace and in terms of the income brought into the place of residence.

5.7 Remote rural areas are more highly represented in the lower right quadrant of the graph, which shows areas with a high level of turnover per employee but below average incomes. Of the twenty MSOAs in this quadrant, 11 are in remote rural areas.

Graph 5.1 – Turnover per Employee and Average Weekly Household Income at MSOA Level

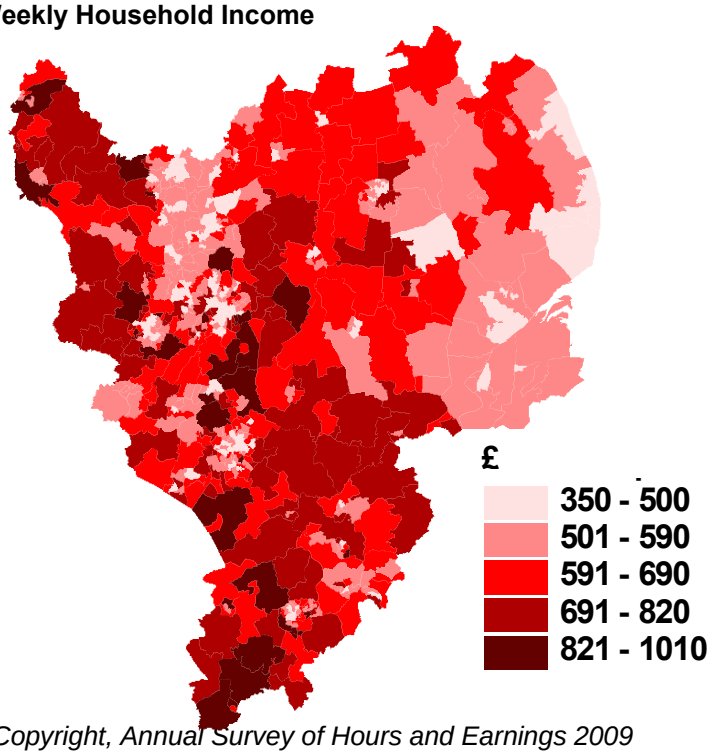


Source: ONS Crown Copyright, Annual Survey of Hours and Earnings 2009 and IDBR 2009

5.8 Maps 5.1 and 5.2 set out the average weekly household income and turnover per employee for Middle Super Output Areas. Here, differences in the spatial disparities in the two indicators are easier to observe, as well as differences in the distribution of each indicator. The top quintile for household income is found in pockets around the three cities region, and along the M1 corridor. Higher incomes are found towards the west and the south of the region. The bottom quintile for income is largely restricted to east and central Lincolnshire, north Nottinghamshire, and to urban areas.

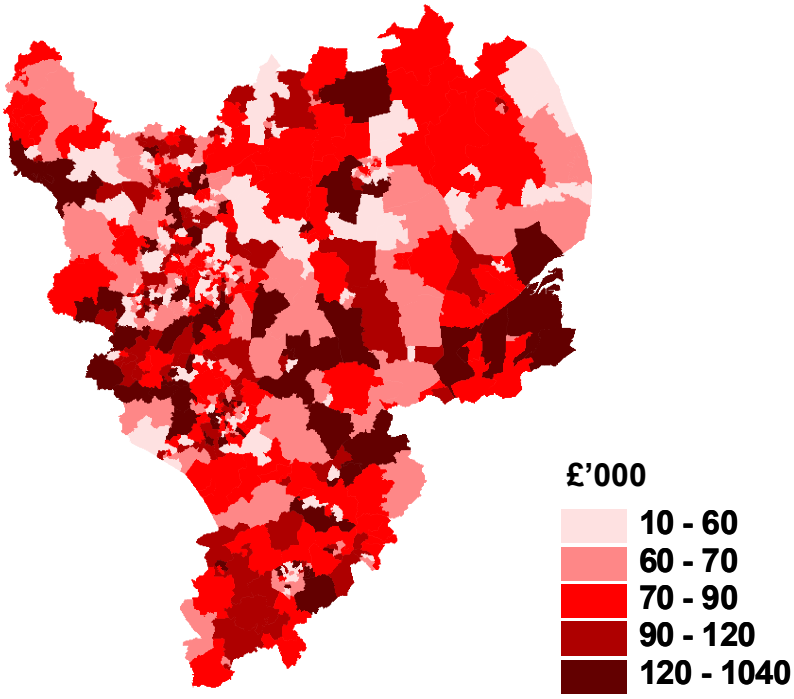
5.9 Turnover per employee is much more evenly distributed throughout the East Midlands, with no discernable east-west divide as that found for income. Areas with high levels of turnover per employee are those associated with manufacturing and, in particular, larger firms. South Derbyshire has the highest level of turnover per employee, perhaps influenced by the presence of Toyota UK. Other rural districts that perform well on this indicator include North West Leicestershire, South Holland, Hinckley and Bosworth, Melton, Rushcliffe, West Lindsey and Rutland.

Map 5.1 - Average Weekly Household Income



Source: ONS Crown Copyright, Annual Survey of Hours and Earnings 2009

Map 5.2 -Turnover per Employee



Source: ONS Crown Copyright, IDBR 2009; these maps are produced using data provided through EDINA UKBORDERS with support from ESCR and JISC and use material which is copyright of the crown

Skills

5.10 Graph 5.2 sets out the proportion of people holding highest qualifications at each level, taking an average of MSOAs classed as urban, accessible rural and remote rural. Remote rural areas have a lower proportion of the working age population with qualifications at all levels compared with accessible rural areas. Almost a third of the working age population in remote rural areas have no qualifications. Remote rural areas perform slightly better than urban areas in the proportion holding level 2 and 4/5 qualifications, but still lag behind accessible rural areas. Just 6% are qualified to level 3 in remote rural areas, which is lower than both urban and accessible rural areas.

5.11 Graphs 5.3 to 5.7 set out the proportion of the population with each type of qualification by urban, accessible rural and remote rural areas. The box plots represent the distribution of each percentage by MSOA level, with the outliers represented by symbols and individually labelled. The graphs show that, across all levels of qualification, rural areas demonstrate a more 'compressed' range, and do not show the extremes of highly qualified and unqualified populations evident in urban areas. Urban MSOAs, by comparison show the greatest dispersal. In other words, urban areas have the highest concentrations of highly qualified residents, but also the highest concentrations of the least qualified residents.

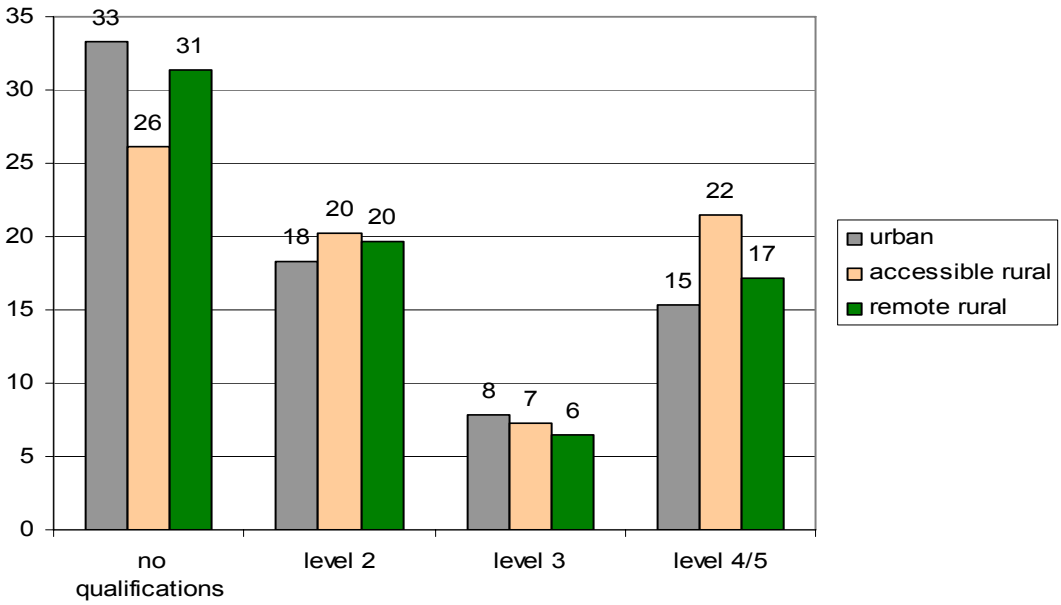
5.12 Graphs 5.3 and 5.4 suggest that, across the two types of rural areas, the remote rural East Midlands has more areas with high concentrations of unqualified residents. It also has fewer areas with high proportions of people with level 2 skills, with the exception of Rutland as an outlier.

5.13 As graph 5.5 shows, rural remote areas have the lowest proportions of people qualified to level 3, and few rural areas of the East Midlands have more than 10% of the working age population qualified to this level. The highest concentrations of level 3 qualifications are found in a small number of areas within the five principal urban areas and Loughborough. The East Midlands as a whole is under-represented in level 3 skills, which is similar to the pattern across the UK. The national skills strategy, *Skills for Growth*, emphasises the need to develop greater strengths at level 3 to redevelop a 'technician class' in the UK.[30]

5.14 Graph 5.6 shows that accessible rural areas have the highest concentrations of people qualified to level 4, with remote rural areas demonstrating lower concentrations. Urban areas, on average, have the lowest proportions of residents with level 4 qualifications. However, Graph 5.5 shows that there are a number of outliers in and around Nottingham and Leicester, in particular, where more than 30% of people are qualified to level 4.

[30] BIS (2009) *Skills for Growth: the National Skills Strategy*

Graph 5.2 – % of Working Age Population at each Qualification Level, by Urban, Accessible and Remote Rural MSOAs

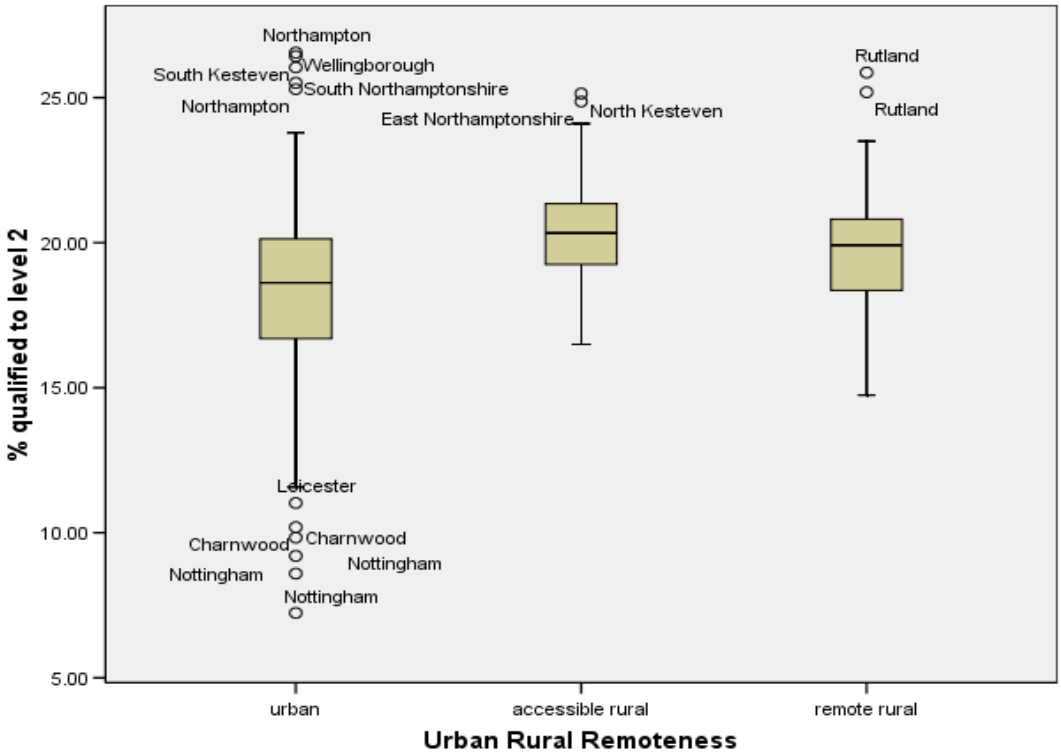


Source: ONS Crown Copyright, Census 2001

Graph 5.3 – Proportion with No Qualifications at MSOA level by Urban, Accessible Rural and Remote Rural

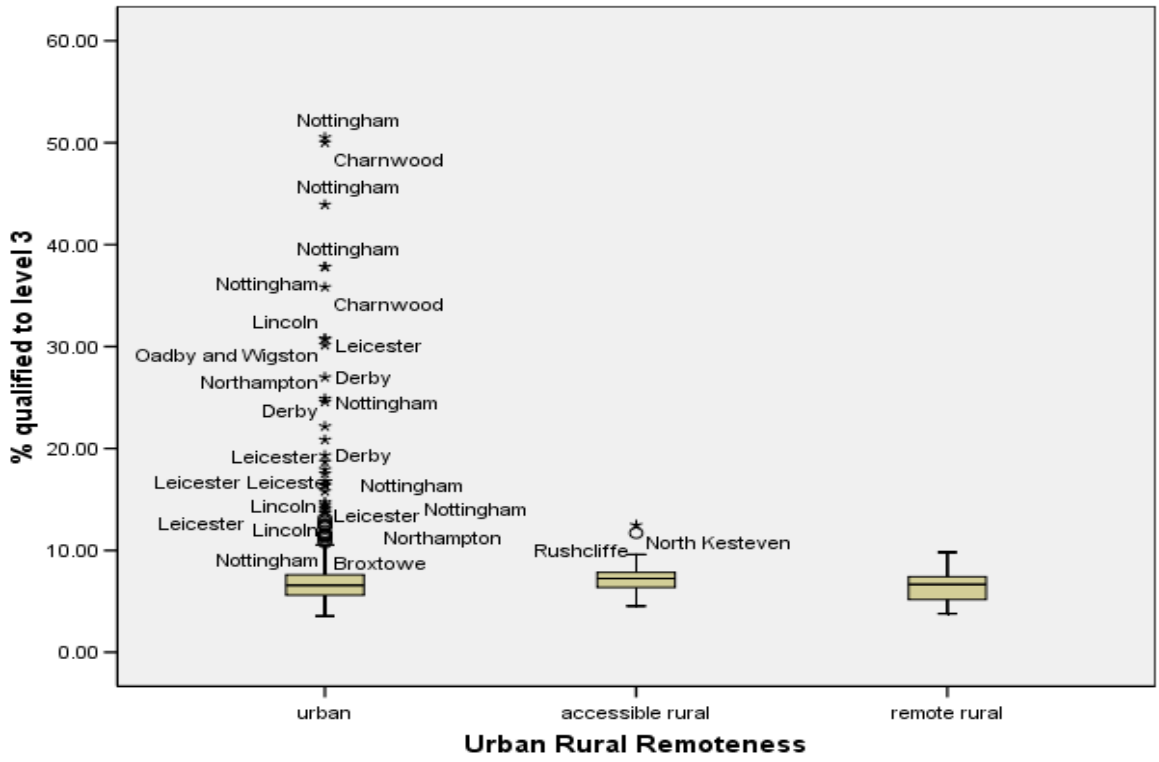
Source: ONS Crown Copyright, Census 2001

Graph 5.4 – Proportion with Level 2 as Highest Qualification at MSOA level by Urban, Accessible Rural and Remote



Source: ONS Crown Copyright, Census 2001

Graph 5.5 – Proportion with Level 3 as Highest Qualification at MSOA level by Urban, Accessible Rural and Remote



Source: ONS Crown Copyright, Census 2001

Graph 5.6 – Proportion with Level 4/5 at Highest Qualification at MSOA level by Urban, Accessible Rural and Remote

Source: ONS Crown Copyright, Census 2001

The Relationship between Productivity and Skills in Rural Areas

5.15 Table 5.6 sets out correlations for each level of qualification attainment and average weekly household income. The strength of the relationship is highest when closer to 1 or -1, and weakest when closer to 0. Across all areas, the proportion of population with no qualifications is inversely correlated with income. In other words, lack of qualifications within the resident population is associated with lower incomes. This relationship is slightly stronger for accessible rural and remote rural areas, which implies that unqualified workers in rural areas are at more of a disadvantage in terms of household income.

5.16 The table suggests that, in remote rural areas, level 2 and 3 qualifications are more positively associated with income than in accessible rural areas. Level 4 qualifications are both very strongly associated with income across both accessible and remote rural areas, and this relationship is weaker in urban areas. The weaker relationship between level 4/5 qualifications and income in urban areas could be attributed to the higher proportion of employment in education, health and public administration in the region's towns and cities. These are occupations that require higher level qualifications but may achieve lower incomes than highly skilled occupations in the private sector. This initial analysis shows that the relationship between qualification levels and income is stronger in remote rural areas, and this could indicate that skills 'count' in rural areas that are remote from large urban centres. More detailed analysis of the relationship between skills and income is set out in Appendix 3.

Table 5.6 – Pearson Correlations for Qualification Level with Average Weekly Household Income

	All MSOAs	Urban	Accessible Rural	Remote Rural
% with no qualifications	-.743(**)	-.684(**)	-.859(**)	-.885(**)
% qualified to level 1	-.065	.079	-.632(**)	-.443(**)
% qualified to level 2	.643(**)	.631(**)	.417(**)	.647(**)
% qualified to level 3	-.053	-.090	.561(**)	.807(**)
% qualified to level 4/5	.690(**)	.594(**)	.858(**)	.887(**)
Total MSOAs	**571**	**404**	**89**	**78**

** Correlation is significant at the 0.01 level (2-tailed).

Source: ONS Crown Copyright, Census 2001

5.17 One way to explore the relationship between skills and income in different geographical areas is to analyse the residuals that are created when running regression analysis for the skills and income variables. Maps 5.3 to 5.5 set out the standardised residuals for regressions of skills and weekly household income, with income as the dependent variable. Positive values (in red) indicate where the MSOA lies above the fit line for the mean, in other words where income is higher than would be expected for the level of qualification. Negative values (in blue) indicate where the MSOA lies below the mean - where incomes are less than would be expected for the level of qualification. Areas in yellow indicate MSOAs that lie close to the fit line, so follow the expected trend.

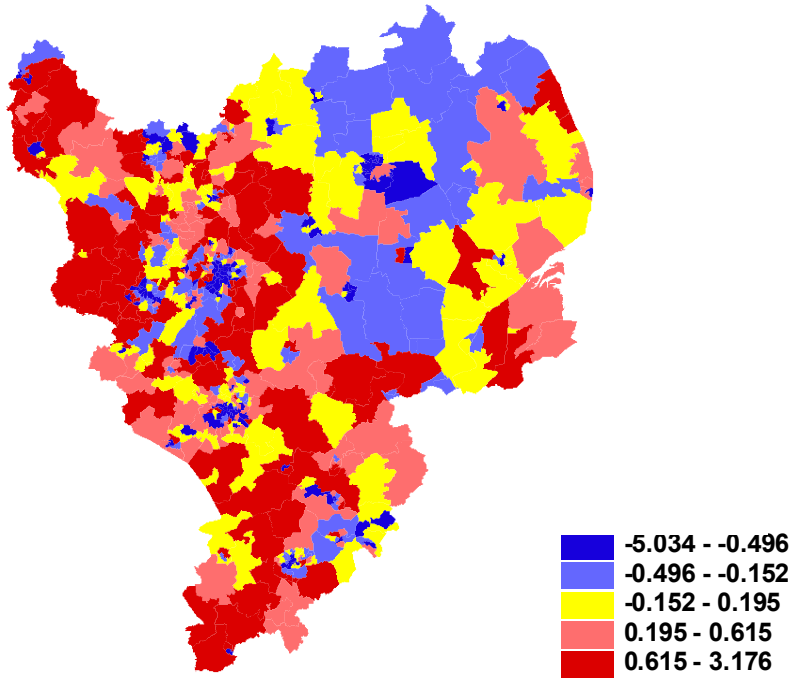
5.18 Across all three maps, there is an east-west divide in the distribution of positive (red) and negative (blue) residuals. The areas shown in blue are primarily in the east of the region and in the principal urban areas. This fits with our existing understanding of household income in the region, as set out in Map 5.1, which shows that the lowest incomes are found in Lincolnshire, and in urban pockets. Conversely, areas shown in red across all three maps tend to be in rural areas around Nottingham, Leicester, Derby and Northampton.

5.19 For the three qualification levels, the distribution of the residuals varies. For the relationship between no qualifications and weekly household income, shown in Map 5.3, the most negative residuals are restricted to urban locations. Perhaps surprisingly, low qualifications are associated with higher than expected incomes in eastern Lincolnshire. This might be associated with the high retirement population in this area of the region.

5.20 The east west divide is most discernible in Map 5.4, which shows the residuals for level 2 qualifications and household income. Here, level 2 qualifications are most strongly associated with high incomes in the area around the three core cities of Nottingham, Leicester and Derby, and around Northampton. This may be because of the relative greater availability of low or intermediate skilled employment available for those living within commutable distance of the three cities. Level 2 qualifications are more negatively associated with income in central and eastern Lincolnshire and in the east of Northamptonshire, which may reflect a limited availability of routine or intermediate level occupations in these areas.

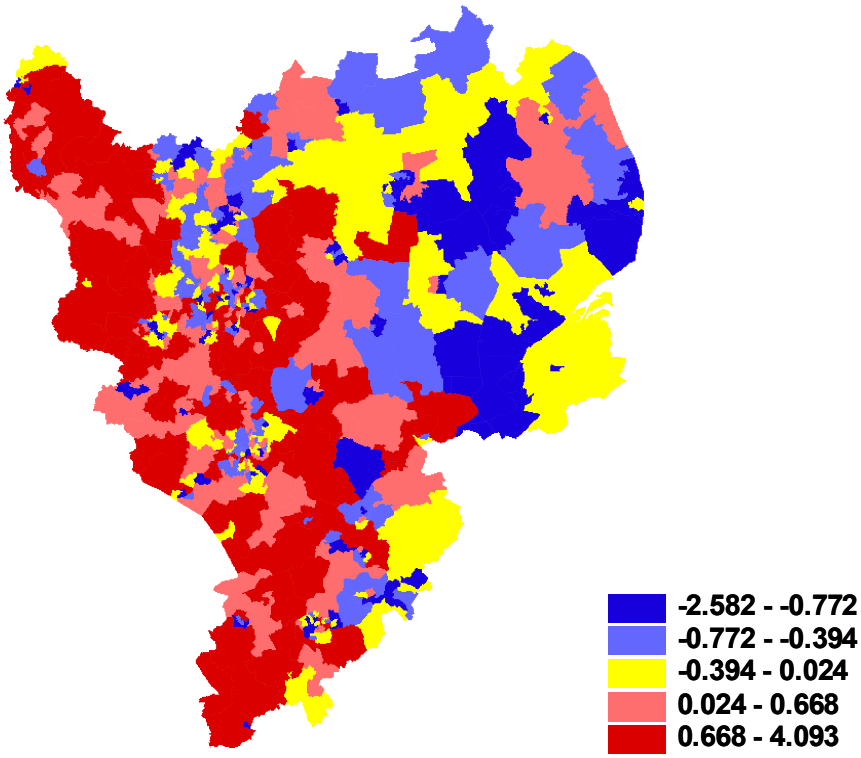
5.21 Level four qualifications, shown in Map 5.5, are most negatively associated with household income in urban areas. This is particularly the case in pockets of the 'three cities'. This may be because of the high proportion of public sector employment in these areas, which require high level skills but may be associated with lower wages than might be achieved in the private sector. The most positive residuals (in red) are concentrated in a small geographical area, in Northamptonshire in particular, Rutland, and to the east and west of Nottingham and Derby. These are the areas where high level skills are most likely to be associated with high earnings. This may partly reflect the employment 'pull' of London or the South East region, and may also be associated with a 'corridor effect' associated with the A1 and East Coast mainline to the east of the core cities, and the M1 to the west of the three cities.

Map 5.3 - No Qualifications and Weekly Household Income – Standardised Residuals



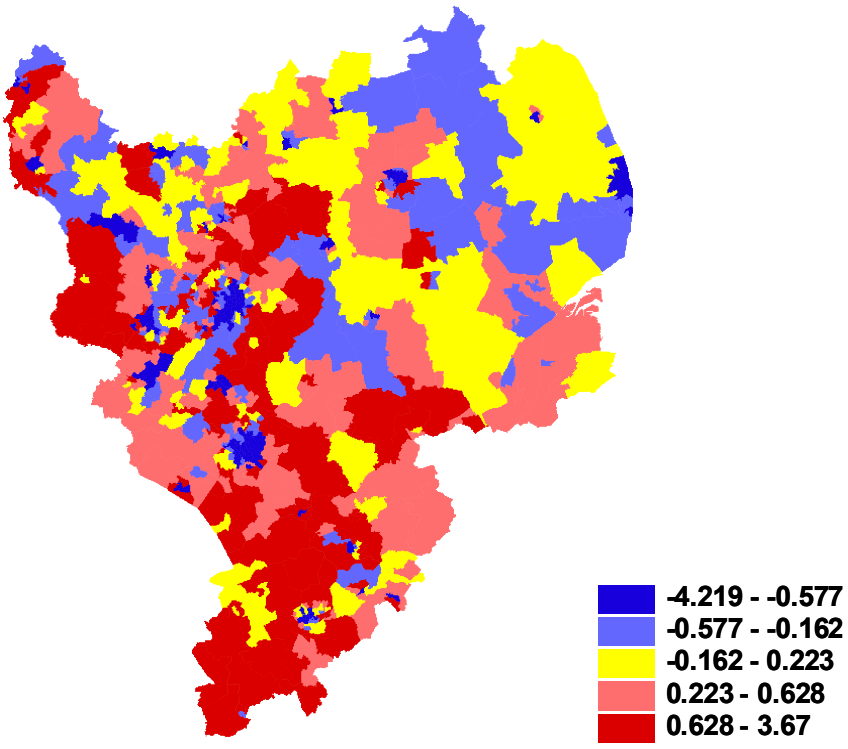
Source: ONS Crown Copyright, Census 2001and NeSS Model Based Income Estimates 2007/08

Map 5.4 – Level 2 Qualifications and Weekly Household Income – Standardised Residuals



Source: ONS Crown Copyright, Census 2001and NeSS Model Based Income Estimates 2007/08

Map 5.5 – Level 4/5 Qualifications and Weekly Household Income – Standardised Residuals



Source: ONS Crown Copyright, Census 2001and NeSS Model Based Income Estimates 2007/08
These maps are produced using data provided through EDINA UKBORDERS with support from ESCR and JISC and use material which is copyright of the crown

Section 6 – A Wider View of Skills and Productivity in Rural Areas

6.1 This section takes a wider view of the skills-productivity relationship, and examines the drivers that have affect the 'residual' in total factor productivity. These are the factors that have been identified through the literature as factor inputs for productivity, and specifically those that are identified as having an influence on productivity in rural areas. The relationship of these drivers with skills and productivity (measured by income and/or turnover) is examined in turn. The drivers are:

- **Enterprise**
- **Employment**
- **Innovation**
- **Cultural Factors/Aspirations**
- **Connectivity**

6.2 The full correlation analysis for these variables is presented in Appendix 2. Only those relationships that are shown to be significant are included in this section. The data presented is here is primarily at MSOA level. The analysis uses weekly household income as the primary proxy for productivity. This is for two reasons: (i) weekly household income is a residence based indicator and so provides a more consistent comparator with skills and employment indicators which are also residence based; (ii) turnover per employee appears to be influenced by the presence of large firms so does not necessarily provide a fair measure of productivity in rural areas, where there are fewer large firms. We do, however, provide further analysis of turnover per employee in the LAD level analysis in section 7.

Enterprise

6.3 A number of factors related to enterprise, including company age, public/private status, industrial sector, and size, are examined in this section. The firm population in remote rural areas is shown to be older, with a higher proportion of firms more than 10 years old, and a lower proportion of companies that are less than 2 years old compared with urban and accessible rural areas. Remote rural areas have more micro-firms (0-4 employees), fewer firms that employ more than 20 people, and a lower proportion of multi-site businesses than accessible rural or urban areas. They also have a slightly higher proportion of public sector employers compared with accessible rural areas.

Table 6.1 – Means for Urban, Accessible Rural and Remote Rural MSOAs on Enterprise Indicators

	Firms Per Person	% companies less than 2 years old	% companies more than 10 years old	% employing 0-4 persons	% employing 20+ persons	% multi-site business units
Urban	0.54	16.9	39.6	66.3	10.4	14.4
Accessible Rural	0.72	15.4	42.8	75.8	5.9	13.1
Remote Rural	0.76	14.8	43.3	75.1	5.7	10.5
Total	0.60	16.4	40.6	68.9	9.0	13.7

Source: ONS Crown Copyright, Census 2001and IDBR 2009

6.3 The enterprise picture in remote rural areas, then, is of an established and stable business population with a relatively low rate of new business starts. Firms are generally smaller than in either accessible rural or urban areas, and more likely to be independently owned.

6.4 Exploring the relationship of these firm characteristics with skills and income shows that the number of ***firms per head*** of population, and the ***size of firms*** have the most significant relationships with both income and skills in rural areas. The number of firms per head provides an indication of firm density, and the number of firms employing 0-4 people provides an indication of the proportion of micro-businesses within the enterprise population.

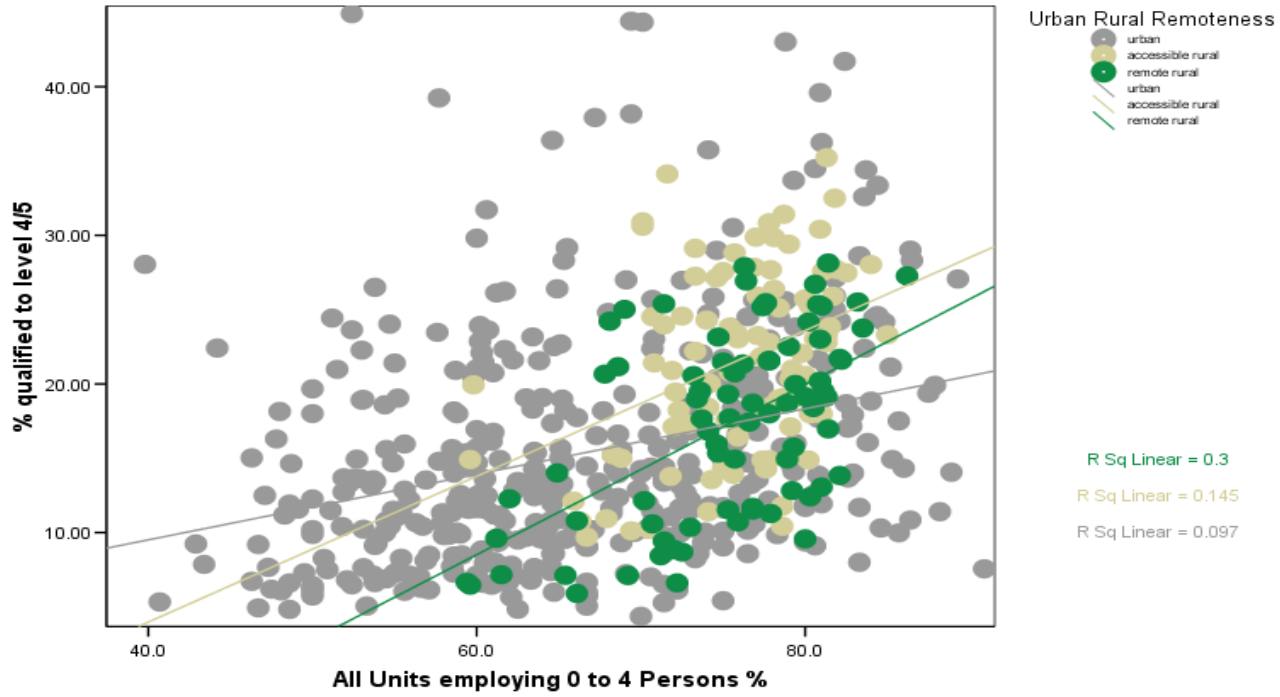
Table 6.2 – Pearson Correlations for Firms with 0-4 employees, Firms per Person with Income and Skills

	Urban		Accessible Rural		Remote Rural	
	% Firms employing 0-4 Persons	Firms per Person	% Firms employing 0-4 Persons	Firms per Person	% Firms employing 0-4 Persons	Firms per Person
Average Weekly Household Total Income Estimate	.586(**)	-.104(*)	.438(**)	.398(**)	.485(**)	.626(**)
% qualified to level 4/5	.312(**)	.188(**)	.381(**)	.522(**)	.548(**)	.726(**)

Source: ONS Crown Copyright, Census 2001and IDBR 2009

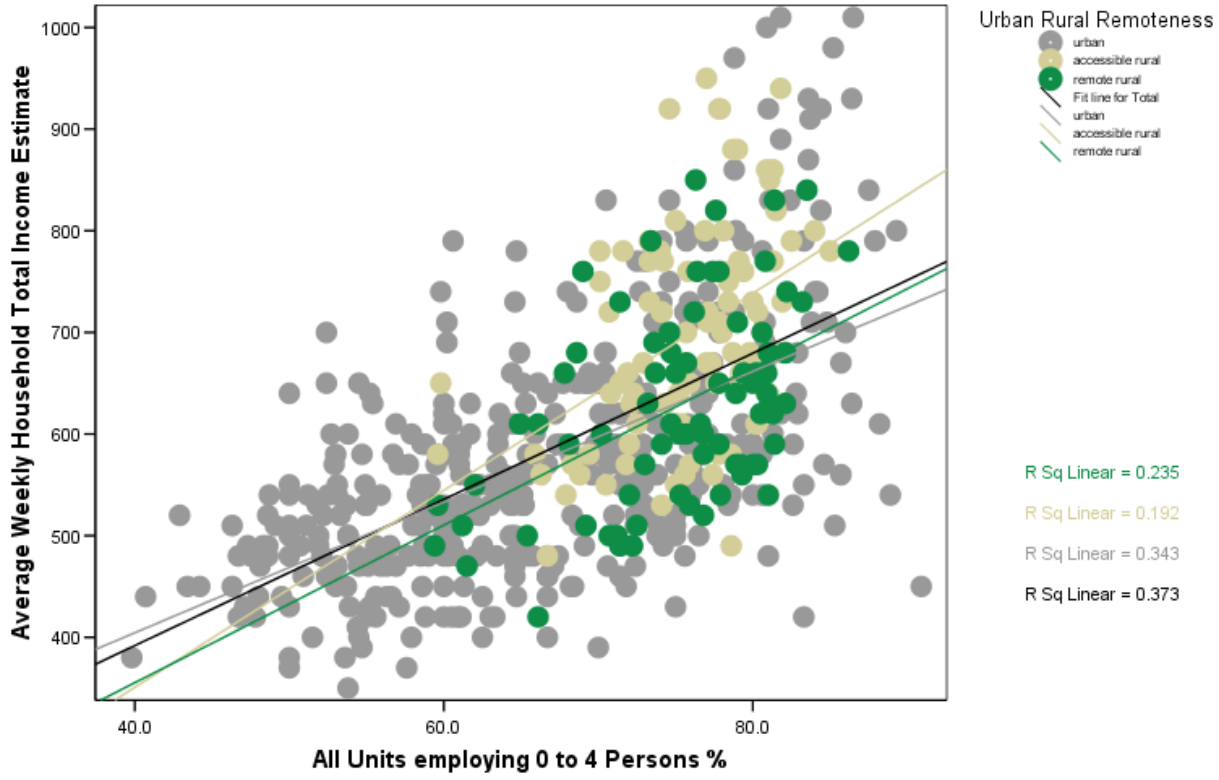
6.5 **Micro-Businesses:** the correlation analysis suggests that for both accessible and remote rural areas, the presence of micro-businesses is associated with higher qualifications. Rather than micro-businesses affecting skills in rural areas, it is more likely that areas with higher skills sustain the creation and growth of micro-businesses. This relationship, however, may be self-reinforcing, as vibrant economies with many small, independent firms are in turn likely to attract highly qualified workers. Micro-businesses are also shown to be associated with higher incomes, and this may be because of the high proportion of owner-managers in areas with micro- and small firms, although this relationship is similar for urban and rural areas.

Graph 6.1 – % Firms employing 0-4 persons and % qualified level 4



Source: ONS Crown Copyright, Census 2001 and IDBR 2009

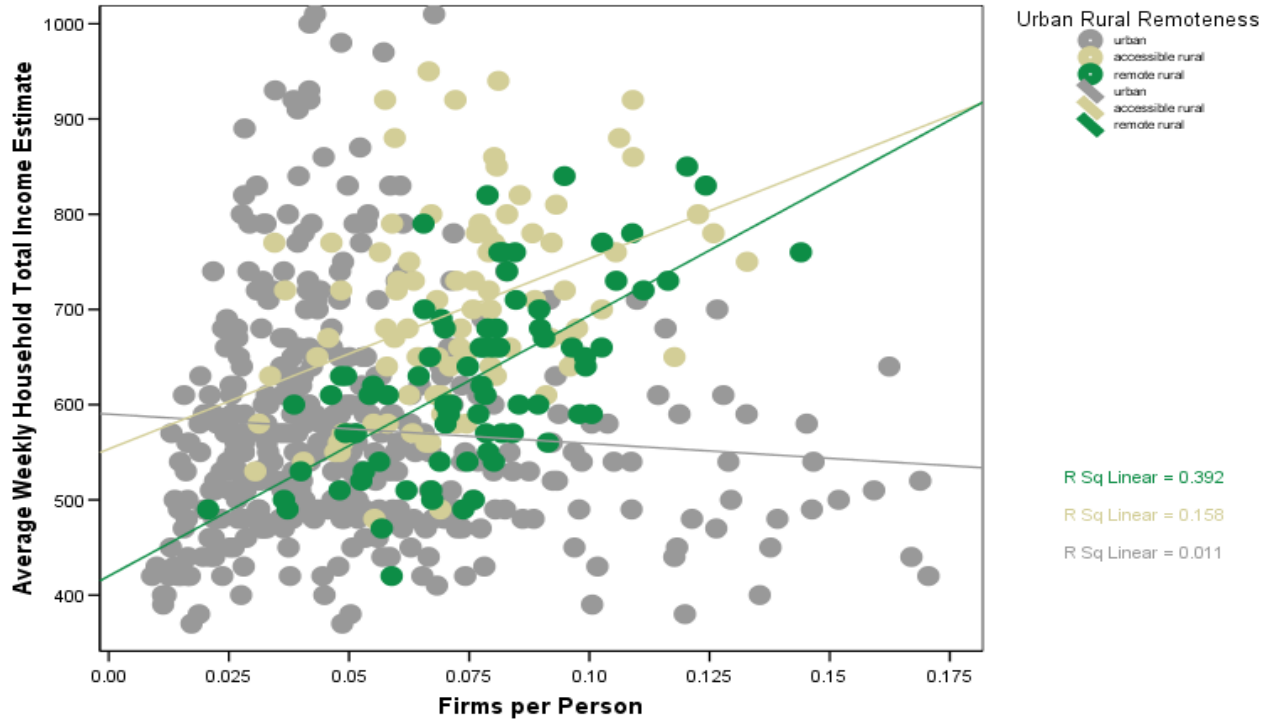
Graph 6.2 – % Firms employing 0-4 persons and Average Weekly Household Income



Source: ONS Crown Copyright, Census 2001 and IDBR 2009

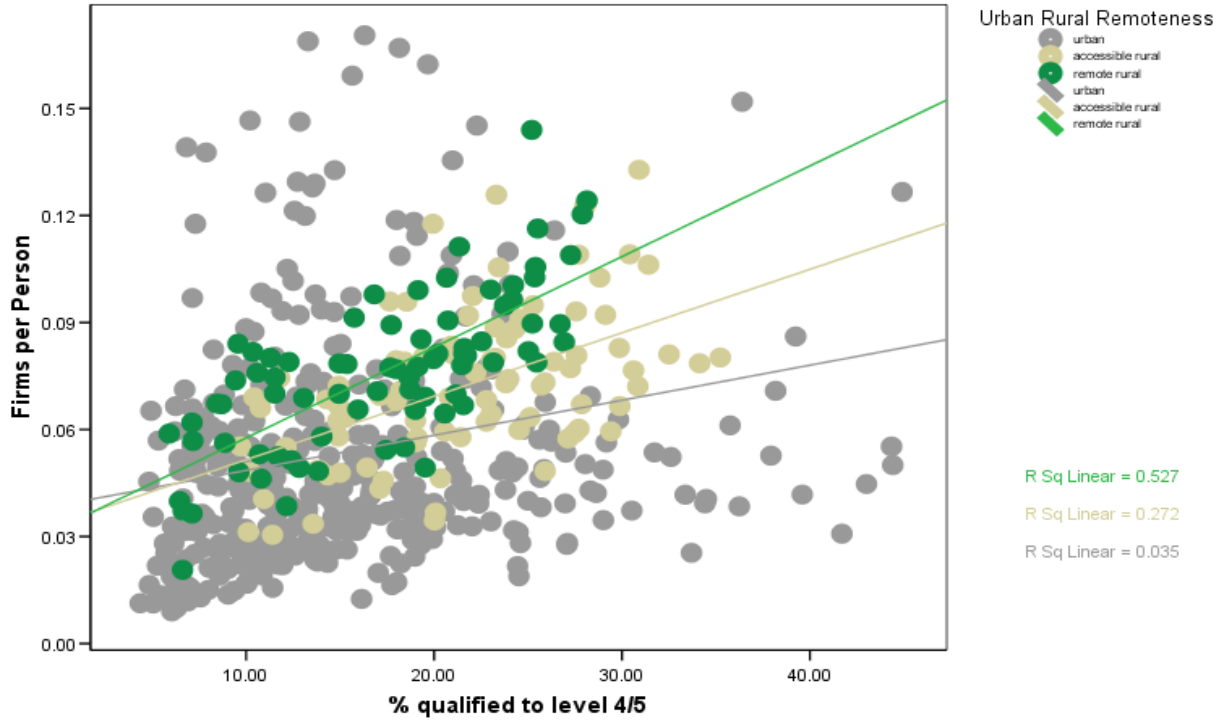
6.6 **Firm Density:** the number of firms per person is shown to be highly correlated with both income and skills in rural remote areas in particular, with an unclear relationship between these variables in urban areas. Graph 6.3 shows that the majority of urban MSOAs demonstrate incomes and firm densities that are below the mean, with outliers in a 'V' shaped scatter. Urban areas with high firm densities are associated with lower incomes, while those with the highest income are associated with low firm densities. In other words, this indicates a spatial separation of industrial and residential locations in urban areas, with areas where there are many firms associated with lower incomes for local residents. This relationship is different for rural areas, with firm densities in remote rural areas most strongly associated with income. This could suggest more contained service centre hinterlands and labour markets in remote rural areas.

Graph 6.3 – Firms per Person and Average Weekly Household Income



Source: ONS Crown Copyright, Census 2001 and IDBR 2009

Graph 6.4 – Firms per Person and % qualified to level 4/5



Source: ONS Crown Copyright, Census 2001 and IDBR 2009

Employment – Labour Market Participation

6.7 This section examines the relationship of a number of factors related to employment, economic activity, and Jobseekers' Allowance claimants with skills and income. Remote rural areas have the lowest rates of economic activity, which is similar to that for urban areas, and the lowest rates of employment. Unemployment is highest in urban areas, but remote rural areas demonstrate higher claimant count rates than accessible rural areas. Remote rural areas also have the highest concentrations of retired residents, and a relatively high proportion of residents that are sick or disabled. Across all labour market participation indicators, accessible rural areas perform well, with high rates of economic activity, employment, and a low rate of claimant count unemployment.

Table 6.3 – Means for Urban, Accessible Rural and Remote Rural MSOAs on Employment Indicators

	Economic Activity Rate	Employment Rate	% Retired	% permanently sick/disabled	All Claimants - Rate	Claimants Aged 18-24 Rate
urban	66.68	53.92	13.54	5.76	2.62	4.911
accessible rural	69.68	54.72	15.45	3.74	1.09	2.535
remote rural	66.56	51.07	16.46	4.96	1.46	3.613
Total	67.12	53.66	14.24	5.34	2.22	4.363

Source: ONS Crown Copyright, Census 2001 and ONS Claimant Count 2010

6.8 Rural areas, overall, are associated with high rates of employment and low rates of unemployment. Table 6.3 shows that unemployment is indeed lower in rural than urban areas. However, labour market participation is greatest in rural areas that are within easy access of large urban centres.

6.9 Exploring the relationship of these employment indicators with skills and income shows that the ***economic activity*** rate and the ***claimant count unemployment*** rate have the most significant relationships with both income and skills in remote rural areas. Table 6.4 shows the strength of the association of these indicators with income and level 3 and 4/5 skills.

Table 6.4 – Pearson Correlations for Claimant Count and 18-24 Claimant Count with Income and Skills

	Urban		Accessible Rural		Remote Rural	
	All Claimants - Rate	Economic Activity Rate	All Claimants - Rate	Economic Activity Rate	All Claimants - Rate	Economic Activity Rate
Average Weekly Household Total Income Estimate	-.665(**)	.651(**)	-.757(**)	.149	-.858(**)	.708(**)
% qualified to level 3	-.098(*)	-.350(**)	-.566(**)	.236(*)	-.772(**)	.771(**)
% qualified to level 4/5	-.431(**)	.239(**)	-.740(**)	-.35	-.831(**)	.673(**)

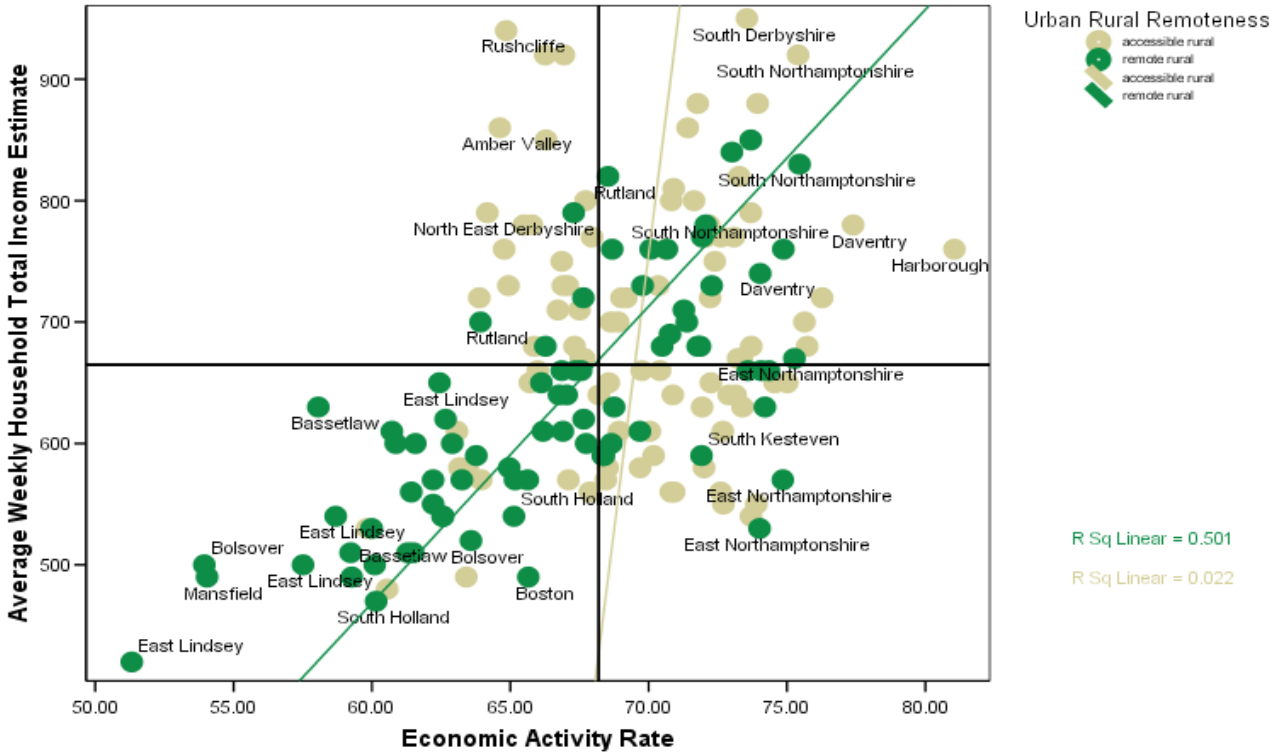
** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

Source: ONS Crown Copyright, ONS Claimant Count 2010

6.10 **Economic Activity:** the economic activity rate includes those that are employed, studying and working, or looking for work. It provides an indication of the extent to which the resident population are engaged in the labour market. The economic activity rate is shown to be strongly correlated with income in urban and remote rural areas, but with an unclear relationship with income in accessible rural areas. This relationship is presented in more detail in Graph 6.5, which shows that remote rural areas of East Lindsey, Mansfield, Bolsover and Bassetlaw all demonstrate low levels of economic activity and income. There are a number of accessible rural areas, however, with below average levels of economic activity that demonstrate high levels of income, including Rushcliffe, Amber Valley and North East Derbyshire. This could suggest that earnings from employment or endowments in these areas are sufficiently high to bring about large household incomes despite higher rates of economic inactivity.

6.11 The relationship of economic activity with skills is also shown to be highest in remote rural areas. As with income, the relationship of economic activity with skills is not clear for accessible rural areas. This could suggest that skills are less of a determinant of economic activity in accessible rural compared with remote rural areas. The relationship of level 3 skills and economic activity in remote rural areas is particularly strong, which could suggest – as indicated in section 5 – that level 3 skills are relatively more significant in remote rural economies.

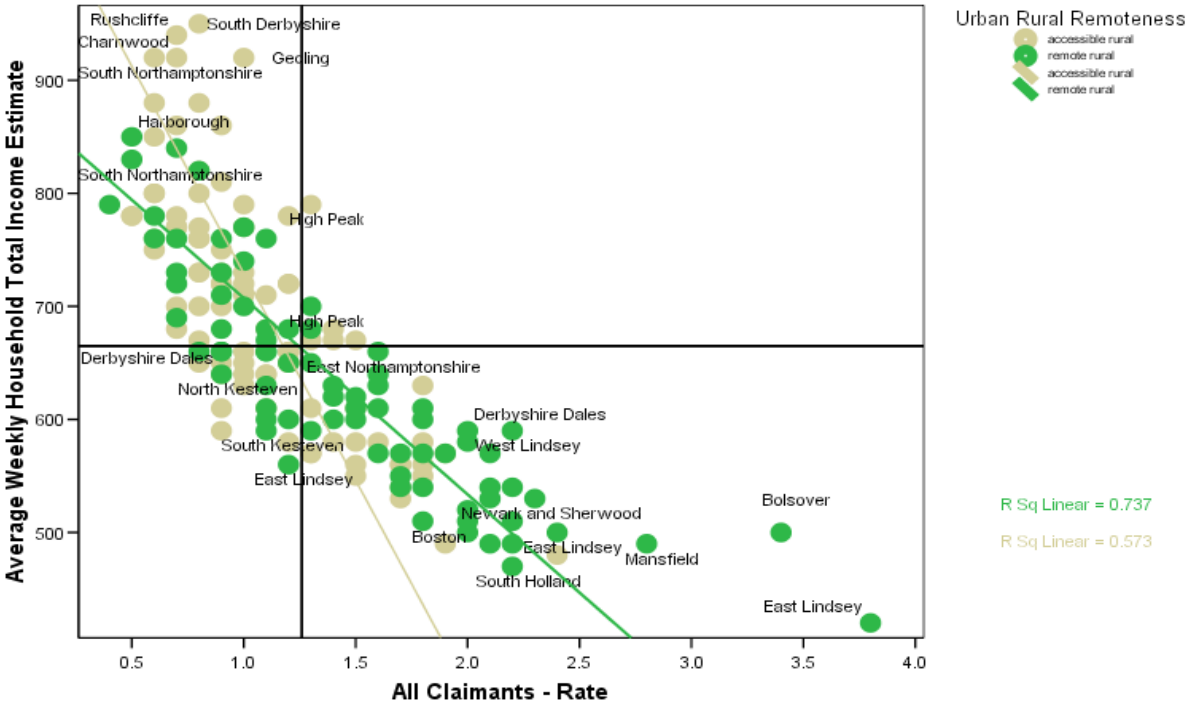
Graph 6.5 – Economic Activity Rate and Average Weekly Household Income



Source: ONS Crown Copyright, Census 2001 and NeSS Model Based Income Estimates 2007/08

6.12 **Unemployment:** The claimant count is inversely correlated with both income and level 3 and 4/5 qualifications, and this relationship appears to be stronger in remote rural areas, as Graph 6.6 shows. As with economic activity rates, the relationship is stronger with level 3 qualifications in remote rural areas. Within the claimant count cohort, the rate of claims among 18-24 year olds appears to have the greatest negative association with level 3 and 4/5 qualifications. This indicates that, in the remote rural East Midlands, areas with low levels of people qualified to level 3 and 4/5 are more likely to demonstrate high levels of unemployment. Low skills may be one of a number of factors, including fewer accessible job opportunities and low aspirations, that reduce the potential for residents to find employment in remote rural labour markets.

Graph 6.6 – Claimant Rate and Average Weekly Household Income



Source: ONS Crown Copyright, NeSS Model Based Income Estimates 2007/08 and ONS Claimant Count 2010

Employment – Occupational Area

6.13 This section focuses on the occupational area of employment. Table 6.5 sets out the average proportion of managers, skilled trades, process operatives and elementary occupations across rural and urban areas. Rural areas overall have a high proportion of managers and senior officials when compared with urban areas. These occupations are most highly represented in accessible rural areas, which might be explained by their proximity to large urban centres where there is a high proportion of public sector employment, but also by the high number of micro-businesses in accessible rural areas. Skilled trades are also higher in rural areas, but these are highest in remote rural locations. Process operatives and elementary occupations are most highly represented in urban areas, but also in remote rural areas.

Table 6.5 – Means for Urban, Accessible Rural and Remote Rural MSOAs on Occupation Indicators

	Managers and senior officials	Professional occupations	Skilled trades occupations	Process; plant and machine operatives	Elementary occupations
urban	12.83	9.02	12.24	11.99	14.98
accessible rural	18.43	12.43	12.63	8.36	10.48
remote rural	16.73	9.68	14.48	10.79	13.57
Total	14.23	9.64	12.64	11.26	14.09

Source: ONS Crown Copyright, Census 2001

6.14 Within rural areas, locations that are within easy access of nearby cities are the preferred location for those in higher order occupations, such as managers and professionals. Lower order occupations, such as skilled trades, process and elementary occupations are likely to be found in higher concentrations in more remote rural locations.

6.15 Exploring the relationship of these occupations with skills and income shows that the ***managerial*** and the ***skilled trade*** occupations have the most significant relationships with both income and skills in remote rural areas. Table 6.6 shows the strength of the association of these indicators with income and each of the skills levels.

Table 6.6 – Pearson Correlations for Managerial and Skilled Trades Occupations with Income and Skills

	Urban		Rural Accessible		Rural Remote	
	Managers and senior officials	Skilled trades occupations	Managers and senior officials	Skilled trades occupations	Managers and senior officials	Skilled trades occupations
Average Weekly Household Total Income Estimate	.833(**)	-.332(**)	.858(**)	-.641(**)	.800(**)	-.479(**)
% with no qualifications	-.736(**)	.588(**)	-.822(**)	.660(**)	-.830(**)	.484(**)
% qualified to level 2	.575(**)	.109(*)	.423(**)	-.308(**)	.616(**)	-.389(**)
% qualified to level 3	.063	-.559(**)	.559(**)	-.551(**)	.748(**)	-.510(**)
% qualified to level 4/5	.640(**)	-.767(**)	.841(**)	-.663(**)	.881(**)	-.459(**)

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

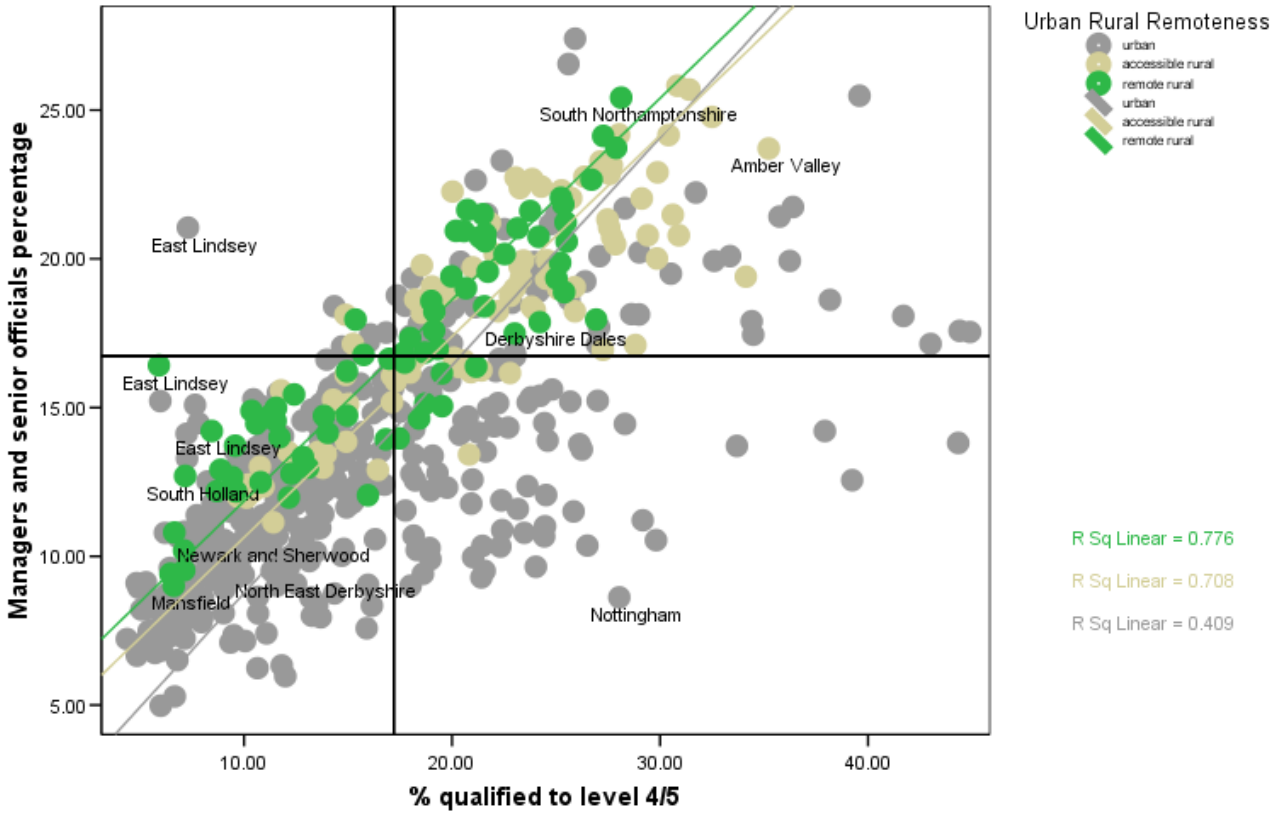
Source: ONS Crown Copyright, Census 2001

6.16 **Managerial Occupations:** across urban, accessible and remote rural areas, managerial occupations have a similar relationship with income. They are strongly associated with high incomes, whether in urban or rural locations. This relationship is slightly stronger for accessible rural locations and urban locations, compared with remote rural. This means that remote rural areas with high numbers of managers are likely to have slightly lower incomes than areas with similar proportions of managers in urban and accessible rural areas.

6.17 Managerial occupations are strongly associated with level 4 qualifications, as graph 6.7 suggests. This relationship is strongest for both remote and accessible rural areas. Urban areas, by contrast, show a number of areas that demonstrate high qualifications, but lower numbers of managers. This is partly because of concentrations of other highly skilled occupations, such as professionals, in a small number of areas in Nottingham, Leicester, and Loughborough. These results suggest that high skills are more important in obtaining managerial occupations in rural areas. They could also suggest that highly skilled residents are more likely to work in managerial occupations in rural than in urban areas and this could be related to the high number of small firms in these areas. The managers in these areas could, in other words, be owner-managers of micro- and small businesses rather than managers within large firms. Graph 6.8

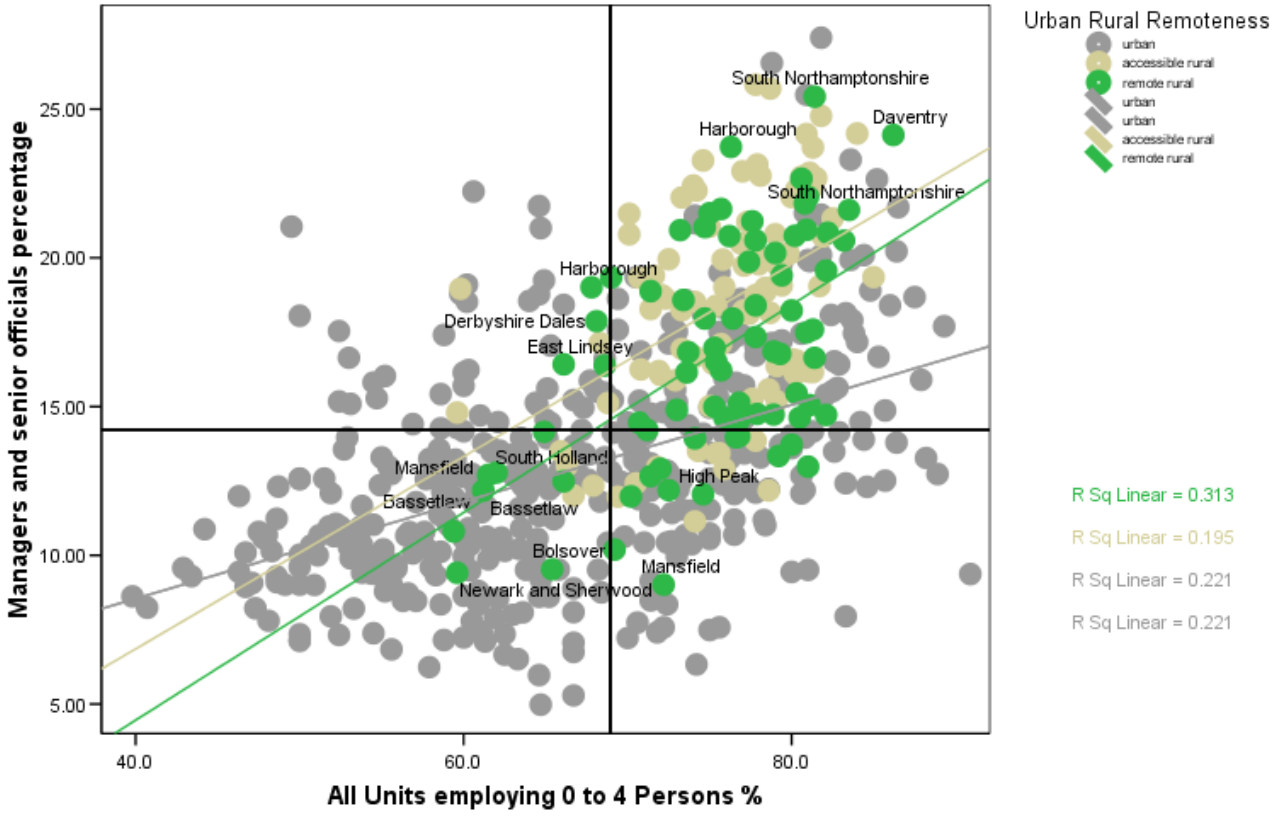
illustrates this proposition, and shows that the relationship between managers and small firms is highest in remote rural areas.

Graph 6.7 – Level 4/5 qualifications and Managerial Occupations



Source: ONS Crown Copyright, Census 2001

Graph 6.8 –Managerial Occupations and Firms employing fewer than 4 people



Source: ONS Crown Copyright, Census 2001

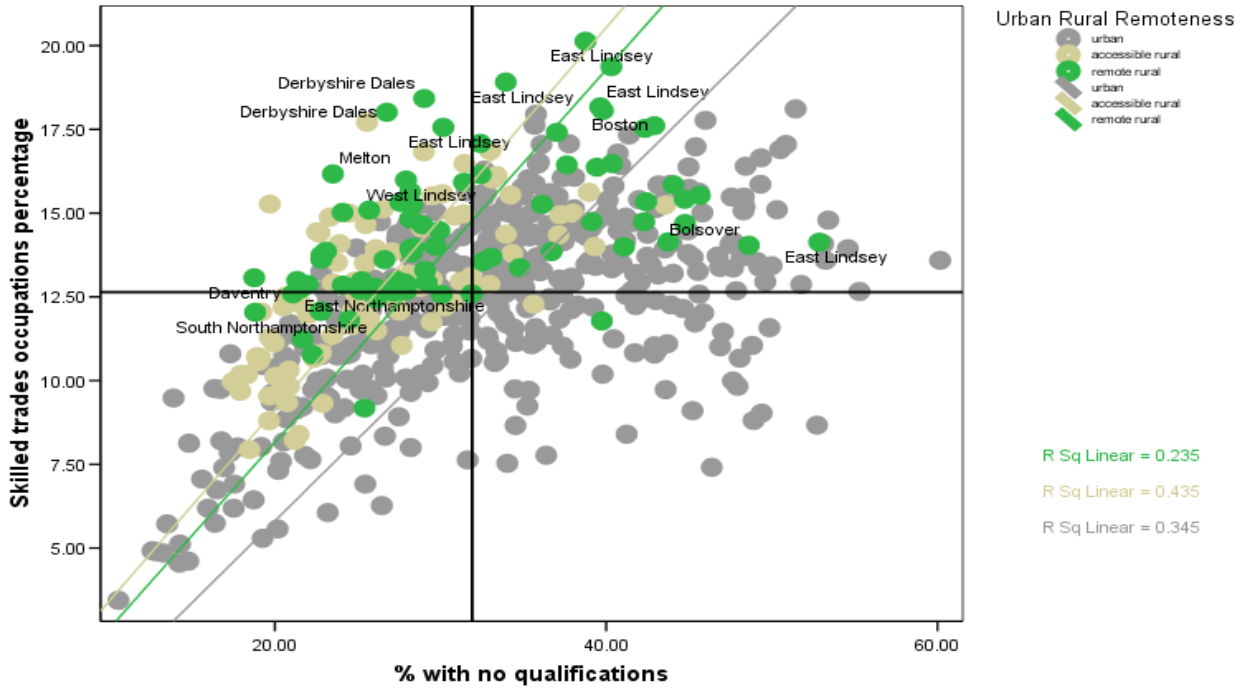
6.18 **Skilled Trades:** skilled trades occupations have a negative relationship with income across all three urban and rural categories. This relationship is stronger in rural areas, with accessible rural areas showing the most negative association between skilled trades occupations and income as shown in Graph 6.9.

Graph 6.9 – Skilled Trades and Average Weekly Household Income

Source: ONS Crown Copyright, Census 2001and NeSS Model Based Income Estimates 2007/08

6.19 Graph 6.10 shows that, across all areas, skilled trades occupations are associated with a workforce that is less qualified. However, in remote rural areas, this relationship is less strong than for other areas. There seems to be a division, however, between areas that have a more qualified workforce (Derbyshire Dales, Melton and high skilled trades, and those that have a less qualified workforce and high skilled trades (East Lindsey, Boston and Bolsover). All but one rural remote area with low levels of qualifications demonstrate high levels of skilled trades. This suggests that skilled trades may be associated with different areas of activity, with skilled trades in Derbyshire Dales and Melton more likely to be associated with manufacturing, and those in Lincolnshire more likely to be associated with agriculture.

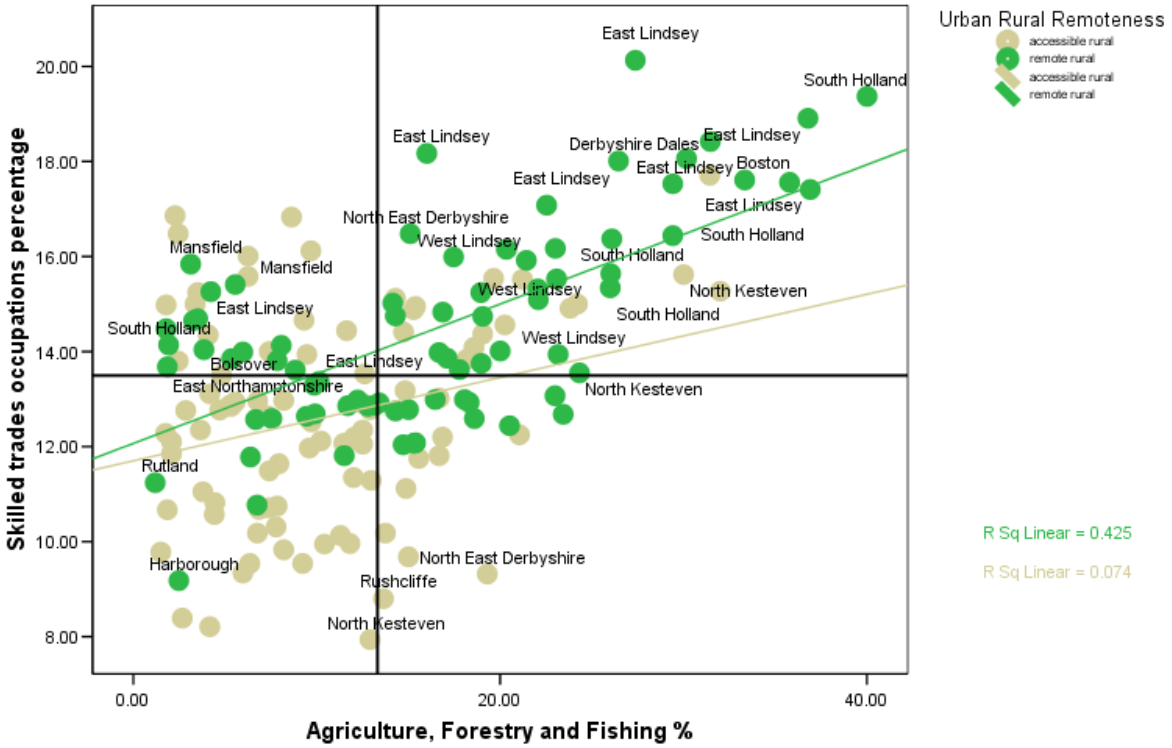
Graph 6.10 – Skilled Trades and % with no Qualifications



Source: ONS Crown Copyright, Census 2001

6.20 Graph 6.11 shows that areas with a high level of agricultural activity are also associated with highest level of skilled trades occupations. These are areas that, referring to graphs 6.10 and 6.11, also show below average incomes and skills. A conclusion from this may be that, while skilled trades are associated with slightly higher incomes in rural than urban areas, in the areas where agriculture forms the backbone of the economy, skilled trades occupations (whether in agriculture, supporting activities, or other skilled trades) are associated with lower skills and incomes.

Graph 6.11 – Skilled Trades and % with no Qualifications -



Source: ONS Crown Copyright, Census 2001 and IDBR 2009

Cultural Factors/Aspirations

6.21 This section examines a number of indicators related to broader cultural factors and aspirations. Table 6.7 sets out the average proportion of not entering higher education, not staying on in education, as well as the broadband demand index which reflects the extent of demand within business and domestic premises. As Table 6.7 shows, rural areas overall have high rates moving in to higher and further education when compared with urban areas. However, within rural areas, remote rural areas have fewer young people remaining in education at 16, and going to university. The broadband demand index suggests that remote rural areas have the lowest level of demand for broadband out of the three groups.

Table 6.7 – Means for Urban, Accessible Rural and Remote Rural MSOAs on Cultural Indicators

Urban Rural Remoteness	Not entering Higher Education Rate	Not staying on post 16 rate	Broadband Demand Index
urban	67.7	30.7	12.3
accessible rural	54.9	24.9	10.2
remote rural	63.0	26.9	8.3
Total	65.1	29.3	11.4

Source: ONS Crown Copyright, Indices of Deprivation 2007, and Point Topic 2010

6.22 The HE participation rate provides a proxy for aspirations, and the broadband demand index can be regarded as a proxy for the propensity of the local community and businesses to adopt new technology. Young people in remote rural areas are less likely to aspire to further and higher education, and this in turn is likely to affect

employment rates and incomes among young people in these areas. People in remote rural areas are less likely to access internet technology and, therefore, receive time and cost efficiencies brought about by e-commerce and e-government.

6.23 Table 6.8 shows the strength of the relationships between the ***Not Entering HE*** rate and ***Broadband Demand*** Index with weekly household income and skills. The Not Entering HE rate has a very strong relationship with weekly household income, particularly for remote and accessible rural areas. It also has a strong relationship with no qualifications, level 2 and level 4/5 in remote rural areas. The relationship of the broadband demand index with income and skills is not clear. Broadband demand is associated with level 4/5 qualifications in accessible rural areas, but with no clear relationships in remote rural areas.

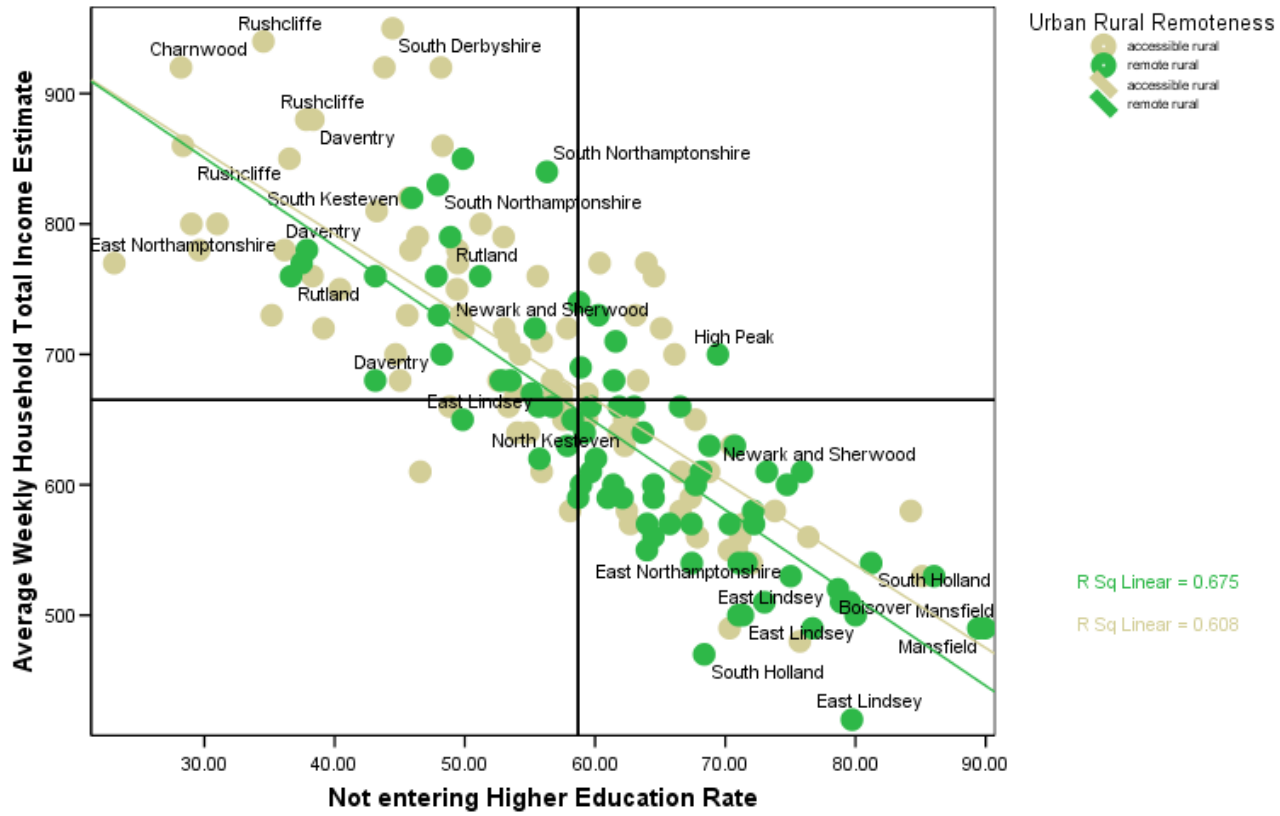
Table 6.8 – Pearson Correlations for Cultural Indicators with Income and Skills

	Urban		Rural Accessible		Rural Remote	
	Not entering HE Rate	Broadband Demand Index	Not entering HE Rate	Broadband Demand Index	Not entering HE Rate	Broadband Demand Index
Average Weekly Household Total Income Estimate	-.582(**)	.165(**)	-.780(**)	-.274(**)	-.822(**)	-.091
% with no qualifications	.697(**)	-.063	.789(**)	.254(*)	.842(**)	.097
% qualified to level 2	-.193(**)	.045	-.316(**)	-.134	-.635(**)	-.085
% qualified to level 4/5	-.780(**)	.030	-.903(**)	-.409(**)	-.880(**)	-.175

Source: ONS Crown Copyright, Indices of Deprivation 2007, and Point Topic 2010

6.24 Graph 6.12 shows the relationship between the proportion of young people not entering HE and weekly income. The graph shows that rural areas that have an income level below the mean are also areas where more than 50% of young people do not enter university, as shown by the high number of MSOAs in the bottom right quadrant. Accessible rural areas appear to diverge away from the mean fit line more than remote rural areas, which suggests that aspirations and participation in higher education have a weaker relationship with income.

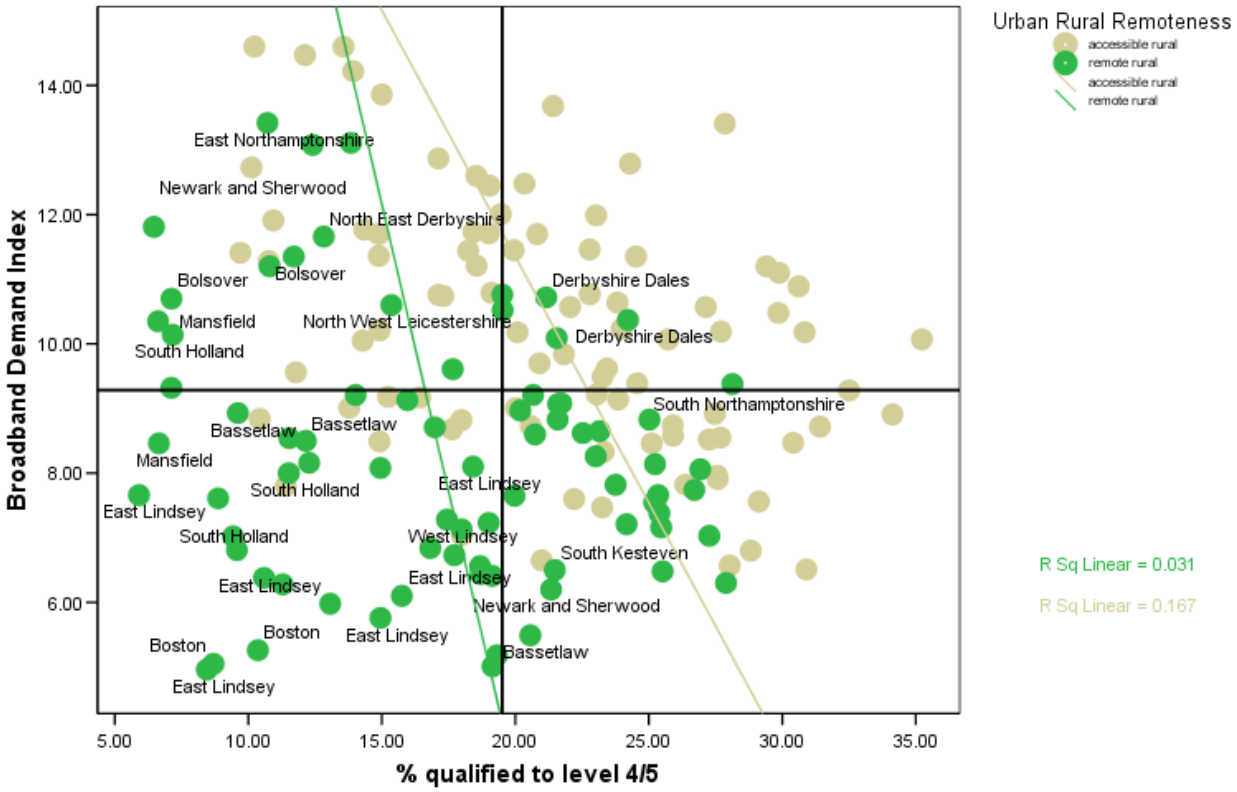
Graph 6.12 – Not entering HE rate and Average Weekly Household Income



Source: ONS Crown Copyright, Indices of Deprivation 2007 and NeSS Model Based Income Estimates 2007/08

6.25 Graph 6.13 shows that, although the relationship between broadband demand and skills is not clear, there is a high representation of remote rural areas in the bottom left quadrant, i.e. that have few highly qualified people and also a low demand for broadband. Conversely, there is a greater proportion of accessible rural areas in the top right quadrant, which shows a greater demand for broadband and higher level skills.

Graph 6.13 – Level 4/5 qualifications and Broadband Demand Index



Source: ONS Crown Copyright, Census 2001, and Point Topic 2010

Connectivity

6.26 This section examines the relationship of connectivity with income and skills, and with a number of the other indicators discussed in this section. Table 6.9 sets out a number of connectivity indicators for urban, accessible rural and remote rural areas. Unsurprisingly, accessible rural areas perform better than remote rural areas on distance to closest city and weighted distance to closest city. Remote rural areas are also shown to have a lower proportion of road and rail than accessible rural and urban areas.

Table 6.9 – Means for Urban, Accessible Rural and Remote Rural MSOAs on Connectivity Indicators

	Distance to Closest City	Weighted Distance to Nearest City	% of area taken up by road	% of area taken up by rail
urban	12.02	8.05	8.73	.36
accessible rural	13.76	4.95	5.52	.44
remote rural	28.98	3.57	3.92	.24
Total	14.61	6.96	7.57	.36

Source: ArcView Mapping Software; ONS Crown Copyright, Census 2001 and General Land Use Database 2005

6.26 Exploring the relationship of these indicators with skills and income shows that the ***distance to closest city*** and ***weighted distance to closest city*** have the most significant relationships with both income and skills in remote rural areas. Table 6.10 shows the strength of the association of these indicators with income and each of the skills levels.

Table 6.10 – Pearson Correlations for Connectivity Indicators with Income and Skills

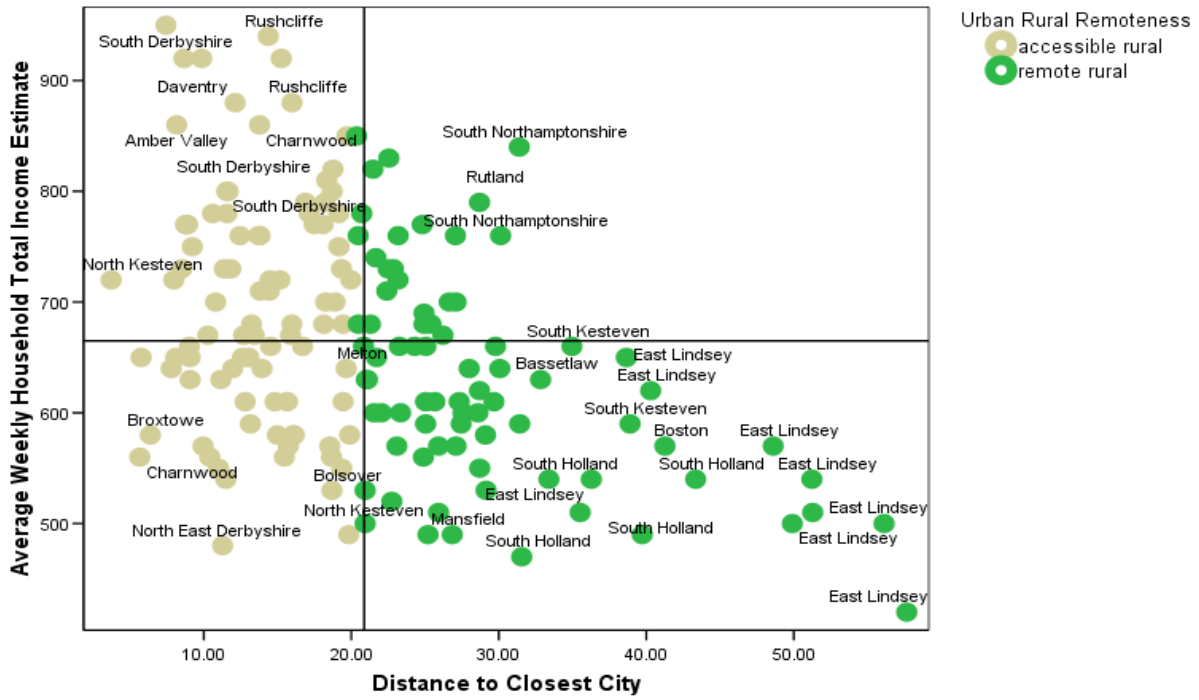
	Urban		Rural Accessible		Rural Remote	
	Distance to Closest City	Weighted Distance to Nearest City	Distance to Closest City	Weighted Distance to Nearest City	Distance to Closest City	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	.003	-.188(**)	-.058	.044	-.496(**)	.379(**)
% with no qualifications	.159(**)	.012	.134	.049	.488(**)	-.315(**)
% qualified to level 2	.217(**)	-.291(**)	-.168	-.395(**)	-.257(*)	-.033
% qualified to level 4/5	-.269(**)	.117(*)	.038	.047	-.485(**)	.411(**)

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Source: ArcView Mapping Software; ONS Crown Copyright, Census 2001

6.27 Connectivity to large urban centres is shown to have a stronger relationship with skills and income in remote rural areas compared with accessible rural and urban areas. Graph 6.14 sets out the relationship between distance to closest city and weekly household income. It shows that in remote rural areas that are more than 30km from a large urban centre, average weekly household is below average.

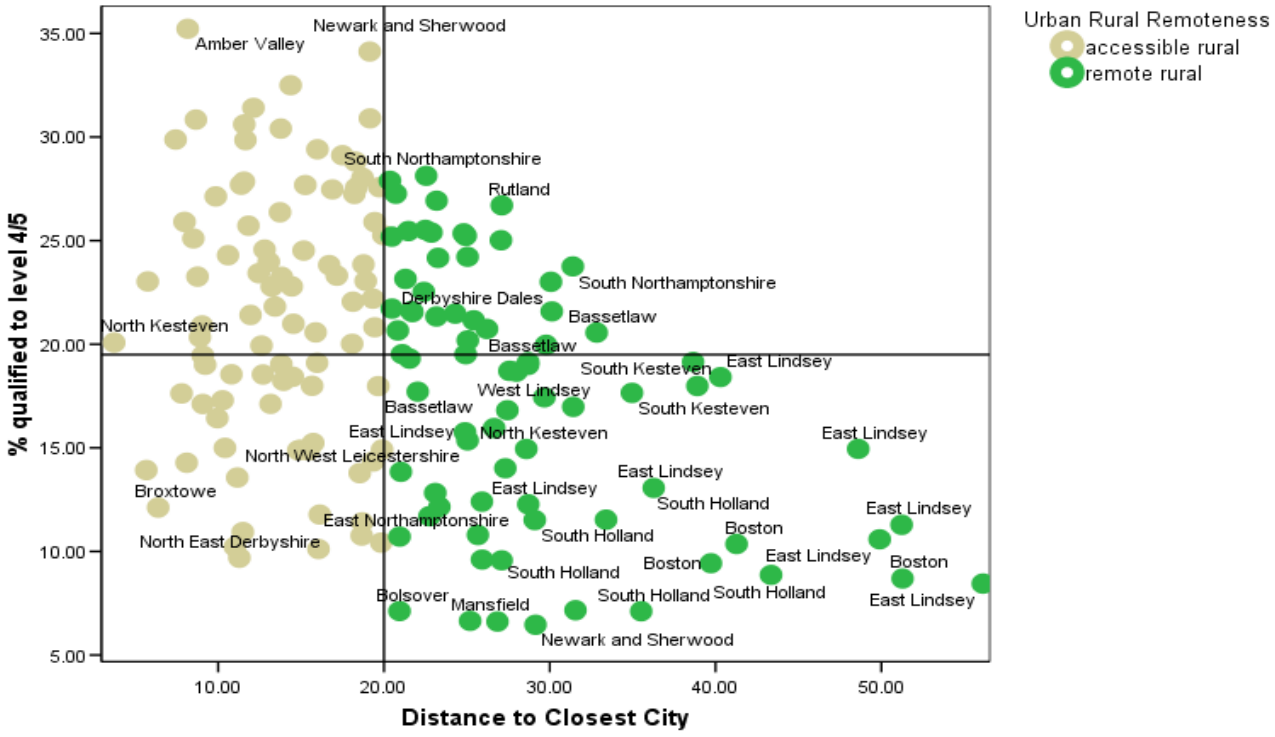
Graph 6.14 – Distance to Closest City and Weekly Household Income



Source: Arcview Mapping Software and ONS Crown Copyright, NeSS Model Based Income Estimates 2007/08

6.28 The relationship between connectivity and qualifications is set out in Graph 6.15. As with income, almost all rural areas that lie more than 30km from a large city demonstrate below average levels of 4/5 qualifications.

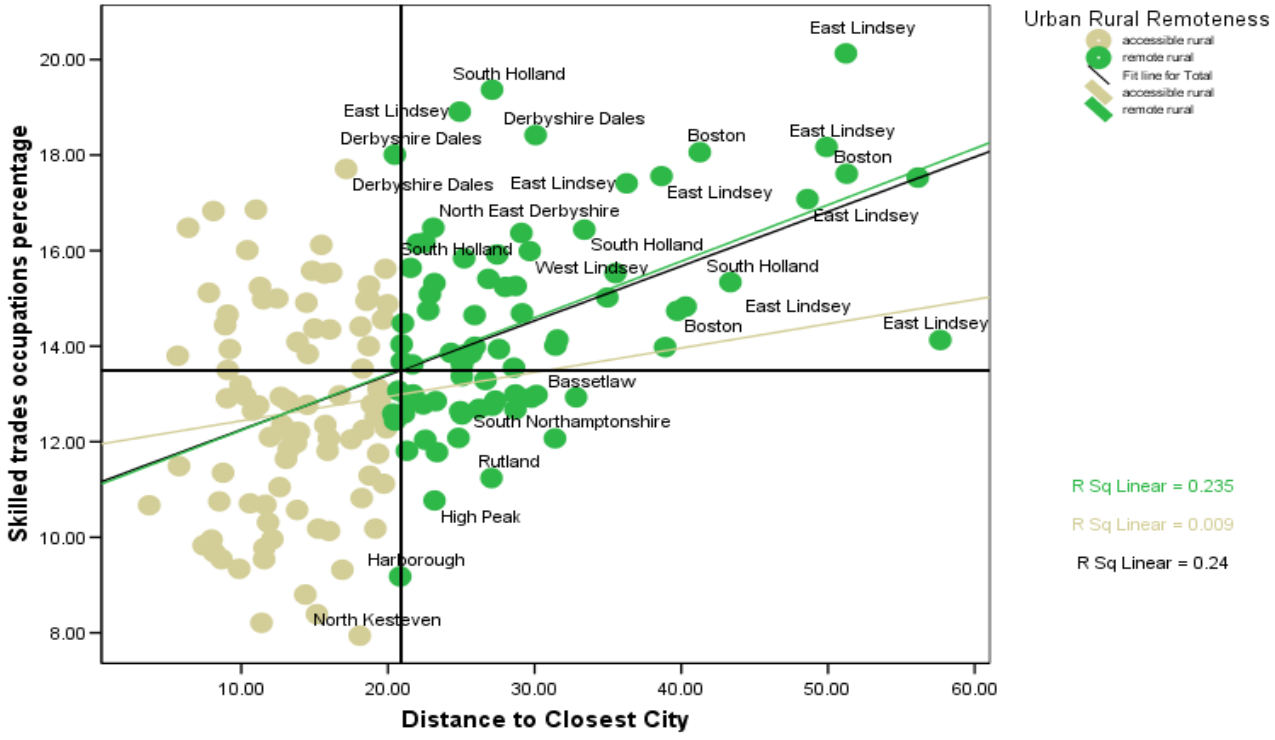
Graph 6.15 – Distance to Closest City and % Qualified to Level 4/5



Source: Arcview Mapping Software and ONS Crown Copyright, NeSS Model Based Income Estimates 2007/08

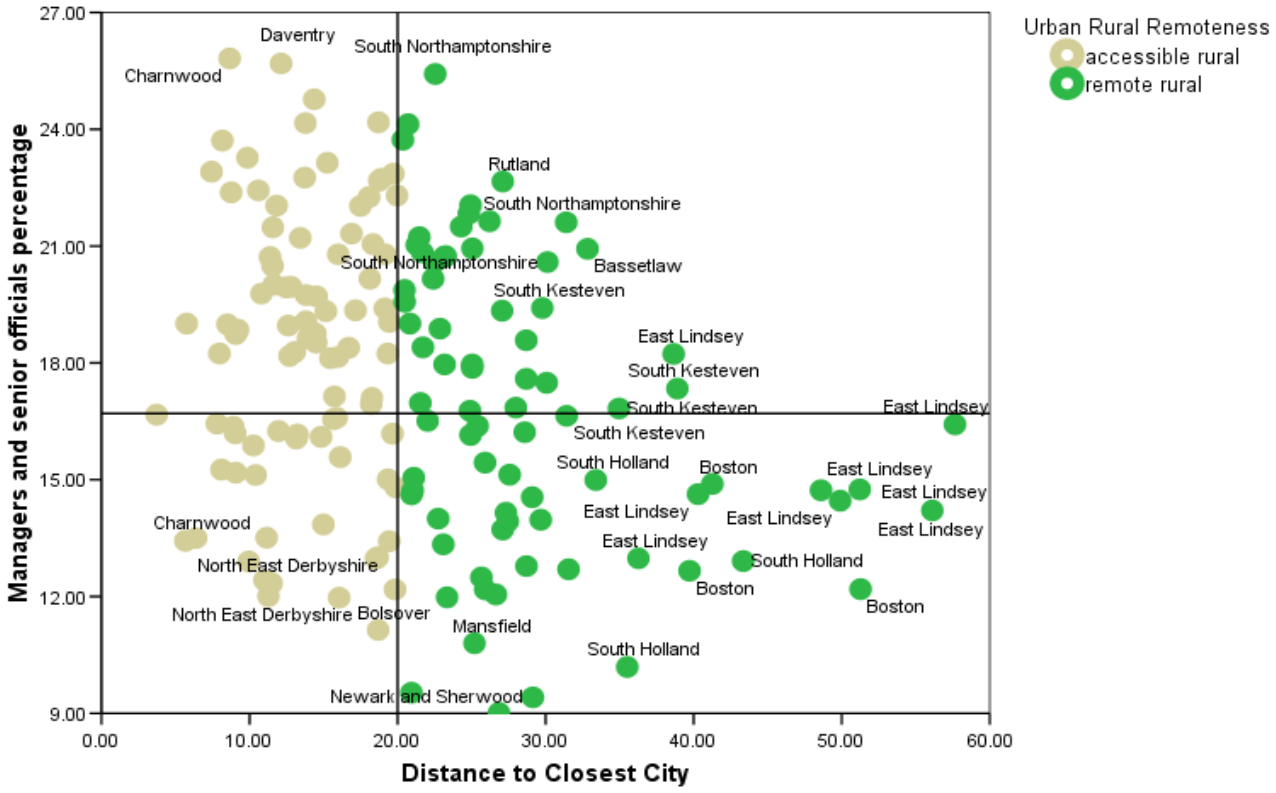
6.29 Graphs 6.16 and 6.17 show the relationship of connectivity with skilled trades and managerial occupations. Those areas that are most remote are more likely to have a high proportion of skilled trades workers and a low proportion of managers. Connectivity is also shown to have an association with a number of other variables, including: economic activity; the rate of not entering HE; claimant count unemployment; demand for broadband.

Graph 6.16 – Distance to Closest City and Skilled Trades Occupations



Source: Arcview Mapping Software and ONS Crown Copyright, Census 2001

Graph 6.17 – Distance to Closest City and Managers and Senior Officials

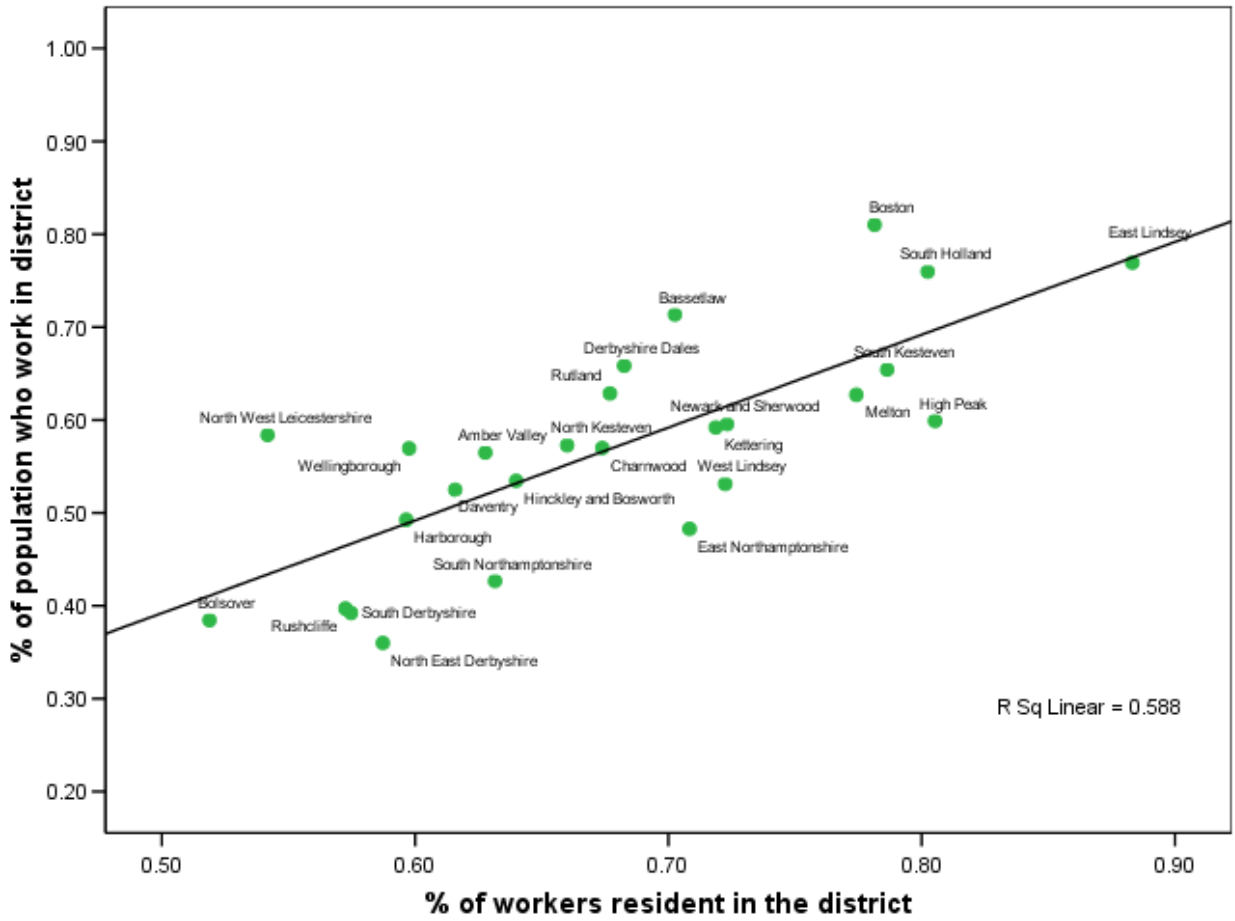


Source: Arcview Mapping Software and ONS Crown Copyright, Census 2001

Section 7 - Skills, Productivity and Commuting Patterns

7.1 This section sets out an analysis of skills and productivity with commuting patterns at local authority district level. Comparisons of skills and productivity within a district assume that the residents with skills are employing those skills in local firms. The reality, especially in rural districts, is that there are high outflows of commuters and as the graph below illustrates, there are also significant levels of in-commuting to rural districts.

Graph 7.1 - Commuting into and out of rural districts

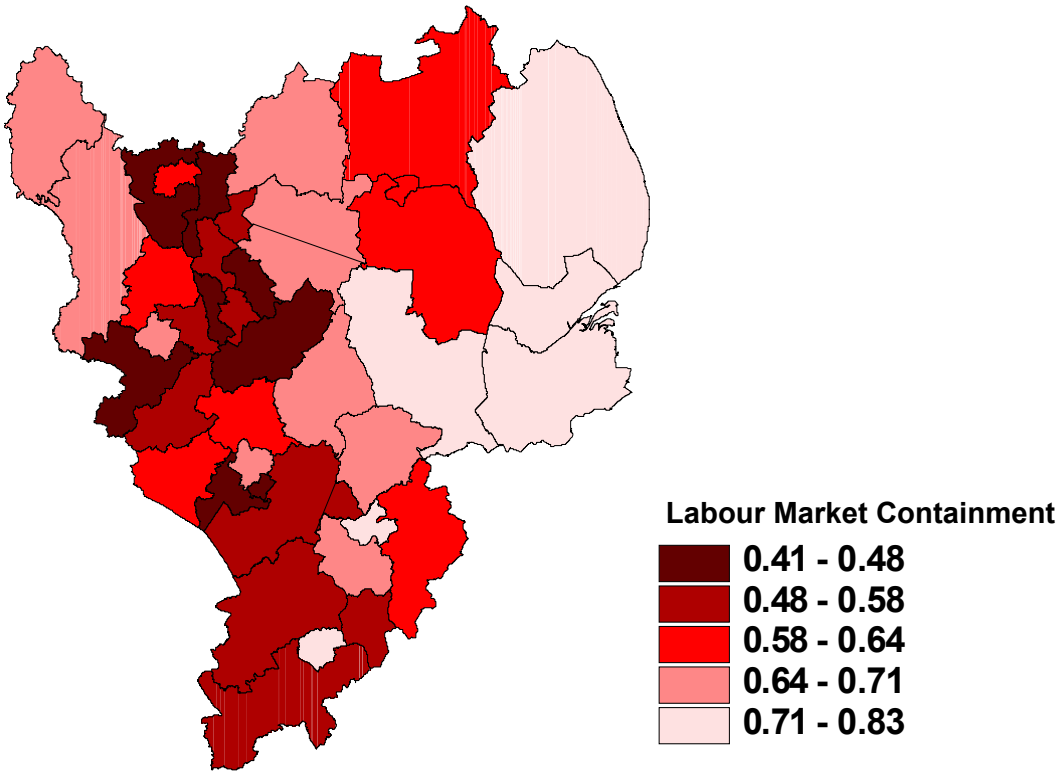


Source: ONS Crown Copyright, Census 2001

7.2 Graph 7.1 illustrates a positive linear relationship between in-commuting and out-commuting, with more remote districts seeing the least commuting in or out. It is also noticeable that strong market towns such as Melton, Newark, Kettering, Glossop (High Peak) Grantham and Stamford (South Kesteven) have "contained" labour markets. Containment is a term that has been elsewhere to describe "*a high degree of internal, and low degree of cross-area, migration*" in the labour market (Jones, 2002). We have combined the data for in- and out- commuting for each district to provide an indicator of containment. A high percentage signifies little movement in and out of the district and a lower percentage indicates a higher incidence of in- and out-commuting. We do not know how far individuals are commuting, only that they commute across district boundaries.

7.3 The combined indicator for containment is shown in Map 7.1. The data is likely to be skewed to some extent by the physical distances that can be commuted without crossing district boundaries but we can still draw conclusions from analysis of this variable. Apart from Corby and Northampton, the other four most contained districts are predominantly rural. Geographical remoteness is clearly a contributing factor for the three coastal districts but the presence of South Kesteven as well as the two Northamptonshire towns in the least mobile category, indicates that other factors are important here. Given that the underlying factors will be different for urban areas, the remainder of this section focuses specifically on the rural districts.

Map 7.1 - Most (dark) and Least (lighter) Mobile Labour Markets in the East Midlands



Source: ONS Crown Copyright, Census 2001
This map is produced using data provided through EDINA UKBORDERS with support from ESCR and JISC and uses material which is copyright of the crown

Labour Market Flows and Income and Skills

7.4 The next three graphs contrast labour market containment with weekly pay and skills. This enables us to identify specific features associated with labour markets that are relatively static and also to identify local authority districts where the restricted movement of the labour market might be creating economic challenges.

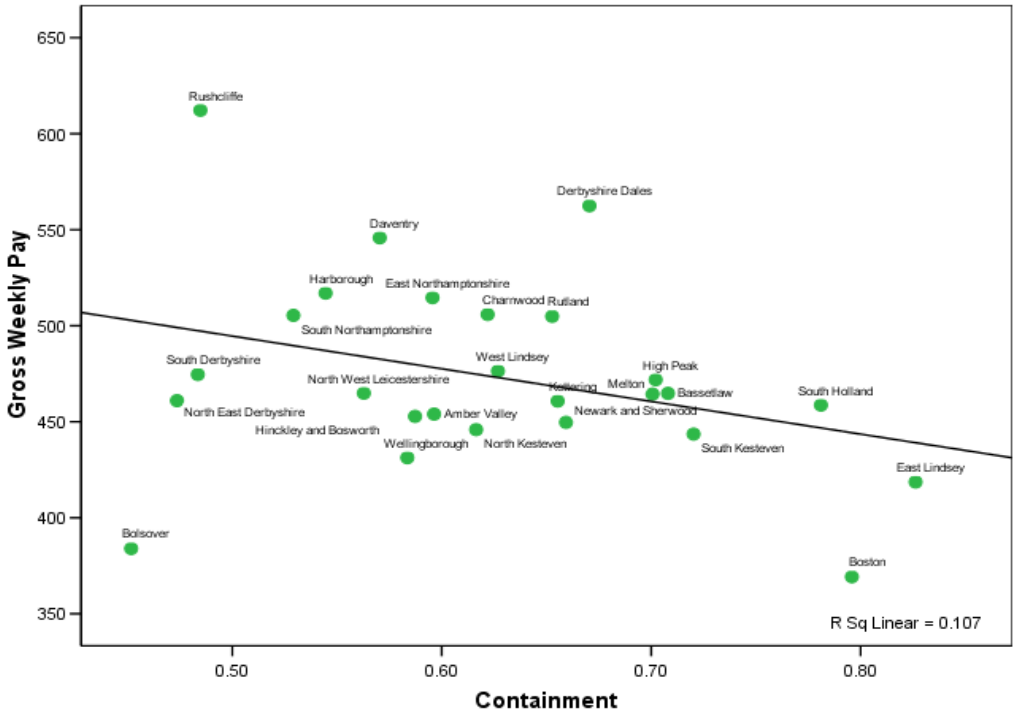
7.5 The graphs below (7.2 and 7.3) illustrate that the districts with the highest levels of containment have lower pay and skills. Although the regression analysis indicates that the strength of the relationship across all the districts is weak, the graphs help us to identify different groupings of districts in the region that exhibit low skills and low labour mobility, such as the eastern districts of Lincolnshire.

7.6 Graph 7.2 shows a weak negative relationship between the mobility of the labour market and weekly pay. However, the four districts (Boston, East Lindsey, South Holland, and South Kesteven) with the least mobile labour markets all demonstrate rates of pay that are below the mean for the region.

7.7 Bolsover appears as an anomaly in the following graphs, in the sense that it shows high levels of labour flows in and out of the district, but low rates of pay and skills among the resident population. It is relatively well connected to large urban centres but, as previous studies[31] have shown, the mining legacy of this area has meant that it faces a number of challenges, including ongoing changes in the employment structure of the area, and high incidences of long term illness and unemployment.

[31] Atherton, A and Price, L (2009) *Secondary Centres of Economic Activity in the East Midlands*, undertaken for *emda*

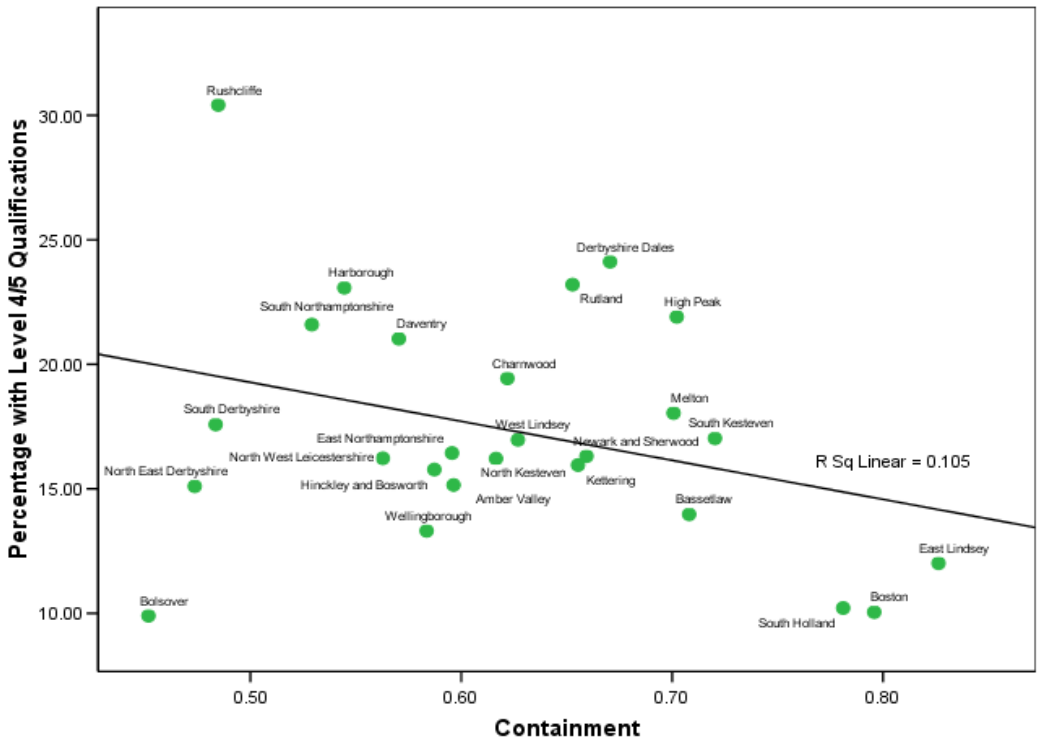
Graph 7.2 - Gross Weekly Pay and Labour Market Flow



Source: ONS Crown Copyright, Annual Survey of Hours and Earnings 2009 and Census 2001

7.8 Graph 7.3 shows a similar relationship between containment and higher level skills, with the districts that are most contained also tending to show lower skills levels. Three of the four districts with the lowest labour market flows have a low proportion, fewer than 15%, of the population qualified to level four and above.

Graph 7.3 - Proportion with Level 4/5 Qualifications and Labour Market Flow

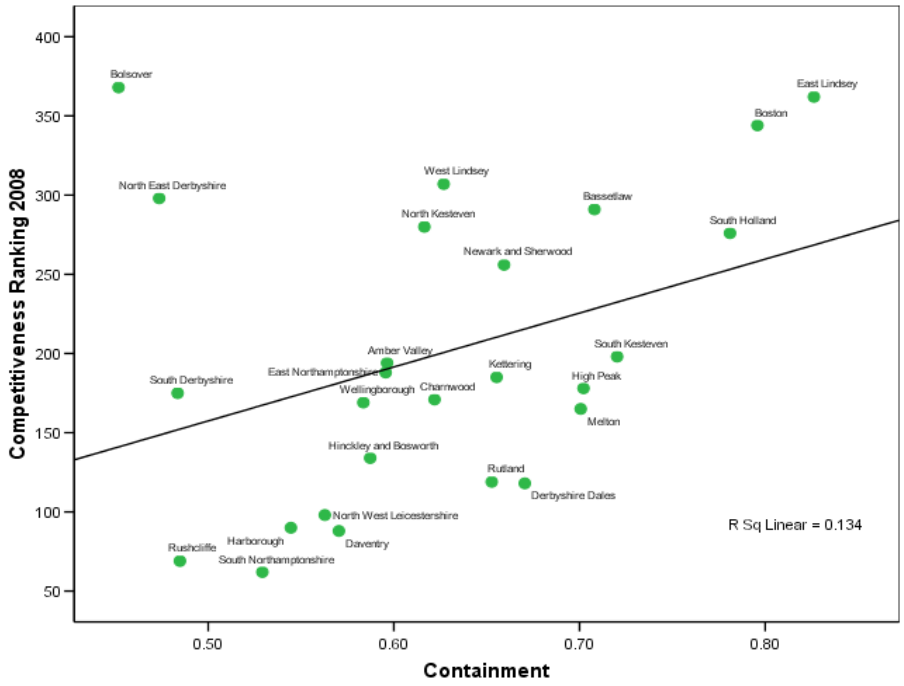


Source: ONS Crown Copyright, Census 2001

Business Characteristics

7.9 This section sets out an analysis of labour market flows with indicators that reflect the characteristics of the business population in each local authority district. Graph 7.4 shows the ranking of each district on the UK Competitiveness Index (Huggins, 2008). Although the graph shows a relatively weak relationship with mobility of the labour market, it does suggest that labour markets with limited flows of labour in and out are less competitive. A high score on the graph means a low ranking on the Index.

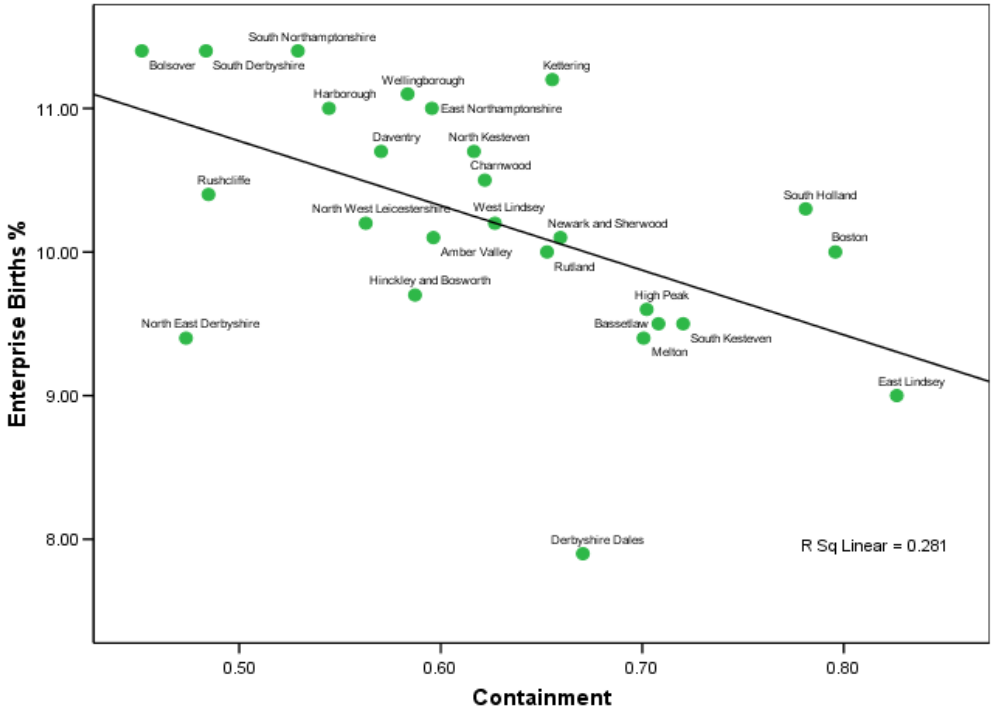
Graph 7.4 - Competitiveness in more and less contained labour market



Source: Huggins Associates 2008 and ONS Crown Copyright, Census 2001

7.10 Graph 7.5 suggests that labour markets with limited mobility appear to be less conducive, or attractive, to new firm start-ups. There is also a negative correlation between containment and business deaths (see Appendix 4) suggesting that it is not simply an issue of an unviable economy for businesses but rather a lack of dynamism relating to new business start-ups and the development of a competitive business environment.

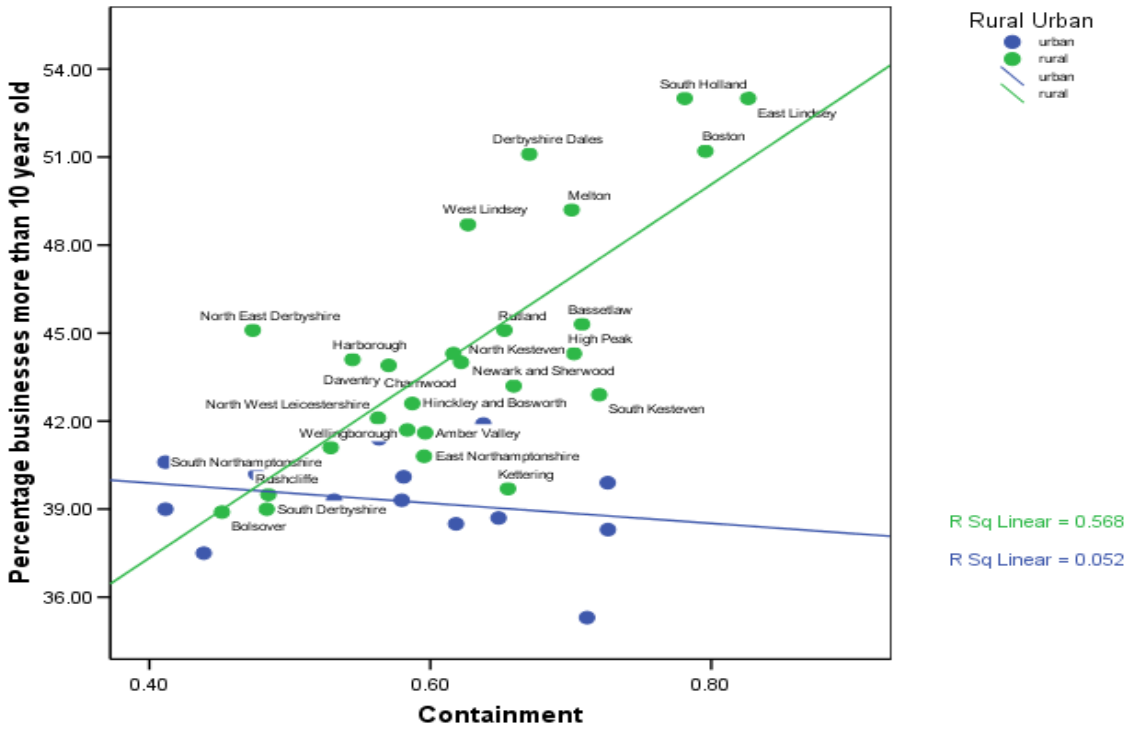
Graph 7.5 - The rate of business start-ups is lower in contained labour markets



Source: ONS Crown Copyright, Census 2001 and IDBR 2009

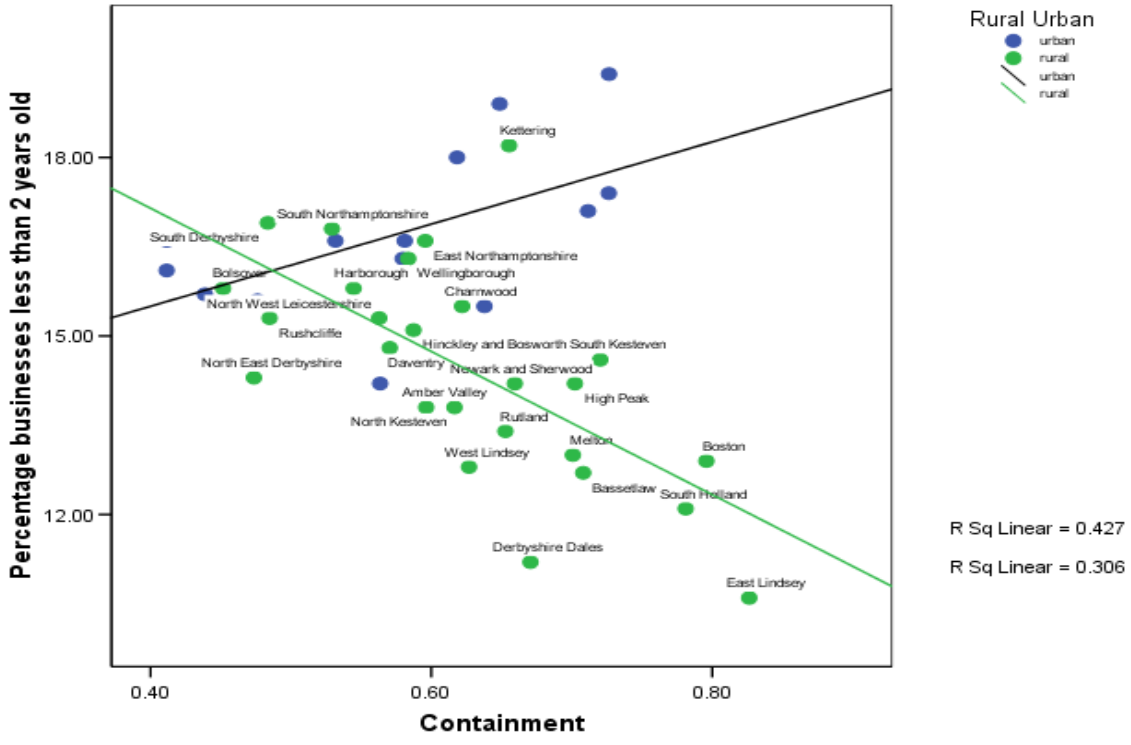
7.11 Graphs 7.6 and 7.7 illustrate a strong correlation between contained labour markets and the prevalence of older businesses and dearth of young businesses in rural areas. Those areas that have the most contained labour markets have the most established, and least dynamic, business populations. The converse of this is that areas with strong in- and out- flows of labour are associated with new business creation. This suggests that people who are accustomed to moving for work and commuting are likely to be less change and risk averse. They may bring to rural areas high levels of human and financial capital, along with access to existing networks, which may assist new business creation.

Graph 7.6 – Proportion of Businesses more than 10 years old and levels of in/out commuting



Source: ONS Crown Copyright, Census 2001 and IDBR 2009

Graph 7.7 – Percentage of businesses less than 2 years old and levels of in/out commuting



Source: ONS Crown Copyright, Census 2001 and IDBR 2009

7.12 A further reflection of the small size of firms and lack of skills in contained rural districts is provided by reference to the dominant occupations. Where few people commute in or out, there are higher occurrences of elementary, service and skilled trades occupations. By contrast, there is a paucity of administrative, professional and managerial occupations in these districts, as set out in the graphs in Appendix 4. This may reflect the different sizes of labour markets associated with different occupations, i.e. that higher skilled and higher earning workers may be recruited from a wider labour market and may commute further for work. Occupations that require lower skills and offer lower wages are more likely to be recruited from a local labour market.

Summary

7.13 In this section we have demonstrated that local authority districts with low in- and out-flows of commuters perform less well than other rural districts. In particular, our analysis suggests that districts with lower levels of labour flows have:

- A higher proportion of firms over 10 years
- Fewer new business starts
- Fewer firms under 2 years old
- Firms with lower levels of annual turnover
- Firms that are less competitive

7.14 Residents in districts defined as having low in- and out- flows of labour have lower weekly rates of pay, lower levels of skills and are more likely to be claiming unemployment benefit.

7.15 Businesses in areas with more contained labour markets are, therefore, more reliant on labour that is local and low skilled than businesses in areas that are less contained.

7.16 Analysis of the occupations of residents in these districts also shows a greater proportion of elementary, service and skilled trades and a lower proportion of administrative, professional and managerial occupations.

Section 8 – Summary and Conclusions

A Profile of Remote Rural Areas

8.1 Our analysis suggests that remote rural areas are disadvantaged in a number of aspects related to economic performance, workforce and infrastructure. Compared with accessible rural areas, they perform poorly on:

- The levels of skill within the resident population, particularly levels 3 and 4/5;
- Money generated by firms and earned by workers, measured by weekly household income and turnover per employee;
- New firm creation;
- Participation in the labour market, with low levels of economic activity and employment rates;
- Connectivity, in terms of distance from large urban centres;
- Availability of 'higher order' jobs, such as managers and professionals occupations, with an over-representation of skilled trades, process/machine operatives and elementary occupations;
- Aspirations of young people to continue into further and higher education;
- Propensity for businesses and residents to adopt internet technology; and
- The ability to attract labour from outside the area, relying instead on a local low skilled labour market. This is particularly the case for areas that are more remote and that have low levels of labour market flows in and out of the district.

The Relationship between Skills and Income/Productivity in Remote Rural Areas

8.2 **Skills and Income:** skills appear to have a greater effect on income in remote rural areas. Areas with high level skills are more strongly associated with high incomes, and those with relatively unqualified populations are more strongly associated with low incomes. This leads to an initial conclusion that skills 'count' in rural areas that are remote from large urban centres.

8.3 **Income and Turnover:** few rural areas have both high levels of income and high turnover per employee, which suggests a spatial separation of where people live and work. This makes comparisons of skills and income with firms and turnover problematic. A small number of rural areas demonstrate high levels of income and turnover, and these can be regarded as the areas of the region that are productive both in terms of workplace and income brought into the place of residence. These are primarily accessible rural areas, and include areas of South Northamptonshire, South Derbyshire, Rushcliffe, Melton, East Northamptonshire, and Rutland.

Determinants of Rural Skills and Productivity

8.4 We have identified the following factors as important for the skills-productivity relationship in rural areas.

8.5 **Firm Density and New Business Creation:** the number of firms and the presence of micro-businesses are shown to be strongly associated with skills and income in remote rural areas. Remote rural areas with high level 4 qualifications are also likely to show a high number of firms per person, more micro-businesses and a higher rate of new business creation. As with all statistical relationships, it is difficult to establish the direction of any causality, and this relationship may be mutually reinforcing. Vibrant economies with many small independent firms are likely to attract highly qualified workers. However, areas with highly qualified residents are also more likely to sustain the creation and growth of micro-businesses.

8.6 **Higher Order Occupations and Industries:** managerial occupations are shown to be strongly associated with high incomes and skills across all areas. However, high skills appear to be more important for obtaining managerial occupations in rural areas. This could suggest that highly skilled residents are more likely to work in managerial occupations in rural than in urban areas and this could be related to the high number of small firms in these areas. This could also reflect the higher level of mobility among highly skilled workers, and that many managers living in rural areas commute to nearby large urban centres. Conversely, skilled trades are shown to be associated with low incomes across all areas. In the most remote areas, particularly those that are most strongly reliant on agriculture, skilled trades occupations are associated with even lower skills and incomes.

8.7 **Labour market participation:** the proportion of people that are economically active and the unemployment rate are shown to be strongly negatively correlated with income and skills in remote rural areas. The relationship of economic activity with skills is stronger in remote rural than accessible rural areas, which suggests that skills are less of a determinant of participation in the labour market in areas close to large urban centres. This could be because of the existence of 'tight' labour markets in urban areas, where there are more jobs than workers, and therefore more opportunities for lower skilled workers to find employment.

8.8 Conversely, slack labour markets in remote rural areas, where there are few jobs relative to the size of population, provide fewer opportunities for lower skilled workers to find employment. The large volume of highly skilled workers in accessible rural areas should mean that rural employers have access to a large pool of skilled labour. In reality, however, high skills are associated with high mobility; hence many of the skilled workers who live in rural areas work in jobs based elsewhere. Rural employers can, therefore, find it difficult to recruit suitably qualified or highly skilled workers.

8.9 The claimant count has an inverse relationship with level 3 skills and, within the claimant count cohort, the rate of claims among 18-24 year olds has the greatest negative association with level 3 and 4/5 qualifications. This indicates that, in the remote rural East Midlands, areas with low levels of people qualified to level 3 and 4/5 are more likely to demonstrate high levels of unemployment. Low skilled residents, and particularly young residents with low skills, appear to have less chance of finding employment in the remote rural labour market. The relatively high rates of unemployment among young people in remote rural areas could be indicative of the lack of entry level employment opportunities for low skilled workers in these areas, and also a reflection of cultural factors and aspirations (discussed in more detail below).

8.10 **Connectivity and Commuting Flows:** connectivity to large urban centres is shown to be associated with skills and incomes across all areas of the East Midlands, but even more so in remote rural areas. Rural areas that lie more than 30km from a large urban centre demonstrate below average weekly household income and low skills levels. Connectivity also has an influence on a number of other indicators, such as the aspirations of young people, unemployment, economic activity, and propensity to adopt new technology.

8.11 In our analysis of commuting flows in the East Midlands local authority districts, we have identified that many rural areas that are remote from large urban centres have low in- and out- flows of commuters. These are areas where the majority of people who live in the district also work in the district, and the majority of people who work in the district live in the district. We have defined these areas as having a 'contained' labour market, as the majority of residents find employment in their local area and the majority of employers source their workforce from the local labour market. Our analysis shows that contained labour markets are likely to have low levels of new business creation, and an older business population, with lower levels of turnover. Residents are more likely to have lower skills, lower pay, and are more likely to be working in elementary, service and skilled trade occupations. Economic activity rates are also lower in these areas, which suggests that there is insufficient critical mass in the economy to support the population. Traditional agglomeration theories suggest that this should lead to out-commuting or out-migration to centres of greater economic activity. Further research could identify the causes of individuals' immobility but we suggest that distance, cost, low skills and a lack of awareness or aspirations are all important factors.

8.12 **Aspirations and Cultural Factors:** Aspirations are lower in remote rural areas, particularly remote areas with low incomes. Young people in remote rural areas are less likely to aspire to further and higher education, and this in turn is likely to affect employment rates and incomes among young people in these areas. People in remote rural areas are less likely to access internet technology and, therefore, receive time and cost efficiencies brought about by e-commerce and e-government. This suggests that low skills and low aspirations may have become self-reinforcing in remote locations, where low skills, incomes and labour market participation endure through successive generations.

Key Findings

8.13 **Skills matter in rural areas:** the analysis suggests that high level skills in remote rural areas are more strongly associated with higher order occupations. Conversely lower skills are associated with lower incomes and lower order occupations. This is different to urban areas where skills appear to be less of a determinant of employment, and securing a well paid job. This could be because of greater availability of employment opportunities in urban areas, and in a labour market where there are more jobs than workers, there is more potential for unskilled workers to find employment.

8.14 **Local skills levels may be self reinforcing:** Areas with lower skills levels may lose skilled people and not attract in employers or residents with higher level skills. The converse is that places with higher skills levels attract people and employers, so positively reinforcing local skills levels. This fits with cumulative causation theory, where agglomerations of firms and skilled labour create multiplier effects that in turn attract more firms and skilled labour. Rural areas with low skills levels may therefore 'become' less skilled over time, in relation to urban areas. The low aspirations associated with remote rural locations are also likely to feed into the self-reinforcing nature of low skills in these areas.

8.15 **Dynamism of the labour market:** A key emerging theme is that remote rural economies are more suppressed than urban economies, because there are fewer jobs, lower levels of employment, and because there is less scope for specialist skills. These factors create a number of dynamics specific to remote rural labour markets:

1. Rural labour markets are inherently constrained by their limited size and this is reinforced by the spatial dispersion of labour (living in smaller and more sparsely distributed settlements) and jobs (due to the greater preponderance of SMEs in rural areas). The limited size and spatial dispersion of labour and employment in rural areas mean that these areas do not demonstrate the benefits of agglomeration of jobs/employment, such as transfer of know how, that is seen in urban labour markets. The rural labour market can be described as 'thin' in terms of its size and density.

2. Rural labour markets are likely to be less specialised than urban labour markets, because they are relatively smaller and more dispersed. In large settlements, there is sufficient scale to allow for specialisation and this is demonstrated in the greater proportions of highly specialised and professional occupations in urban areas. Conversely, higher proportions of generalist manual skills are likely to be found in less specialised labour markets. Increasing specialisation within the workforce, and the development of specialist skills, are associated with improved performance. This is, therefore, more likely to happen in urban rather than rural firms.

3. Rural labour markets are 'slack', as they have few jobs relative to the size of the workforce when compared with the 'tight' labour markets of urban areas. This means that there are few options for alternative employment which leads to under-employment and under-utilisation of skills. Rural, and especially remote, rural labour markets are also shown to be more 'contained' in that they attract in fewer workers from elsewhere, which also causes difficulties for local employers seeking to recruit skilled workers.

8.16 **Labour market dynamics – tightness vs specialisation:** both 'tightness' and specialisation affect economic performance. As follows, areas with specialisation in skills and a 'tight' labour market will generate higher GVA, whereas areas where there is less specialisation and a 'slack' labour market will have low GVA and not be as competitive or prosperous. Figure 1 below illustrates the implications of these factors for different types of rural area.

Figure 1 - Labour market dynamics in rural and urban areas – tightness vs specialisation

Tightness of labour market	'Flat' skills / Generalist	Specialised
Tight (High proportion of jobs relative to working population)	**'traditional' production & low-value services (including seasonal)**	**Prosperous market towns, business clusters**
Slack (few jobs relative to working population)	**Challenged local economies (remote rural areas)**	**Urban hinterland and accessible rural**

Level of skills specialisation

8.17 The four types of labour markets identified through this matrix are:

- **Challenged Local Economies** are those with few job opportunities and low levels of skills. Areas of East Lindsey, North East Derbyshire and Bolsover fall within this category. These can be interpreted as districts with low levels of labour productivity, based on the low skills levels, and also low levels of area-based productivity given that there are fewer jobs per head of population.

- **Traditional production and low value services economies** are again characterised by low skills but have a higher number of jobs locally. South Holland, Boston and Wellingborough appear in this category, as they offer a large number of low skilled jobs.

- **Prosperous market towns and business clusters** are characterised by high skills and high numbers of jobs. Unlike the challenged local economies, these districts have high labour and high area-based productivity. Areas of Rutland, Harborough and the Derbyshire Dales fall in this category.

- **Urban hinterland and accessible rural areas,** which are seen as zones of out-commuting. Rushcliffe, and to a lesser extent South Derbyshire and South Northamptonshire appear in the category. The lack of jobs is not a problem here as the workforce is more highly skilled and therefore more mobile.

8.18 In each of the 4 quadrants, the question of mobility is important for understanding the dynamic of the labour market. Remote rural labour markets are contained, rather than open, because of their poor connectivity to other job markets. A second matrix is therefore presented with "containment" on the vertical axis:

Figure 2 – Labour market dynamics in rural and urban areas– openness vs. specialisation

Openness of labour market	'Flat' skills / Generalist	Level of skills specialisation	Specialised
Open	**Transient low skill economy**		**Dynamic high skill economy**
Contained	**Undynamic, low skill economy**		**Strong market town or business cluster**

8.19 Combining these matrices, we can identify localities that appear in the bottom left quadrant in both cases. What we see is that the former coalfields now appear in the top left quadrant as they are within commutable distance to larger urban job markets with opportunities for lower skilled employment. The undynamic, low skill economies are highlighted as South Holland, Boston and East Lindsey.

8.20 While low skills and a mobile population is not the ideal situation, it does mean that a high proportion of the population are engaging in economies beyond the immediate region which may provide access to work-based learning, a greater range of jobs and potentially higher incomes.

8.21 Where districts are in the bottom left quadrant for both matrices, individuals lack access to alternative employment and skills development opportunities. The local economy can be regarded as undynamic due to lack of inward and outward movement, fewer business starts, lagging wage levels, lagging skills levels and higher levels of unemployment.

8.22 Remote rural businesses within the type of economy shown in the bottom left quadrant are likely to face greater difficulties recruiting the staff they need. This is because of the low skills of the local labour market, low in-flows of labour from elsewhere, and also poor connectivity associated with remote areas. The limited availability of skilled labour has implications for labour productivity, as firms may not be able to find employees with the skills or experience required. As discussed above, firms in urban and accessible rural areas have access to a greater pool of skilled labour, and so are able to develop specialisation within the workforce, which is associated with improved performance. Remote rural firms are likely to be less specialised, and with limited access to skilled workers, are likely to be less competitive.

8.23 Left to market forces, these "challenged local economies" should see significant levels of out-commuting and out-migration. However, connectivity, low skills levels, low aspirations and low incomes are barriers to mobility. The sense that low skills can create immobility becomes a serious issue for more rural locations. In tight labour markets, low-skilled employment opportunities are more readily available but in rural areas the options for these individuals are significantly restricted. The cycle of low skills → low income → low mobility → low aspirations →low skills development creates a stagnant local economy characterised by fewer business starts, low levels of demand and less competitiveness. By contrast, districts with greater flows of

in- and out-commuting are able to integrate into areas with greater economic potential and overcome some of the disadvantages of rurality.

8.24 The most challenged rural localities can be described as having thin, generalist, slack and contained labour markets. Their economies are suppressed, as they have limited opportunity for specialisation and, therefore, scope to increase productivity. This is little potential for the development of high skills or high wages, nor the creation of career opportunities or progression routes for people working in remote rural economies. Poor connectivity and low aspirations in these areas can mean that these disadvantages become self-reinforcing. This suggests that policy could focus on facilitating the development of 'thicker' labour markets in rural areas, on increasing mobility and connectivity, or facilitating business creation, growth, and innovation to increase employment opportunities.

APPENDICES

Appendix 1 – Comparison of Means by Themed Groups of Indicators - Income and Skills (Qualifications)

Report

Mean

Urban Rural Remoteness	Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 1	% qualified to level 2	% qualified to level 3	% qualified to level 4/5
urban	573.37	33.2516	17.8944	18.3137	7.8663	15.3057
accessible rural	697.53	26.1391	17.1476	20.2445	7.2346	21.5261
remote rural	627.82	31.3645	17.5267	19.7014	6.4674	17.1945
Total	600.16	31.8852	17.7278	18.8042	7.5768	16.5332

Skills (Occupations)

Report

Mean

Urban Rural Remoteness	Managers and senior officials percentage	Professional occupations percentage	Associate professional and technical occupations percentage	Administrative and secretarial occupations percentage	Skilled trades occupations percentage	Personal service occupations percentage	Sales and customer service occupations percentage	Process; plant and machine operatives percentage	Elementary occupations percentage
urban	12.8238	9.0212	11.6369	12.1465	12.2876	6.9410	8.1632	11.9947	14.9845
accessible rural	18.4238	12.4300	13.2997	12.2508	12.6289	6.3015	5.8171	8.3616	10.4869
remote rural	16.7272	9.6887	11.5497	10.4882	14.4794	6.8340	5.8567	10.7983	13.5774
Total	14.2298	9.6437	11.8842	11.9362	12.6402	6.8267	7.4824	11.2650	14.0913

Skills (breakdown for Managers, Skilled Trades and Process, Plant and Machinery Operatives)

Report

Mean

Urban Rural Remoteness	% corporate managers	% managers and proprieters in agriculture and services	% Skilled Agricultural Trades	% Skilled Metal and Electrical Trades	% Skilled Construction and Building Trades	% Textiles; Printing and Other Skilled Trades	% Process, plant and machine operatives	% Transport and mobile machine drivers
urban	10.3632	3.3105	1.0170	5.3141	3.5240	2.5981	7.8474	4.1473
accessible rural	11.1847	3.9200	1.6892	5.2869	3.7536	2.5613	5.0401	3.3212
remote rural	12.2286	3.8865	1.9219	5.0356	3.6446	2.2653	6.3726	4.4258
Total	10.7461	3.4842	1.2454	5.2718	3.5763	2.5469	7.2084	4.0565

Enterprise

Report

Mean

Urban Rural Remoteness	Persons per Firm	Firms per Person	% companies less than 2 years old	% companies more than 10 years old	All Units employing 0 to 4 Persons %	All Units employing 20 or More Persons %	% public units	% private units (multi site)	% private units with less than 1 employee	% private units with more than 1 employee
urban	26.5149	.0538	16.8884	39.5842	66.264	10.372	5.4829	14.4285	29.9760	50.1109
accessible rural	15.2723	.0721	15.3663	42.8685	75.778	5.881	4.5966	13.1337	29.6135	52.6584
remote rural	14.5907	.0759	14.8205	43.3372	75.146	5.656	5.2346	10.4962	31.1936	53.0833
Total	23.1337	.0597	16.3687	40.6088	68.960	9.028	5.3109	13.6895	30.0858	50.9140

Report

Mean

Urban Rural Remotenes	Agriculture, Forestry and Fishing %	Production %	Construction %	Retail %	Accommodation %	ICT %	Finance %	Property %	Professional Scientific %	Business Administration %	Public Administration %	Education %	Health %
urban	1.4706	8.2919	13.7447	11.9144	6.0837	4.7325	2.0563	2.7709	9.9688	6.7570	1.6239	3.3366	6.7244
accessible rural	10.5752	6.9771	13.9078	7.5395	5.4334	4.5353	1.6132	3.0968	12.9654	6.9972	1.0262	2.8055	3.9748
remote rural	16.4462	7.3450	12.5053	7.8466	6.0369	3.3533	1.2074	2.3030	10.3323	6.5756	1.1858	2.6715	3.8258
Total	4.9354	7.9576	13.6008	10.6768	5.9759	4.5134	1.8713	2.7578	10.4856	6.7697	1.4709	3.1630	5.8999

Employment

Report

Mean

Urban Rural Remoteness	Economic Activity Rate	Employment Rate	Unemployment Rate	% Retired	% permanently sick/disabled	All Claimants - Rate	Claimants Aged 18-24 Rate
urban	66.6671	53.9171	3.6782	13.5402	5.7633	2.622	4.911
accessible rural	69.6771	54.7188	2.1440	15.4490	3.7420	1.087	2.535
remote rural	66.5158	51.0676	2.4962	16.4642	4.9558	1.458	3.613
Total	67.1156	53.6528	3.2776	14.2372	5.3379	2.223	4.363

Connectivity

Report

Mean

Urban Rural Remoteness	% of area taken up by road	% of area taken up by rail	ADSL average speed	Population Weighted Average Road Distance to a Food Store (km)	Distance to Closest City	Weighted Distance to Nearest City
urban	8.7377	.3650	4.1539	1.0188	12.0207	8.0574
accessible rural	5.5236	.4407	4.3746	2.4774	13.7626	4.9508
remote rural	3.9200	.2433	4.4136	3.5776	28.9843	3.5732
Total	7.5786	.3602	4.2238	1.5957	14.6094	6.9607

Deprivation/Aspirations

Report

Mean

Urban Rural Remoteness	Not entering Higher Education Rate	Not staying on post 16 rate	Rank of Barriers to Housing and Services Score	Broadband Demand Index	Broadband Population Penetration
urban	67.7131	30.6736	20689.5050	12.3310	.2909
accessible rural	54.9057	24.9999	17607.3596	10.1855	.1879
remote rural	63.0347	26.9913	12799.0385	8.2587	.1929
Total	65.0778	29.2863	19131.2434	11.4403	.2615

Appendix 2 – Pearson Correlations by Themed Groups of Indicators

Income and Qualifications: All Middle Super Output Areas

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 1	% qualified to level 2	% qualified to level 3	% qualified to level 4/5
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.743**	-.065	.643**	-.053	.690**
	Sig. (2-tailed)		.000	.119	.000	.209	.000
	N	571	571	571	571	571	571
% with no qualifications	Pearson Correlation	-.743**	1	.303**	-.507**	-.476**	-.854**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	571	571	571	571	571	571
% qualified to level 1	Pearson Correlation	-.065	.303**	1	.471**	-.628**	-.624**
	Sig. (2-tailed)	.119	.000		.000	.000	.000
	N	571	571	571	571	571	571
% qualified to level 2	Pearson Correlation	.643**	-.507**	.471**	1	-.308**	.195**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	571	571	571	571	571	571
% qualified to level 3	Pearson Correlation	-.053	-.476**	-.628**	-.308**	1	.394**
	Sig. (2-tailed)	.209	.000	.000	.000		.000
	N	571	571	571	571	571	571
% qualified to level 4/5	Pearson Correlation	.690**	-.854**	-.624**	.195**	.394**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	571	571	571	571	571	571

**. Correlation is significant at the 0.01 level (2-tailed).

Urban MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 1	% qualified to level 2	% qualified to level 3	% qualified to level 4/5
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.684**	.079	.631**	-.090	.594**
	Sig. (2-tailed)		.000	.111	.000	.072	.000
	N	404	404	404	404	404	404
% with no qualifications	Pearson Correlation	-.684**	1	.267**	-.420**	-.517**	-.830**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	404	404	404	404	404	404
% qualified to level 1	Pearson Correlation	.079	.267**	1	.617**	-.676**	-.608**
	Sig. (2-tailed)	.111	.000		.000	.000	.000
	N	404	404	404	404	404	404
% qualified to level 2	Pearson Correlation	.631**	-.420**	.617**	1	-.368**	.064
	Sig. (2-tailed)	.000	.000	.000		.000	.200
	N	404	404	404	404	404	404
% qualified to level 3	Pearson Correlation	-.090	-.517**	-.676**	-.368**	1	.441**
	Sig. (2-tailed)	.072	.000	.000	.000		.000
	N	404	404	404	404	404	404
% qualified to level 4/5	Pearson Correlation	.594**	-.830**	-.608**	.064	.441**	1
	Sig. (2-tailed)	.000	.000	.000	.200	.000	
	N	404	404	404	404	404	404

**. Correlation is significant at the 0.01 level (2-tailed).

Accessible Rural MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 1	% qualified to level 2	% qualified to level 3	% qualified to level 4/5
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.859**	-.632**	.417**	.561**	.858**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	89	89	89	89	89	89
% with no qualifications	Pearson Correlation	-.859**	1	.527**	-.630**	-.745**	-.857**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	89	89	89	89	89	89
% qualified to level 1	Pearson Correlation	-.632**	.527**	1	.034	-.363**	-.844**
	Sig. (2-tailed)	.000	.000		.753	.000	.000
	N	89	89	89	89	89	89
% qualified to level 2	Pearson Correlation	.417**	-.630**	.034	1	.491**	.233*
	Sig. (2-tailed)	.000	.000	.753		.000	.028
	N	89	89	89	89	89	89
% qualified to level 3	Pearson Correlation	.561**	-.745**	-.363**	.491**	1	.552**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	89	89	89	89	89	89
% qualified to level 4/5	Pearson Correlation	.858**	-.857**	-.844**	.233*	.552**	1
	Sig. (2-tailed)	.000	.000	.000	.028	.000	
	N	89	89	89	89	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Remote Rural MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 1	% qualified to level 2	% qualified to level 3	% qualified to level 4/5
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.885**	-.443**	.647**	.807**	.887**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	78	78	78	78	78	78
% with no qualifications	Pearson Correlation	-.885**	1	.360**	-.795**	-.892**	-.928**
	Sig. (2-tailed)	.000		.001	.000	.000	.000
	N	78	78	78	78	78	78
% qualified to level 1	Pearson Correlation	-.443**	.360**	1	-.184	-.293**	-.616**
	Sig. (2-tailed)	.000	.001		.107	.009	.000
	N	78	78	78	78	78	78
% qualified to level 2	Pearson Correlation	.647**	-.795**	-.184	1	.745**	.596**
	Sig. (2-tailed)	.000	.000	.107		.000	.000
	N	78	78	78	78	78	78
% qualified to level 3	Pearson Correlation	.807**	-.892**	-.293**	.745**	1	.786**
	Sig. (2-tailed)	.000	.000	.009	.000		.000
	N	78	78	78	78	78	78
% qualified to level 4/5	Pearson Correlation	.887**	-.928**	-.616**	.596**	.786**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	78	78	78	78	78	78

**. Correlation is significant at the 0.01 level (2-tailed).

All MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Managers and senior officials percentage	Professional occupations percentage	Associate professional and technical occupations percentage	Administrative and secretarial occupations percentage	Skilled trades occupations percentage	Personal service occupations percentage	Sales and customer service occupations percentage	Process; plant and machine operatives percentage	Elementary occupations percentage
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.743**	.643**	-.053	.690**	.848**	.614**	.596**	.439**	-.302**	-.507**	-.649**	-.657**	-.803**
	Sig. (2-tailed)		.000	.000	.209	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
% with no qualifications	Pearson Correlation	-.743**	1	-.507**	-.476**	-.854**	-.752**	-.812**	-.823**	-.462**	.517**	.573**	.478**	.836**	.816**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 2	Pearson Correlation	.643**	-.507**	1	-.308**	.195**	.604**	.091*	.391**	.406**	.071	-.199**	-.404**	-.385**	-.547**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.029	.000	.000	.090	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 3	Pearson Correlation	-.053	-.476**	-.308**	1	.394**	.046	.462**	.344**	.033	-.530**	-.275**	.131**	-.352**	-.076
	Sig. (2-tailed)	.209	.000	.000		.000	.271	.000	.000	.426	.000	.000	.002	.000	.070
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 4/5	Pearson Correlation	.690**	-.854**	.195**	.394**	1	.710**	.966**	.768**	.280**	-.642**	-.595**	-.543**	-.788**	-.764**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
Managers and senior officials percentage	Pearson Correlation	.848**	-.752**	.604**	.046	.710**	1	.645**	.582**	.297**	-.262**	-.542**	-.740**	-.746**	-.806**
	Sig. (2-tailed)	.000	.000	.000	.271	.000		.000	.000	.000	.000	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
Professional occupations percentage	Pearson Correlation	.614**	-.812**	.091*	.462**	.966**	.645**	1	.696**	.252**	-.651**	-.593**	-.502**	-.765**	-.715**
	Sig. (2-tailed)	.000	.000	.029	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
Associate professional and technical occupations percentage	Pearson Correlation	.596**	-.823**	.391**	.344**	.768**	.582**	.696**	1	.446**	-.532**	-.437**	-.379**	-.775**	-.759**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
Administrative and secretarial occupations percentage	Pearson Correlation	.439**	-.462**	.406**	.033	.280**	.297**	.252**	.446**	1	-.263**	-.354**	-.043	-.430**	-.567**
	Sig. (2-tailed)	.000	.000	.000	.426	.000	.000	.000	.000		.000	.000	.305	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
Skilled trades occupations percentage	Pearson Correlation	-.302**	.517**	.071	-.530**	-.642**	-.262**	-.651**	-.532**	-.263**	1	.436**	.012	.400**	.268**
	Sig. (2-tailed)	.000	.000	.090	.000	.000	.000	.000	.000	.000		.000	.782	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
Personal service occupations percentage	Pearson Correlation	-.507**	.573**	-.199**	-.275**	-.595**	-.542**	-.593**	-.437**	-.354**	.436**	1	.411**	.351**	.518**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
Sales and customer service occupations percentage	Pearson Correlation	-.649**	.478**	-.404**	.131**	-.543**	-.740**	-.502**	-.379**	-.043	.012	.411**	1	.410**	.576**
	Sig. (2-tailed)	.000	.000	.000	.002	.000	.000	.000	.000	.305	.782	.000		.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
Process; plant and machine operatives percentage	Pearson Correlation	-.657**	.836**	-.385**	-.352**	-.788**	-.746**	-.765**	-.775**	-.430**	.400**	.351**	.410**	1	.725**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571
Elementary occupations percentage	Pearson Correlation	-.803**	.816**	-.547**	-.076	-.764**	-.806**	-.715**	-.759**	-.567**	.268**	.518**	.576**	.725**	1
	Sig. (2-tailed)	.000	.000	.000	.070	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	N	571	571	571	571	571	571	571	571	571	571	571	571	571	571

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Urban MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Managers and senior officials percentage	Professional occupations percentage	Associate professional and technical occupations percentage	Administrative and secretarial occupations percentage	Skilled trades occupations percentage	Personal service occupations percentage	Sales and customer service occupations percentage	Process; plant and machine operatives percentage	Elementary occupations percentage
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.684**	.631**	-.090	.594**	.833**	.523**	.593**	.580**	-.332**	-.449**	-.592**	-.579**	-.781**
	Sig. (2-tailed)		.000	.000	.072	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
% with no qualifications	Pearson Correlation	-.684**	1	-.420**	-.517**	-.830**	-.736**	-.798**	-.859**	-.533**	.588**	.553**	.397**	.818**	.785**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 2	Pearson Correlation	.631**	-.420**	1	-.368**	.064	.575**	-.030	.317**	.509**	.109*	-.135**	-.326**	-.283**	-.501**
	Sig. (2-tailed)	.000	.000		.000	.200	.000	.545	.000	.000	.028	.007	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 3	Pearson Correlation	-.090	-.517**	-.368**	1	.441**	.063	.515**	.360**	-.007	-.559**	-.299**	.155**	-.391**	-.074
	Sig. (2-tailed)	.072	.000	.000		.000	.206	.000	.000	.883	.000	.000	.002	.000	.139
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 4/5	Pearson Correlation	.594**	-.830**	.064	.441**	1	.640**	.967**	.838**	.344**	-.767**	-.570**	-.458**	-.754**	-.723**
	Sig. (2-tailed)	.000	.000	.200	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
Managers and senior officials percentage	Pearson Correlation	.833**	-.736**	.575**	.063	.640**	1	.594**	.643**	.505**	-.394**	-.497**	-.611**	-.706**	-.812**
	Sig. (2-tailed)	.000	.000	.000	.206	.000		.000	.000	.000	.000	.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
Professional occupations percentage	Pearson Correlation	.523**	-.798**	-.030	.515**	.967**	.594**	1	.772**	.288**	-.762**	-.574**	-.448**	-.742**	-.672**
	Sig. (2-tailed)	.000	.000	.545	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
Associate professional and technical occupations percentage	Pearson Correlation	.593**	-.859**	.317**	.360**	.838**	.643**	.772**	1	.503**	-.576**	-.469**	-.389**	-.816**	-.790**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
Administrative and secretarial occupations percentage	Pearson Correlation	.580**	-.533**	.509**	-.007	.344**	.505**	.288**	.503**	1	-.172**	-.398**	-.250**	-.510**	-.676**
	Sig. (2-tailed)	.000	.000	.000	.883	.000	.000	.000	.000		.001	.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
Skilled trades occupations percentage	Pearson Correlation	-.332**	.588**	.109*	-.559**	-.767**	-.394**	-.762**	-.576**	-.172**	1	.513**	.177**	.468**	.316**
	Sig. (2-tailed)	.000	.000	.028	.000	.000	.000	.000	.000	.001		.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
Personal service occupations percentage	Pearson Correlation	-.449**	.553**	-.135**	-.299**	-.570**	-.497**	-.574**	-.469**	-.398**	.513**	1	.371**	.282**	.490**
	Sig. (2-tailed)	.000	.000	.007	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
Sales and customer service occupations percentage	Pearson Correlation	-.592**	.397**	-.326**	.155**	-.458**	-.611**	-.448**	-.389**	-.250**	.177**	.371**	1	.286**	.520**
	Sig. (2-tailed)	.000	.000	.000	.002	.000	.000	.000	.000	.000	.000	.000		.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
Process; plant and machine operatives percentage	Pearson Correlation	-.579**	.818**	-.283**	-.391**	-.754**	-.706**	-.742**	-.816**	-.510**	.468**	.282**	.286**	1	.681**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404
Elementary occupations percentage	Pearson Correlation	-.781**	.785**	-.501**	-.074	-.723**	-.812**	-.672**	-.790**	-.676**	.316**	.490**	.520**	.681**	1
	Sig. (2-tailed)	.000	.000	.000	.139	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	N	404	404	404	404	404	404	404	404	404	404	404	404	404	404

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Accessible MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Managers and senior officials percentage	Professional occupations percentage	Associate professional and technical occupations percentage	Administrative and secretarial occupations percentage	Skilled trades occupations percentage	Personal service occupations percentage	Sales and customer service occupations percentage	Process; plant and machine operatives percentage	Elementary occupations percentage
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.859**	.417**	.561**	.858**	.858**	.782**	.458**	.189	-.641**	-.602**	-.616**	-.821**	-.811**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.076	.000	.000	.000	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
% with no qualifications	Pearson Correlation	-.859**	1	-.630**	-.745**	-.857**	-.822**	-.751**	-.620**	-.242*	.660**	.529**	.556**	.884**	.853**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.022	.000	.000	.000	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 2	Pearson Correlation	.417**	-.630**	1	.491**	.233*	.423**	.115	.529**	.274**	-.308**	-.197	-.106	-.512**	-.378**
	Sig. (2-tailed)	.000	.000		.000	.028	.000	.282	.000	.009	.003	.064	.325	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 3	Pearson Correlation	.561**	-.745**	.491**	1	.552**	.559**	.416**	.653**	.120	-.551**	-.280**	-.373**	-.609**	-.532**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.262	.000	.008	.000	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 4/5	Pearson Correlation	.858**	-.857**	.233*	.552**	1	.841**	.956**	.412**	.008	-.663**	-.584**	-.699**	-.832**	-.837**
	Sig. (2-tailed)	.000	.000	.028	.000		.000	.000	.000	.942	.000	.000	.000	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Managers and senior officials percentage	Pearson Correlation	.858**	-.822**	.423**	.559**	.841**	1	.760**	.413**	.069	-.592**	-.733**	-.742**	-.822**	-.791**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.519	.000	.000	.000	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Professional occupations percentage	Pearson Correlation	.782**	-.751**	.115	.416**	.956**	.760**	1	.240*	.040	-.588**	-.573**	-.647**	-.801**	-.802**
	Sig. (2-tailed)	.000	.000	.282	.000	.000	.000		.024	.710	.000	.000	.000	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Associate professional and technical occupations percentage	Pearson Correlation	.458**	-.620**	.529**	.653**	.412**	.413**	.240*	1	.231*	-.617**	-.125	-.226*	-.559**	-.554**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.024		.030	.000	.242	.033	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Administrative and secretarial occupations percentage	Pearson Correlation	.189	-.242*	.274**	.120	.008	.069	.040	.231*	1	-.295**	-.137	.226*	-.353**	-.352**
	Sig. (2-tailed)	.076	.022	.009	.262	.942	.519	.710	.030		.005	.199	.033	.001	.001
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Skilled trades occupations percentage	Pearson Correlation	-.641**	.660**	-.308**	-.551**	-.663**	-.592**	-.588**	-.617**	-.295**	1	.268*	.263*	.619**	.576**
	Sig. (2-tailed)	.000	.000	.003	.000	.000	.000	.000	.000	.005		.011	.013	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Personal service occupations percentage	Pearson Correlation	-.602**	.529**	-.197	-.280**	-.584**	-.733**	-.573**	-.125	-.137	.268*	1	.543**	.546**	.534**
	Sig. (2-tailed)	.000	.000	.064	.008	.000	.000	.000	.242	.199	.011		.000	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Sales and customer service occupations percentage	Pearson Correlation	-.616**	.556**	-.106	-.373**	-.699**	-.742**	-.647**	-.226*	.226*	.263*	.543**	1	.487**	.525**
	Sig. (2-tailed)	.000	.000	.325	.000	.000	.000	.000	.033	.033	.013	.000		.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Process; plant and machine operatives percentage	Pearson Correlation	-.821**	.884**	-.512**	-.609**	-.832**	-.822**	-.801**	-.559**	-.353**	.619**	.546**	.487**	1	.878**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000		.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Elementary occupations percentage	Pearson Correlation	-.811**	.853**	-.378**	-.532**	-.837**	-.791**	-.802**	-.554**	-.352**	.576**	.534**	.525**	.878**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000	
	N	89	89	89	89	89	89	89	89	89	89	89	89	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Remote MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Managers and senior officials percentage	Professional occupations percentage	Associate professional and technical occupations percentage	Administrative and secretarial occupations percentage	Skilled trades occupations percentage	Personal service occupations percentage	Sales and customer service occupations percentage	Process; plant and machine operatives percentage	Elementary occupations percentage
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.885**	.647**	.807**	.887**	.800**	.827**	.603**	.381**	-.479**	-.641**	-.636**	-.699**	-.791**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
% with no qualifications	Pearson Correlation	-.885**	1	-.795**	-.892**	-.928**	-.830**	-.873**	-.684**	-.530**	.484**	.586**	.650**	.798**	.888**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 2	Pearson Correlation	.647**	-.795**	1	.745**	.596**	.616**	.536**	.632**	.379**	-.389**	-.396**	-.440**	-.611**	-.635**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 3	Pearson Correlation	.807**	-.892**	.745**	1	.786**	.748**	.689**	.733**	.425**	-.510**	-.461**	-.538**	-.745**	-.748**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 4/5	Pearson Correlation	.887**	-.928**	.596**	.786**	1	.881**	.965**	.544**	.412**	-.459**	-.623**	-.674**	-.818**	-.858**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Managers and senior officials percentage	Pearson Correlation	.800**	-.830**	.616**	.748**	.881**	1	.825**	.459**	.361**	-.415**	-.686**	-.657**	-.836**	-.765**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.001	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Professional occupations percentage	Pearson Correlation	.827**	-.873**	.536**	.689**	.965**	.825**	1	.436**	.401**	-.466**	-.598**	-.631**	-.743**	-.839**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Associate professional and technical occupations percentage	Pearson Correlation	.603**	-.684**	.632**	.733**	.544**	.459**	.436**	1	.359**	-.459**	-.302**	-.467**	-.603**	-.633**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.001	.000	.007	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Administrative and secretarial occupations percentage	Pearson Correlation	.381**	-.530**	.379**	.425**	.412**	.361**	.401**	.359**	1	-.370**	-.414**	-.267*	-.345**	-.573**
	Sig. (2-tailed)	.001	.000	.001	.000	.000	.001	.000	.001		.001	.000	.018	.002	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Skilled trades occupations percentage	Pearson Correlation	-.479**	.484**	-.389**	-.510**	-.459**	-.415**	-.466**	-.459**	-.370**	1	.342**	.077	.319**	.296**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.001		.002	.502	.004	.009
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Personal service occupations percentage	Pearson Correlation	-.641**	.586**	-.396**	-.461**	-.623**	-.686**	-.598**	-.302**	-.414**	.342**	1	.597**	.384**	.535**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.007	.000	.002		.000	.001	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Sales and customer service occupations percentage	Pearson Correlation	-.636**	.650**	-.440**	-.538**	-.674**	-.657**	-.631**	-.467**	-.267*	.077	.597**	1	.460**	.670**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.018	.502	.000		.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Process; plant and machine operatives percentage	Pearson Correlation	-.699**	.798**	-.611**	-.745**	-.818**	-.836**	-.743**	-.603**	-.345**	.319**	.384**	.460**	1	.681**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.002	.004	.001	.000		.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Elementary occupations percentage	Pearson Correlation	-.791**	.888**	-.635**	-.748**	-.858**	-.765**	-.839**	-.633**	-.573**	.296**	.535**	.670**	.681**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.009	.000	.000	.000	
	N	78	78	78	78	78	78	78	78	78	78	78	78	78	78

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

All MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	% corporate managers	% managers and proprieters in agriculture and services	% Skilled Agricultural Trades	% Skilled Metal and Electrical Trades	% Skilled Construction and Building Trades	% Textiles; Printing and Other Skilled Trades	% Process, plant and machine operatives	% Transport and mobile machine drivers
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.743**	.643**	-.053	.690**	.299**	.126**	.095*	.041	.076	-.200**	-.574**	-.628**
	Sig. (2-tailed)		.000	.000	.209	.000	.000	.002	.024	.330	.070	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% with no qualifications	Pearson Correlation	-.743**	1	-.507**	-.476**	-.854**	-.259**	-.158**	-.065	.094*	.075	.254**	.742**	.773**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.122	.025	.075	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 2	Pearson Correlation	.643**	-.507**	1	-.308**	.195**	.286**	.196**	.175**	.127**	.196**	-.172**	-.383**	-.256**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.002	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 3	Pearson Correlation	-.053	-.476**	-.308**	1	.394**	-.059	-.011	-.094*	-.261**	-.256**	-.094*	-.291**	-.379**
	Sig. (2-tailed)	.209	.000	.000		.000	.161	.790	.025	.000	.000	.025	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 4/5	Pearson Correlation	.690**	-.854**	.195**	.394**	1	.172**	.104*	.022	-.162**	-.138**	-.164**	-.671**	-.800**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.013	.595	.000	.001	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% corporate managers	Pearson Correlation	.299**	-.259**	.286**	-.059	.172**	1	.346**	.275**	-.326**	-.290**	-.615**	-.186**	-.141**
	Sig. (2-tailed)	.000	.000	.000	.161	.000		.000	.000	.000	.000	.000	.000	.001
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% managers and proprieters in agriculture and services	Pearson Correlation	.126**	-.158**	.196**	-.011	.104*	.346**	1	.616**	-.405**	-.112**	-.188**	-.151**	.001
	Sig. (2-tailed)	.002	.000	.000	.790	.013	.000		.000	.000	.007	.000	.000	.984
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% Skilled Agricultural Trades	Pearson Correlation	.095*	-.065	.175**	-.094*	.022	.275**	.616**	1	-.159**	.069	-.247**	-.099*	.064
	Sig. (2-tailed)	.024	.122	.000	.025	.595	.000	.000		.000	.102	.000	.018	.126
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% Skilled Metal and Electrical Trades	Pearson Correlation	.041	.094*	.127**	-.261**	-.162**	-.326**	-.405**	-.159**	1	.545**	.276**	-.013	.048
	Sig. (2-tailed)	.330	.025	.002	.000	.000	.000	.000	.000		.000	.000	.758	.251
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% Skilled Construction and Building Trades	Pearson Correlation	.076	.075	.196**	-.256**	-.138**	-.290**	-.112**	.069	.545**	1	.305**	-.163**	.120**
	Sig. (2-tailed)	.070	.075	.000	.000	.001	.000	.007	.102	.000		.000	.000	.004
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% Textiles; Printing and Other Skilled Trades	Pearson Correlation	-.200**	.254**	-.172**	-.094*	-.164**	-.615**	-.188**	-.247**	.276**	.305**	1	.234**	.091*
	Sig. (2-tailed)	.000	.000	.000	.025	.000	.000	.000	.000	.000	.000		.000	.030
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% Process, plant and machine operatives	Pearson Correlation	-.574**	.742**	-.383**	-.291**	-.671**	-.186**	-.151**	-.099*	-.013	-.163**	.234**	1	.532**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.018	.758	.000	.000		.000
	N	571	571	571	571	571	571	571	571	571	571	571	571	571
% Transport and mobile machine drivers	Pearson Correlation	-.628**	.773**	-.256**	-.379**	-.800**	-.141**	.001	.064	.048	.120**	.091*	.532**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.001	.984	.126	.251	.004	.030	.000	
	N	571	571	571	571	571	571	571	571	571	571	571	571	571

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Urban MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	% corporate managers	% managers and proprieters in agriculture and services	% Skilled Agricultural Trades	% Skilled Metal and Electrical Trades	% Skilled Construction and Building Trades	% Textiles; Printing and Other Skilled Trades	% Process, plant and machine operatives	% Transport and mobile machine drivers
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.684**	.631**	-.090	.594**	.338**	.086	.008	.075	.056	-.248**	-.488**	-.582**
	Sig. (2-tailed)		.000	.000	.072	.000	.000	.083	.877	.133	.258	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% with no qualifications	Pearson Correlation	-.684**	1	-.420**	-.517**	-.830**	-.291**	-.141**	.026	.098*	.122*	.320**	.711**	.769**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.004	.598	.049	.014	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 2	Pearson Correlation	.631**	-.420**	1	-.368**	.064	.324**	.174**	.152**	.204**	.217**	-.210**	-.288**	-.158**
	Sig. (2-tailed)	.000	.000		.000	.200	.000	.000	.002	.000	.000	.000	.000	.001
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 3	Pearson Correlation	-.090	-.517**	-.368**	1	.441**	-.048	.002	-.105*	-.306**	-.291**	-.130**	-.324**	-.408**
	Sig. (2-tailed)	.072	.000	.000		.000	.339	.962	.036	.000	.000	.009	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 4/5	Pearson Correlation	.594**	-.830**	.064	.441**	1	.166**	.063	-.116*	-.204**	-.204**	-.195**	-.616**	-.812**
	Sig. (2-tailed)	.000	.000	.200	.000		.001	.210	.019	.000	.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% corporate managers	Pearson Correlation	.338**	-.291**	.324**	-.048	.166**	1	.380**	.332**	-.239**	-.194**	-.622**	-.212**	-.160**
	Sig. (2-tailed)	.000	.000	.000	.339	.001		.000	.000	.000	.000	.000	.000	.001
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% managers and proprieters in agriculture and services	Pearson Correlation	.086	-.141**	.174**	.002	.063	.380**	1	.544**	-.368**	-.093	-.219**	-.142**	.009
	Sig. (2-tailed)	.083	.004	.000	.962	.210	.000		.000	.000	.062	.000	.004	.862
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% Skilled Agricultural Trades	Pearson Correlation	.008	.026	.152**	-.105*	-.116*	.332**	.544**	1	-.087	.129**	-.279**	-.030	.144**
	Sig. (2-tailed)	.877	.598	.002	.036	.019	.000	.000		.082	.009	.000	.543	.004
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% Skilled Metal and Electrical Trades	Pearson Correlation	.075	.098*	.204**	-.306**	-.204**	-.239**	-.368**	-.087	1	.564**	.246**	-.016	.086
	Sig. (2-tailed)	.133	.049	.000	.000	.000	.000	.000	.082		.000	.000	.744	.085
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% Skilled Construction and Building Trades	Pearson Correlation	.056	.122*	.217**	-.291**	-.204**	-.194**	-.093	.129**	.564**	1	.252**	-.144**	.166**
	Sig. (2-tailed)	.258	.014	.000	.000	.000	.000	.062	.009	.000		.000	.004	.001
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% Textiles; Printing and Other Skilled Trades	Pearson Correlation	-.248**	.320**	-.210**	-.130**	-.195**	-.622**	-.219**	-.279**	.246**	.252**	1	.298**	.127*
	Sig. (2-tailed)	.000	.000	.000	.009	.000	.000	.000	.000	.000	.000		.000	.011
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% Process, plant and machine operatives	Pearson Correlation	-.488**	.711**	-.288**	-.324**	-.616**	-.212**	-.142**	-.030	-.016	-.144**	.298**	1	.476**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.004	.543	.744	.004	.000		.000
	N	404	404	404	404	404	404	404	404	404	404	404	404	404
% Transport and mobile machine drivers	Pearson Correlation	-.582**	.769**	-.158**	-.408**	-.812**	-.160**	.009	.144**	.086	.166**	.127*	.476**	1
	Sig. (2-tailed)	.000	.000	.001	.000	.000	.001	.862	.004	.085	.001	.011	.000	
	N	404	404	404	404	404	404	404	404	404	404	404	404	404

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Accessible MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	% corporate managers	% managers and proprieters in agriculture and services	% Skilled Agricultural Trades	% Skilled Metal and Electrical Trades	% Skilled Construction and Building Trades	% Textiles; Printing and Other Skilled Trades	% Process, plant and machine operatives	% Transport and mobile machine drivers
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.859**	.417**	.561**	.858**	.146	-.115	-.077	.056	.045	.028	-.772**	-.801**
	Sig. (2-tailed)		.000	.000	.000	.000	.173	.282	.472	.603	.672	.796	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% with no qualifications	Pearson Correlation	-.859**	1	-.630**	-.745**	-.857**	-.141	.035	.002	.038	-.003	-.026	.852**	.826**
	Sig. (2-tailed)	.000		.000	.000	.000	.189	.743	.987	.722	.977	.808	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 2	Pearson Correlation	.417**	-.630**	1	.491**	.233*	-.044	.027	-.045	-.046	.121	.089	-.508**	-.451**
	Sig. (2-tailed)	.000	.000		.000	.028	.679	.798	.677	.670	.258	.409	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 3	Pearson Correlation	.561**	-.745**	.491**	1	.552**	-.097	.083	-.044	-.043	.122	.098	-.607**	-.535**
	Sig. (2-tailed)	.000	.000	.000		.000	.368	.442	.681	.692	.255	.359	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 4/5	Pearson Correlation	.858**	-.857**	.233*	.552**	1	.189	-.061	.029	.023	-.080	-.017	-.799**	-.781**
	Sig. (2-tailed)	.000	.000	.028	.000		.075	.573	.786	.828	.453	.877	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% corporate managers	Pearson Correlation	.146	-.141	-.044	-.097	.189	1	.137	.176	-.417**	-.632**	-.624**	.020	-.190
	Sig. (2-tailed)	.173	.189	.679	.368	.075		.200	.098	.000	.000	.000	.854	.074
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% managers and proprieters in agriculture and services	Pearson Correlation	-.115	.035	.027	.083	-.061	.137	1	.642**	-.536**	-.243*	-.017	.114	.173
	Sig. (2-tailed)	.282	.743	.798	.442	.573	.200		.000	.000	.022	.872	.286	.105
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% Skilled Agricultural Trades	Pearson Correlation	-.077	.002	-.045	-.044	.029	.176	.642**	1	-.351**	-.164	-.142	.075	.138
	Sig. (2-tailed)	.472	.987	.677	.681	.786	.098	.000		.001	.125	.185	.482	.198
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% Skilled Metal and Electrical Trades	Pearson Correlation	.056	.038	-.046	-.043	.023	-.417**	-.536**	-.351**	1	.458**	.270*	-.105	-.123
	Sig. (2-tailed)	.603	.722	.670	.692	.828	.000	.000	.001		.000	.010	.329	.250
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% Skilled Construction and Building Trades	Pearson Correlation	.045	-.003	.121	.122	-.080	-.632**	-.243*	-.164	.458**	1	.565**	-.119	.055
	Sig. (2-tailed)	.672	.977	.258	.255	.453	.000	.022	.125	.000		.000	.267	.611
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% Textiles; Printing and Other Skilled Trades	Pearson Correlation	.028	-.026	.089	.098	-.017	-.624**	-.017	-.142	.270*	.565**	1	-.087	.042
	Sig. (2-tailed)	.796	.808	.409	.359	.877	.000	.872	.185	.010	.000		.418	.696
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% Process, plant and machine operatives	Pearson Correlation	-.772**	.852**	-.508**	-.607**	-.799**	.020	.114	.075	-.105	-.119	-.087	1	.800**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.854	.286	.482	.329	.267	.418		.000
	N	89	89	89	89	89	89	89	89	89	89	89	89	89
% Transport and mobile machine drivers	Pearson Correlation	-.801**	.826**	-.451**	-.535**	-.781**	-.190	.173	.138	-.123	.055	.042	.800**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.074	.105	.198	.250	.611	.696	.000	
	N	89	89	89	89	89	89	89	89	89	89	89	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Remote MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	% corporate managers	% managers and proprieters in agriculture and services	% Skilled Agricultural Trades	% Skilled Metal and Electrical Trades	% Skilled Construction and Building Trades	% Textiles; Printing and Other Skilled Trades	% Process, plant and machine operatives	% Transport and mobile machine drivers
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.885**	.647**	.807**	.887**	.084	.190	.209	-.107	-.027	-.134	-.610**	-.707**
	Sig. (2-tailed)		.000	.000	.000	.000	.464	.096	.066	.352	.816	.243	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% with no qualifications	Pearson Correlation	-.885**	1	-.795**	-.892**	-.928**	-.080	-.152	-.219	.115	.060	.095	.729**	.754**
	Sig. (2-tailed)	.000		.000	.000	.000	.485	.185	.054	.315	.604	.409	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 2	Pearson Correlation	.647**	-.795**	1	.745**	.596**	.099	.146	.157	-.160	-.082	.026	-.556**	-.580**
	Sig. (2-tailed)	.000	.000		.000	.000	.390	.201	.170	.162	.476	.821	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 3	Pearson Correlation	.807**	-.892**	.745**	1	.786**	.041	.078	.165	-.070	-.051	-.045	-.676**	-.712**
	Sig. (2-tailed)	.000	.000	.000		.000	.724	.497	.148	.545	.659	.696	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 4/5	Pearson Correlation	.887**	-.928**	.596**	.786**	1	.050	.175	.247*	-.082	-.030	-.114	-.754**	-.760**
	Sig. (2-tailed)	.000	.000	.000	.000		.665	.125	.029	.475	.797	.318	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% corporate managers	Pearson Correlation	.084	-.080	.099	.041	.050	1	.334**	.020	-.688**	-.670**	-.537**	.079	-.060
	Sig. (2-tailed)	.464	.485	.390	.724	.665		.003	.862	.000	.000	.000	.491	.604
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% managers and proprieters in agriculture and services	Pearson Correlation	.190	-.152	.146	.078	.175	.334**	1	.742**	-.505**	-.251*	-.185	-.027	-.069
	Sig. (2-tailed)	.096	.185	.201	.497	.125	.003		.000	.000	.027	.104	.815	.546
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% Skilled Agricultural Trades	Pearson Correlation	.209	-.219	.157	.165	.247*	.020	.742**	1	-.222	-.031	-.146	-.175	-.167
	Sig. (2-tailed)	.066	.054	.170	.148	.029	.862	.000		.051	.788	.202	.125	.145
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% Skilled Metal and Electrical Trades	Pearson Correlation	-.107	.115	-.160	-.070	-.082	-.688**	-.505**	-.222	1	.554**	.474**	-.010	.039
	Sig. (2-tailed)	.352	.315	.162	.545	.475	.000	.000	.051		.000	.000	.933	.736
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% Skilled Construction and Building Trades	Pearson Correlation	-.027	.060	-.082	-.051	-.030	-.670**	-.251*	-.031	.554**	1	.506**	-.160	.067
	Sig. (2-tailed)	.816	.604	.476	.659	.797	.000	.027	.788	.000		.000	.161	.561
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% Textiles; Printing and Other Skilled Trades	Pearson Correlation	-.134	.095	.026	-.045	-.114	-.537**	-.185	-.146	.474**	.506**	1	-.076	.066
	Sig. (2-tailed)	.243	.409	.821	.696	.318	.000	.104	.202	.000	.000		.508	.568
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% Process, plant and machine operatives	Pearson Correlation	-.610**	.729**	-.556**	-.676**	-.754**	.079	-.027	-.175	-.010	-.160	-.076	1	.695**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.491	.815	.125	.933	.161	.508		.000
	N	78	78	78	78	78	78	78	78	78	78	78	78	78
% Transport and mobile machine drivers	Pearson Correlation	-.707**	.754**	-.580**	-.712**	-.760**	-.060	-.069	-.167	.039	.067	.066	.695**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.604	.546	.145	.736	.561	.568	.000	
	N	78	78	78	78	78	78	78	78	78	78	78	78	78

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

All MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	All Units employing 0 to 4 Persons %	All Units employing 20 or More Persons %	% companies less than 2 years old	% companies more than 10 years old	% public units	% private units (multi site)	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.743**	.643**	-.053	.690**	.611**	-.501**	-.066	.026	-.174**	-.167**	-.221**
	Sig. (2-tailed)		.000	.000	.209	.000	.000	.000	.114	.537	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571
% with no qualifications	Pearson Correlation	-.743**	1	-.507**	-.476**	-.854**	-.417**	.376**	.105*	-.069	.165**	.059	.059
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.012	.098	.000	.162	.161
	N	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 2	Pearson Correlation	.643**	-.507**	1	-.308**	.195**	.408**	-.381**	-.113**	.061	-.119**	-.119**	-.324**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.007	.148	.004	.005	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 3	Pearson Correlation	-.053	-.476**	-.308**	1	.394**	-.122**	.100*	-.014	.054	-.010	.134**	.271**
	Sig. (2-tailed)	.209	.000	.000		.000	.004	.017	.741	.194	.808	.001	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 4/5	Pearson Correlation	.690**	-.854**	.195**	.394**	1	.391**	-.363**	-.064	.037	-.124**	-.084*	.045
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.129	.378	.003	.044	.285
	N	571	571	571	571	571	571	571	571	571	571	571	571
All Units employing 0 to 4 Persons %	Pearson Correlation	.611**	-.417**	.408**	-.122**	.391**	1	-.828**	.039	-.054	-.131**	-.246**	-.198**
	Sig. (2-tailed)	.000	.000	.000	.004	.000		.000	.352	.194	.002	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571
All Units employing 20 or More Persons %	Pearson Correlation	-.501**	.376**	-.381**	.100*	-.363**	-.828**	1	.053	-.023	.172**	.259**	.184**
	Sig. (2-tailed)	.000	.000	.000	.017	.000	.000		.203	.582	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571
% companies less than 2 years old	Pearson Correlation	-.066	.105*	-.113**	-.014	-.064	.039	.053	1	-.717**	.206**	.003	.082
	Sig. (2-tailed)	.114	.012	.007	.741	.129	.352	.203		.000	.000	.936	.051
	N	571	571	571	571	571	571	571	571	571	571	571	571
% companies more than 10 years old	Pearson Correlation	.026	-.069	.061	.054	.037	-.054	-.023	-.717**	1	-.200**	.050	-.047
	Sig. (2-tailed)	.537	.098	.148	.194	.378	.194	.582	.000		.000	.229	.259
	N	571	571	571	571	571	571	571	571	571	571	571	571
% public units	Pearson Correlation	-.174**	.165**	-.119**	-.010	-.124**	-.131**	.172**	.206**	-.200**	1	.257**	.008
	Sig. (2-tailed)	.000	.000	.004	.808	.003	.002	.000	.000	.000		.000	.840
	N	571	571	571	571	571	571	571	571	571	571	571	571
% private units (multi site)	Pearson Correlation	-.167**	.059	-.119**	.134**	-.084*	-.246**	.259**	.003	.050	.257**	1	.098*
	Sig. (2-tailed)	.000	.162	.005	.001	.044	.000	.000	.936	.229	.000		.019
	N	571	571	571	571	571	571	571	571	571	571	571	571
Weighted Distance to Nearest City	Pearson Correlation	-.221**	.059	-.324**	.271**	.045	-.198**	.184**	.082	-.047	.008	.098*	1
	Sig. (2-tailed)	.000	.161	.000	.000	.285	.000	.000	.051	.259	.840	.019	
	N	571	571	571	571	571	571	571	571	571	571	571	571

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Urban MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	All Units employing 0 to 4 Persons %	All Units employing 20 or More Persons %	% companies less than 2 years old	% companies more than 10 years old	% public units	% private units (multi site)	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.684**	.631**	-.090	.594**	.586**	-.452**	.001	-.078	-.156**	-.155**	-.188**
	Sig. (2-tailed)		.000	.000	.072	.000	.000	.000	.979	.117	.002	.002	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404
% with no qualifications	Pearson Correlation	-.684**	1	-.420**	-.517**	-.830**	-.349**	.315**	.070	-.002	.142**	.039	.012
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.158	.965	.004	.431	.813
	N	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 2	Pearson Correlation	.631**	-.420**	1	-.368**	.064	.337**	-.312**	-.088	.000	-.091	-.133**	-.291**
	Sig. (2-tailed)	.000	.000		.000	.200	.000	.000	.076	.995	.067	.008	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 3	Pearson Correlation	-.090	-.517**	-.368**	1	.441**	-.113*	.078	-.026	.083	-.012	.136**	.257**
	Sig. (2-tailed)	.072	.000	.000		.000	.023	.115	.601	.095	.806	.006	.000
	N	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 4/5	Pearson Correlation	.594**	-.830**	.064	.441**	1	.312**	-.288**	.004	-.059	-.099*	-.049	.117*
	Sig. (2-tailed)	.000	.000	.200	.000		.000	.000	.938	.241	.046	.326	.018
	N	404	404	404	404	404	404	404	404	404	404	404	404
All Units employing 0 to 4 Persons %	Pearson Correlation	.586**	-.349**	.337**	-.113*	.312**	1	-.793**	.151**	-.200**	-.115*	-.248**	-.108*
	Sig. (2-tailed)	.000	.000	.000	.023	.000		.000	.002	.000	.020	.000	.030
	N	404	404	404	404	404	404	404	404	404	404	404	404
All Units employing 20 or More Persons %	Pearson Correlation	-.452**	.315**	-.312**	.078	-.288**	-.793**	1	-.038	.104*	.166**	.261**	.076
	Sig. (2-tailed)	.000	.000	.000	.115	.000	.000		.445	.036	.001	.000	.126
	N	404	404	404	404	404	404	404	404	404	404	404	404
% companies less than 2 years old	Pearson Correlation	.001	.070	-.088	-.026	.004	.151**	-.038	1	-.709**	.215**	-.079	.040
	Sig. (2-tailed)	.979	.158	.076	.601	.938	.002	.445		.000	.000	.115	.426
	N	404	404	404	404	404	404	404	404	404	404	404	404
% companies more than 10 years old	Pearson Correlation	-.078	-.002	.000	.083	-.059	-.200**	.104*	-.709**	1	-.206**	.103*	.012
	Sig. (2-tailed)	.117	.965	.995	.095	.241	.000	.036	.000		.000	.038	.810
	N	404	404	404	404	404	404	404	404	404	404	404	404
% public units	Pearson Correlation	-.156**	.142**	-.091	-.012	-.099*	-.115*	.166**	.215**	-.206**	1	.228**	-.004
	Sig. (2-tailed)	.002	.004	.067	.806	.046	.020	.001	.000	.000		.000	.931
	N	404	404	404	404	404	404	404	404	404	404	404	404
% private units (multi site)	Pearson Correlation	-.155**	.039	-.133**	.136**	-.049	-.248**	.261**	-.079	.103*	.228**	1	.074
	Sig. (2-tailed)	.002	.431	.008	.006	.326	.000	.000	.115	.038	.000		.140
	N	404	404	404	404	404	404	404	404	404	404	404	404
Weighted Distance to Nearest City	Pearson Correlation	-.188**	.012	-.291**	.257**	.117*	-.108*	.076	.040	.012	-.004	.074	1
	Sig. (2-tailed)	.000	.813	.000	.000	.018	.030	.126	.426	.810	.931	.140	
	N	404	404	404	404	404	404	404	404	404	404	404	404

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Accessible MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	All Units employing 0 to 4 Persons %	All Units employing 20 or More Persons %	% companies less than 2 years old	% companies more than 10 years old	% public units	% private units (multi site)	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.859**	.417**	.561**	.858**	.438**	-.338**	.017	-.110	-.103	-.161	.044
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.001	.878	.305	.335	.131	.684
	N	89	89	89	89	89	89	89	89	89	89	89	89
% with no qualifications	Pearson Correlation	-.859**	1	-.630**	-.745**	-.857**	-.401**	.353**	.001	.049	.160	.119	.049
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.001	.991	.647	.135	.266	.649
	N	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 2	Pearson Correlation	.417**	-.630**	1	.491**	.233*	.284**	-.215*	.128	-.077	-.119	.064	-.395**
	Sig. (2-tailed)	.000	.000		.000	.028	.007	.043	.231	.475	.267	.551	.000
	N	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 3	Pearson Correlation	.561**	-.745**	.491**	1	.552**	.142	-.090	-.080	.007	.006	.005	-.039
	Sig. (2-tailed)	.000	.000	.000		.000	.185	.401	.459	.950	.952	.965	.716
	N	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 4/5	Pearson Correlation	.858**	-.857**	.233*	.552**	1	.381**	-.361**	-.082	-.041	-.096	-.205	.047
	Sig. (2-tailed)	.000	.000	.028	.000		.000	.001	.443	.706	.370	.054	.663
	N	89	89	89	89	89	89	89	89	89	89	89	89
All Units employing 0 to 4 Persons %	Pearson Correlation	.438**	-.401**	.284**	.142	.381**	1	-.776**	.013	-.159	-.116	-.153	-.220*
	Sig. (2-tailed)	.000	.000	.007	.185	.000		.000	.903	.136	.280	.153	.039
	N	89	89	89	89	89	89	89	89	89	89	89	89
All Units employing 20 or More Persons %	Pearson Correlation	-.338**	.353**	-.215*	-.090	-.361**	-.776**	1	-.031	.058	.235*	.128	.141
	Sig. (2-tailed)	.001	.001	.043	.401	.001	.000		.775	.592	.026	.234	.186
	N	89	89	89	89	89	89	89	89	89	89	89	89
% companies less than 2 years old	Pearson Correlation	.017	.001	.128	-.080	-.082	.013	-.031	1	-.704**	.132	.152	.090
	Sig. (2-tailed)	.878	.991	.231	.459	.443	.903	.775		.000	.217	.156	.400
	N	89	89	89	89	89	89	89	89	89	89	89	89
% companies more than 10 years old	Pearson Correlation	-.110	.049	-.077	.007	-.041	-.159	.058	-.704**	1	-.106	.032	-.129
	Sig. (2-tailed)	.305	.647	.475	.950	.706	.136	.592	.000		.322	.766	.230
	N	89	89	89	89	89	89	89	89	89	89	89	89
% public units	Pearson Correlation	-.103	.160	-.119	.006	-.096	-.116	.235*	.132	-.106	1	.404**	-.074
	Sig. (2-tailed)	.335	.135	.267	.952	.370	.280	.026	.217	.322		.000	.494
	N	89	89	89	89	89	89	89	89	89	89	89	89
% private units (multi site)	Pearson Correlation	-.161	.119	.064	.005	-.205	-.153	.128	.152	.032	.404**	1	-.082
	Sig. (2-tailed)	.131	.266	.551	.965	.054	.153	.234	.156	.766	.000		.445
	N	89	89	89	89	89	89	89	89	89	89	89	89
Weighted Distance to Nearest City	Pearson Correlation	.044	.049	-.395**	-.039	.047	-.220*	.141	.090	-.129	-.074	-.082	1
	Sig. (2-tailed)	.684	.649	.000	.716	.663	.039	.186	.400	.230	.494	.445	
	N	89	89	89	89	89	89	89	89	89	89	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Remote MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	All Units employing 0 to 4 Persons %	All Units employing 20 or More Persons %	% companies less than 2 years old	% companies more than 10 years old	% public units	% private units (multi site)	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.885**	.647**	.807**	.887**	.485**	-.313**	-.164	.198	-.241*	-.046	.379**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.005	.151	.082	.034	.690	.001
	N	78	78	78	78	78	78	78	78	78	78	78	78
% with no qualifications	Pearson Correlation	-.885**	1	-.795**	-.892**	-.928**	-.562**	.392**	.162	-.200	.220	-.015	-.315**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.156	.079	.053	.894	.005
	N	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 2	Pearson Correlation	.647**	-.795**	1	.745**	.596**	.405**	-.282*	-.108	.092	-.234*	.118	-.033
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.012	.347	.424	.039	.304	.774
	N	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 3	Pearson Correlation	.807**	-.892**	.745**	1	.786**	.411**	-.297**	-.191	.190	-.145	.039	.239*
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.008	.093	.095	.206	.732	.035
	N	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 4/5	Pearson Correlation	.887**	-.928**	.596**	.786**	1	.548**	-.418**	-.196	.263*	-.190	-.022	.411**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.085	.020	.095	.846	.000
	N	78	78	78	78	78	78	78	78	78	78	78	78
All Units employing 0 to 4 Persons %	Pearson Correlation	.485**	-.562**	.405**	.411**	.548**	1	-.814**	-.110	.164	-.068	.084	.013
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.337	.151	.553	.464	.912
	N	78	78	78	78	78	78	78	78	78	78	78	78
All Units employing 20 or More Persons %	Pearson Correlation	-.313**	.392**	-.282*	-.297**	-.418**	-.814**	1	.136	-.115	-.097	-.110	.248*
	Sig. (2-tailed)	.005	.000	.012	.008	.000	.000		.234	.318	.400	.337	.029
	N	78	78	78	78	78	78	78	78	78	78	78	78
% companies less than 2 years old	Pearson Correlation	-.164	.162	-.108	-.191	-.196	-.110	.136	1	-.723**	.121	.195	-.106
	Sig. (2-tailed)	.151	.156	.347	.093	.085	.337	.234		.000	.293	.088	.357
	N	78	78	78	78	78	78	78	78	78	78	78	78
% companies more than 10 years old	Pearson Correlation	.198	-.200	.092	.190	.263*	.164	-.115	-.723**	1	-.215	.026	.179
	Sig. (2-tailed)	.082	.079	.424	.095	.020	.151	.318	.000		.059	.823	.116
	N	78	78	78	78	78	78	78	78	78	78	78	78
% public units	Pearson Correlation	-.241*	.220	-.234*	-.145	-.190	-.068	-.097	.121	-.215	1	.408**	-.161
	Sig. (2-tailed)	.034	.053	.039	.206	.095	.553	.400	.293	.059		.000	.160
	N	78	78	78	78	78	78	78	78	78	78	78	78
% private units (multi site)	Pearson Correlation	-.046	-.015	.118	.039	-.022	.084	-.110	.195	.026	.408**	1	-.100
	Sig. (2-tailed)	.690	.894	.304	.732	.846	.464	.337	.088	.823	.000		.383
	N	78	78	78	78	78	78	78	78	78	78	78	78
Weighted Distance to Nearest City	Pearson Correlation	.379**	-.315**	-.033	.239*	.411**	.013	.248*	-.106	.179	-.161	-.100	1
	Sig. (2-tailed)	.001	.005	.774	.035	.000	.912	.029	.357	.116	.160	.383	
	N	78	78	78	78	78	78	78	78	78	78	78	78

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

All MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Agriculture, Forestry and Fishing %	Production %	Construction %	Retail %	Professional Scientific %	Public Administration %	Business Administration %
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.743**	.643**	-.053	.690**	.276**	-.221**	.219**	-.519**	.681**	-.187**	.112**
	Sig. (2-tailed)		.000	.000	.209	.000	.000	.000	.000	.000	.000	.000	.008
	N	571	571	571	571	571	571	571	571	571	571	571	571
% with no qualifications	Pearson Correlation	-.743**	1	-.507**	-.476**	-.854**	-.148**	.280**	-.064	.383**	-.700**	.151**	-.140**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.129	.000	.000	.000	.001
	N	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 2	Pearson Correlation	.643**	-.507**	1	-.308**	.195**	.232**	-.142**	.298**	-.363**	.354**	-.159**	.143**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.001	.000	.000	.000	.000	.001
	N	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 3	Pearson Correlation	-.053	-.476**	-.308**	1	.394**	-.123**	-.116**	-.238**	.051	.219**	.039	.059
	Sig. (2-tailed)	.209	.000	.000		.000	.003	.006	.000	.219	.000	.347	.162
	N	571	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 4/5	Pearson Correlation	.690**	-.854**	.195**	.394**	1	.171**	-.281**	-.115**	-.287**	.691**	-.105*	.064
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.006	.000	.000	.012	.129
	N	571	571	571	571	571	571	571	571	571	571	571	571
Agriculture, Forestry and Fishing %	Pearson Correlation	.276**	-.148**	.232**	-.123**	.171**	1	-.119**	-.037	-.412**	.047	-.134**	-.026
	Sig. (2-tailed)	.000	.000	.000	.003	.000		.004	.378	.000	.263	.001	.535
	N	571	571	571	571	571	571	571	571	571	571	571	571
Production %	Pearson Correlation	-.221**	.280**	-.142**	-.116**	-.281**	-.119**	1	-.182**	-.102*	-.299**	-.113**	-.104*
	Sig. (2-tailed)	.000	.000	.001	.006	.000	.004		.000	.015	.000	.007	.012
	N	571	571	571	571	571	571	571	571	571	571	571	571
Construction %	Pearson Correlation	.219**	-.064	.298**	-.238**	-.115**	-.037	-.182**	1	-.361**	.067	-.145**	-.047
	Sig. (2-tailed)	.000	.129	.000	.000	.006	.378	.000		.000	.111	.001	.266
	N	571	571	571	571	571	571	571	571	571	571	571	571
Retail %	Pearson Correlation	-.519**	.383**	-.363**	.051	-.287**	-.412**	-.102*	-.361**	1	-.397**	.180**	-.166**
	Sig. (2-tailed)	.000	.000	.000	.219	.000	.000	.015	.000		.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571	571
ProfessionalScientific %	Pearson Correlation	.681**	-.700**	.354**	.219**	.691**	.047	-.299**	.067	-.397**	1	-.194**	.098*
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.263	.000	.111	.000		.000	.019
	N	571	571	571	571	571	571	571	571	571	571	571	571
Public Administration %	Pearson Correlation	-.187**	.151**	-.159**	.039	-.105*	-.134**	-.113**	-.145**	.180**	-.194**	1	-.124**
	Sig. (2-tailed)	.000	.000	.000	.347	.012	.001	.007	.001	.000	.000		.003
	N	571	571	571	571	571	571	571	571	571	571	571	571
Business Administration %	Pearson Correlation	.112**	-.140**	.143**	.059	.064	-.026	-.104*	-.047	-.166**	.098*	-.124**	1
	Sig. (2-tailed)	.008	.001	.001	.162	.129	.535	.012	.266	.000	.019	.003	
	N	571	571	571	571	571	571	571	571	571	571	571	571

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Urban MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Agriculture, Forestry and Fishing %	Production %	Construction %	Retail %	Professional Scientific %	Public Administration %	Business Administration %
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.684**	.631**	-.090	.594**	.183**	-.190**	.323**	-.471**	.665**	-.158**	.098*
	Sig. (2-tailed)		.000	.000	.072	.000	.000	.000	.000	.000	.000	.001	.048
	N	404	404	404	404	404	404	404	404	404	404	404	404
% with no qualifications	Pearson Correlation	-.684**	1	-.420**	-.517**	-.830**	-.027	.262**	-.100*	.318**	-.669**	.114*	-.127*
	Sig. (2-tailed)	.000		.000	.000	.000	.587	.000	.044	.000	.000	.021	.011
	N	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 2	Pearson Correlation	.631**	-.420**	1	-.368**	.064	.186**	-.101*	.367**	-.298**	.258**	-.140**	.140**
	Sig. (2-tailed)	.000	.000		.000	.200	.000	.043	.000	.000	.000	.005	.005
	N	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 3	Pearson Correlation	-.090	-.517**	-.368**	1	.441**	-.141**	-.122*	-.256**	.036	.226**	.037	.050
	Sig. (2-tailed)	.072	.000	.000		.000	.005	.014	.000	.470	.000	.452	.321
	N	404	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 4/5	Pearson Correlation	.594**	-.830**	.064	.441**	1	-.017	-.262**	-.092	-.194**	.672**	-.056	.045
	Sig. (2-tailed)	.000	.000	.200	.000		.728	.000	.065	.000	.000	.259	.368
	N	404	404	404	404	404	404	404	404	404	404	404	404
Agriculture, Forestry and Fishing %	Pearson Correlation	.183**	-.027	.186**	-.141**	-.017	1	-.036	.142**	-.215**	.037	-.038	-.052
	Sig. (2-tailed)	.000	.587	.000	.005	.728		.472	.004	.000	.463	.452	.301
	N	404	404	404	404	404	404	404	404	404	404	404	404
Production %	Pearson Correlation	-.190**	.262**	-.101*	-.122*	-.262**	-.036	1	-.214**	-.180**	-.295**	-.136**	-.098*
	Sig. (2-tailed)	.000	.000	.043	.014	.000	.472		.000	.000	.000	.006	.048
	N	404	404	404	404	404	404	404	404	404	404	404	404
Construction %	Pearson Correlation	.323**	-.100*	.367**	-.256**	-.092	.142**	-.214**	1	-.445**	.103*	-.165**	-.034
	Sig. (2-tailed)	.000	.044	.000	.000	.065	.004	.000		.000	.039	.001	.502
	N	404	404	404	404	404	404	404	404	404	404	404	404
Retail %	Pearson Correlation	-.471**	.318**	-.298**	.036	-.194**	-.215**	-.180**	-.445**	1	-.380**	.130**	-.161**
	Sig. (2-tailed)	.000	.000	.000	.470	.000	.000	.000	.000		.000	.009	.001
	N	404	404	404	404	404	404	404	404	404	404	404	404
ProfessionalScientific %	Pearson Correlation	.665**	-.669**	.258**	.226**	.672**	.037	-.295**	.103*	-.380**	1	-.183**	.071
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.463	.000	.039	.000		.000	.157
	N	404	404	404	404	404	404	404	404	404	404	404	404
Public Administration %	Pearson Correlation	-.158**	.114*	-.140**	.037	-.056	-.038	-.136**	-.165**	.130**	-.183**	1	-.122*
	Sig. (2-tailed)	.001	.021	.005	.452	.259	.452	.006	.001	.009	.000		.014
	N	404	404	404	404	404	404	404	404	404	404	404	404
Business Administration %	Pearson Correlation	.098*	-.127*	.140**	.050	.045	-.052	-.098*	-.034	-.161**	.071	-.122*	1
	Sig. (2-tailed)	.048	.011	.005	.321	.368	.301	.048	.502	.001	.157	.014	
	N	404	404	404	404	404	404	404	404	404	404	404	404

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Accessible MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Agriculture, Forestry and Fishing %	Production %	Construction %	Retail %	Professional Scientific %	Public Administration %	Business Administration %
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.859**	.417**	.561**	.858**	.184	-.419**	-.160	-.431**	.605**	.020	.037
	Sig. (2-tailed)		.000	.000	.000	.000	.084	.000	.135	.000	.000	.851	.728
	N	89	89	89	89	89	89	89	89	89	89	89	89
% with no qualifications	Pearson Correlation	-.859**	1	-.630**	-.745**	-.857**	-.097	.414**	.173	.370**	-.647**	-.037	-.055
	Sig. (2-tailed)	.000		.000	.000	.000	.366	.000	.104	.000	.000	.727	.608
	N	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 2	Pearson Correlation	.417**	-.630**	1	.491**	.233*	.039	-.191	.017	-.251*	.424**	.180	.066
	Sig. (2-tailed)	.000	.000		.000	.028	.720	.074	.878	.018	.000	.091	.537
	N	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 3	Pearson Correlation	.561**	-.745**	.491**	1	.552**	-.009	-.353**	-.197	-.195	.409**	.145	.130
	Sig. (2-tailed)	.000	.000	.000		.000	.932	.001	.064	.067	.000	.176	.225
	N	89	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 4/5	Pearson Correlation	.858**	-.857**	.233*	.552**	1	.192	-.445**	-.316**	-.303**	.609**	.007	.004
	Sig. (2-tailed)	.000	.000	.028	.000		.072	.000	.003	.004	.000	.947	.968
	N	89	89	89	89	89	89	89	89	89	89	89	89
Agriculture, Forestry and Fishing %	Pearson Correlation	.184	-.097	.039	-.009	.192	1	-.232*	-.165	-.467**	-.063	-.081	-.029
	Sig. (2-tailed)	.084	.366	.720	.932	.072		.029	.122	.000	.560	.451	.786
	N	89	89	89	89	89	89	89	89	89	89	89	89
Production %	Pearson Correlation	-.419**	.414**	-.191	-.353**	-.445**	-.232*	1	.009	.179	-.409**	-.122	-.106
	Sig. (2-tailed)	.000	.000	.074	.001	.000	.029		.937	.094	.000	.254	.324
	N	89	89	89	89	89	89	89	89	89	89	89	89
Construction %	Pearson Correlation	-.160	.173	.017	-.197	-.316**	-.165	.009	1	-.073	-.169	-.085	-.217*
	Sig. (2-tailed)	.135	.104	.878	.064	.003	.122	.937		.495	.113	.428	.041
	N	89	89	89	89	89	89	89	89	89	89	89	89
Retail %	Pearson Correlation	-.431**	.370**	-.251*	-.195	-.303**	-.467**	.179	-.073	1	-.337**	.130	-.204
	Sig. (2-tailed)	.000	.000	.018	.067	.004	.000	.094	.495		.001	.225	.056
	N	89	89	89	89	89	89	89	89	89	89	89	89
ProfessionalScientific %	Pearson Correlation	.605**	-.647**	.424**	.409**	.609**	-.063	-.409**	-.169	-.337**	1	-.109	.076
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.560	.000	.113	.001		.309	.478
	N	89	89	89	89	89	89	89	89	89	89	89	89
Public Administration %	Pearson Correlation	.020	-.037	.180	.145	.007	-.081	-.122	-.085	.130	-.109	1	-.010
	Sig. (2-tailed)	.851	.727	.091	.176	.947	.451	.254	.428	.225	.309		.926
	N	89	89	89	89	89	89	89	89	89	89	89	89
Business Administration %	Pearson Correlation	.037	-.055	.066	.130	.004	-.029	-.106	-.217*	-.204	.076	-.010	1
	Sig. (2-tailed)	.728	.608	.537	.225	.968	.786	.324	.041	.056	.478	.926	
	N	89	89	89	89	89	89	89	89	89	89	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Remote MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Agriculture, Forestry and Fishing %	Production %	Construction %	Retail %	Professional Scientific %	Public Administration %	Business Administration %
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.885**	.647**	.807**	.887**	-.024	-.070	-.185	-.415**	.730**	-.403**	.339**
	Sig. (2-tailed)		.000	.000	.000	.000	.832	.541	.104	.000	.000	.000	.002
	N	78	78	78	78	78	78	78	78	78	78	78	78
% with no qualifications	Pearson Correlation	-.885**	1	-.795**	-.892**	-.928**	.026	.194	.122	.444**	-.782**	.414**	-.318**
	Sig. (2-tailed)	.000		.000	.000	.000	.818	.089	.286	.000	.000	.000	.005
	N	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 2	Pearson Correlation	.647**	-.795**	1	.745**	.596**	-.070	-.295**	.011	-.276*	.698**	-.313**	.290*
	Sig. (2-tailed)	.000	.000		.000	.000	.543	.009	.923	.014	.000	.005	.010
	N	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 3	Pearson Correlation	.807**	-.892**	.745**	1	.786**	-.118	-.188	-.120	-.317**	.708**	-.316**	.331**
	Sig. (2-tailed)	.000	.000	.000		.000	.302	.099	.295	.005	.000	.005	.003
	N	78	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 4/5	Pearson Correlation	.887**	-.928**	.596**	.786**	1	.034	-.158	-.260*	-.414**	.732**	-.437**	.250*
	Sig. (2-tailed)	.000	.000	.000	.000		.768	.166	.021	.000	.000	.000	.027
	N	78	78	78	78	78	78	78	78	78	78	78	78
Agriculture, Forestry and Fishing %	Pearson Correlation	-.024	.026	-.070	-.118	.034	1	-.178	-.171	-.580**	-.288*	-.416**	-.040
	Sig. (2-tailed)	.832	.818	.543	.302	.768		.118	.135	.000	.011	.000	.729
	N	78	78	78	78	78	78	78	78	78	78	78	78
Production %	Pearson Correlation	-.070	.194	-.295**	-.188	-.158	-.178	1	.138	.028	-.185	.048	-.204
	Sig. (2-tailed)	.541	.089	.009	.099	.166	.118		.228	.811	.105	.677	.073
	N	78	78	78	78	78	78	78	78	78	78	78	78
Construction %	Pearson Correlation	-.185	.122	.011	-.120	-.260*	-.171	.138	1	-.063	-.089	.065	-.085
	Sig. (2-tailed)	.104	.286	.923	.295	.021	.135	.228		.582	.438	.573	.458
	N	78	78	78	78	78	78	78	78	78	78	78	78
Retail %	Pearson Correlation	-.415**	.444**	-.276*	-.317**	-.414**	-.580**	.028	-.063	1	-.310**	.481**	-.339**
	Sig. (2-tailed)	.000	.000	.014	.005	.000	.000	.811	.582		.006	.000	.002
	N	78	78	78	78	78	78	78	78	78	78	78	78
ProfessionalScientific %	Pearson Correlation	.730**	-.782**	.698**	.708**	.732**	-.288*	-.185	-.089	-.310**	1	-.213	.301**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.011	.105	.438	.006		.061	.007
	N	78	78	78	78	78	78	78	78	78	78	78	78
Public Administration %	Pearson Correlation	-.403**	.414**	-.313**	-.316**	-.437**	-.416**	.048	.065	.481**	-.213	1	-.277*
	Sig. (2-tailed)	.000	.000	.005	.005	.000	.000	.677	.573	.000	.061		.014
	N	78	78	78	78	78	78	78	78	78	78	78	78
Business Administration %	Pearson Correlation	.339**	-.318**	.290*	.331**	.250*	-.040	-.204	-.085	-.339**	.301**	-.277*	1
	Sig. (2-tailed)	.002	.005	.010	.003	.027	.729	.073	.458	.002	.007	.014	
	N	78	78	78	78	78	78	78	78	78	78	78	78

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

All MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Economic Activity Rate	Employment Rate	Unemployment Rate	% Retired	% permanently sick/disabled	All Claimants - Rate
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.743**	.643**	-.053	.690**	.609**	.476**	-.691**	.091*	-.687**	-.696**
	Sig. (2-tailed)		.000	.000	.209	.000	.000	.000	.000	.030	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
% with no qualifications	Pearson Correlation	-.743**	1	-.507**	-.476**	-.854**	-.519**	-.343**	.678**	.176**	.817**	.689**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 2	Pearson Correlation	.643**	-.507**	1	-.308**	.195**	.763**	.694**	-.576**	.055	-.558**	-.570**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.192	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 3	Pearson Correlation	-.053	-.476**	-.308**	1	.394**	-.288**	-.385**	-.061	-.423**	-.231**	-.069
	Sig. (2-tailed)	.209	.000	.000		.000	.000	.000	.142	.000	.000	.101
	N	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 4/5	Pearson Correlation	.690**	-.854**	.195**	.394**	1	.289**	.097*	-.502**	-.068	-.640**	-.502**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.020	.000	.106	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
Economic Activity Rate	Pearson Correlation	.609**	-.519**	.763**	-.288**	.289**	1	.945**	-.562**	-.194**	-.673**	-.545**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
Employment Rate	Pearson Correlation	.476**	-.343**	.694**	-.385**	.097*	.945**	1	-.468**	-.164**	-.527**	-.449**
	Sig. (2-tailed)	.000	.000	.000	.000	.020	.000		.000	.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
Unemployment Rate	Pearson Correlation	-.691**	.678**	-.576**	-.061	-.502**	-.562**	-.468**	1	-.315**	.778**	.909**
	Sig. (2-tailed)	.000	.000	.000	.142	.000	.000	.000		.000	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
% Retired	Pearson Correlation	.091*	.176**	.055	-.423**	-.068	-.194**	-.164**	-.315**	1	.043	-.284**
	Sig. (2-tailed)	.030	.000	.192	.000	.106	.000	.000	.000		.300	.000
	N	571	571	571	571	571	571	571	571	571	571	571
% permanently sick/disabled	Pearson Correlation	-.687**	.817**	-.558**	-.231**	-.640**	-.673**	-.527**	.778**	.043	1	.729**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.300		.000
	N	571	571	571	571	571	571	571	571	571	571	571
All Claimants - Rate	Pearson Correlation	-.696**	.689**	-.570**	-.069	-.502**	-.545**	-.449**	.909**	-.284**	.729**	1
	Sig. (2-tailed)	.000	.000	.000	.101	.000	.000	.000	.000	.000	.000	
	N	571	571	571	571	571	571	571	571	571	571	571

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Urban MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Economic Activity Rate	Employment Rate	Unemployment Rate	% Retired	% permanently sick/disabled	All Claimants - Rate
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.684**	.631**	-.090	.594**	.651**	.602**	-.673**	.059	-.649**	-.665**
	Sig. (2-tailed)		.000	.000	.072	.000	.000	.000	.000	.240	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404
% with no qualifications	Pearson Correlation	-.684**	1	-.420**	-.517**	-.830**	-.482**	-.360**	.668**	.241**	.795**	.669**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 2	Pearson Correlation	.631**	-.420**	1	-.368**	.064	.816**	.803**	-.535**	.048	-.496**	-.523**
	Sig. (2-tailed)	.000	.000		.000	.200	.000	.000	.000	.338	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 3	Pearson Correlation	-.090	-.517**	-.368**	1	.441**	-.350**	-.460**	-.091	-.443**	-.248**	-.098*
	Sig. (2-tailed)	.072	.000	.000		.000	.000	.000	.067	.000	.000	.049
	N	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 4/5	Pearson Correlation	.594**	-.830**	.064	.441**	1	.239**	.112*	-.440**	-.160**	-.584**	-.431**
	Sig. (2-tailed)	.000	.000	.200	.000		.000	.024	.000	.001	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404
Economic Activity Rate	Pearson Correlation	.651**	-.482**	.816**	-.350**	.239**	1	.973**	-.582**	-.124*	-.654**	-.563**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.013	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404
Employment Rate	Pearson Correlation	.602**	-.360**	.803**	-.460**	.112*	.973**	1	-.568**	-.031	-.576**	-.548**
	Sig. (2-tailed)	.000	.000	.000	.000	.024	.000		.000	.534	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404
Unemployment Rate	Pearson Correlation	-.673**	.668**	-.535**	-.091	-.440**	-.582**	-.568**	1	-.270**	.783**	.902**
	Sig. (2-tailed)	.000	.000	.000	.067	.000	.000	.000		.000	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404
% Retired	Pearson Correlation	.059	.241**	.048	-.443**	-.160**	-.124*	-.031	-.270**	1	.074	-.250**
	Sig. (2-tailed)	.240	.000	.338	.000	.001	.013	.534	.000		.136	.000
	N	404	404	404	404	404	404	404	404	404	404	404
% permanently sick/disabled	Pearson Correlation	-.649**	.795**	-.496**	-.248**	-.584**	-.654**	-.576**	.783**	.074	1	.726**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.136		.000
	N	404	404	404	404	404	404	404	404	404	404	404
All Claimants - Rate	Pearson Correlation	-.665**	.669**	-.523**	-.098*	-.431**	-.563**	-.548**	.902**	-.250**	.726**	1
	Sig. (2-tailed)	.000	.000	.000	.049	.000	.000	.000	.000	.000	.000	
	N	404	404	404	404	404	404	404	404	404	404	404

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Accessible MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Economic Activity Rate	Employment Rate	Unemployment Rate	% Retired	% permanently sick/disabled	All Claimants - Rate
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.859**	.417**	.561**	.858**	.149	-.132	-.661**	.091	-.591**	-.757**
	Sig. (2-tailed)		.000	.000	.000	.000	.163	.217	.000	.398	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89
% with no qualifications	Pearson Correlation	-.859**	1	-.630**	-.745**	-.857**	-.291**	-.001	.726**	-.003	.758**	.821**
	Sig. (2-tailed)	.000		.000	.000	.000	.006	.995	.000	.974	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 2	Pearson Correlation	.417**	-.630**	1	.491**	.233*	.398**	.258*	-.405**	-.279**	-.494**	-.462**
	Sig. (2-tailed)	.000	.000		.000	.028	.000	.015	.000	.008	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 3	Pearson Correlation	.561**	-.745**	.491**	1	.552**	.236*	.113	-.455**	-.110	-.574**	-.566**
	Sig. (2-tailed)	.000	.000	.000		.000	.026	.290	.000	.304	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 4/5	Pearson Correlation	.858**	-.857**	.233*	.552**	1	-.035	-.339**	-.680**	.295**	-.601**	-.740**
	Sig. (2-tailed)	.000	.000	.028	.000		.743	.001	.000	.005	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89
Economic Activity Rate	Pearson Correlation	.149	-.291**	.398**	.236*	-.035	1	.861**	-.287**	-.774**	-.544**	-.231*
	Sig. (2-tailed)	.163	.006	.000	.026	.743		.000	.006	.000	.000	.030
	N	89	89	89	89	89	89	89	89	89	89	89
Employment Rate	Pearson Correlation	-.132	-.001	.258*	.113	-.339**	.861**	1	-.008	-.764**	-.218*	.107
	Sig. (2-tailed)	.217	.995	.015	.290	.001	.000		.944	.000	.040	.320
	N	89	89	89	89	89	89	89	89	89	89	89
Unemployment Rate	Pearson Correlation	-.661**	.726**	-.405**	-.455**	-.680**	-.287**	-.008	1	-.144	.812**	.797**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.006	.944		.179	.000	.000
	N	89	89	89	89	89	89	89	89	89	89	89
% Retired	Pearson Correlation	.091	-.003	-.279**	-.110	.295**	-.774**	-.764**	-.144	1	.106	-.042
	Sig. (2-tailed)	.398	.974	.008	.304	.005	.000	.000	.179		.321	.694
	N	89	89	89	89	89	89	89	89	89	89	89
% permanently sick/disabled	Pearson Correlation	-.591**	.758**	-.494**	-.574**	-.601**	-.544**	-.218*	.812**	.106	1	.730**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.040	.000	.321		.000
	N	89	89	89	89	89	89	89	89	89	89	89
All Claimants - Rate	Pearson Correlation	-.757**	.821**	-.462**	-.566**	-.740**	-.231*	.107	.797**	-.042	.730**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.030	.320	.000	.694	.000	
	N	89	89	89	89	89	89	89	89	89	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Remote MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Economic Activity Rate	Employment Rate	Unemployment Rate	% Retired	% permanently sick/disabled	All Claimants - Rate
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.885**	.647**	.807**	.887**	.708**	.477**	-.574**	-.541**	-.761**	-.858**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
% with no qualifications	Pearson Correlation	-.885**	1	-.795**	-.892**	-.928**	-.786**	-.560**	.608**	.561**	.874**	.879**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 2	Pearson Correlation	.647**	-.795**	1	.745**	.596**	.608**	.512**	-.583**	-.435**	-.748**	-.688**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 3	Pearson Correlation	.807**	-.892**	.745**	1	.786**	.711**	.545**	-.526**	-.523**	-.766**	-.772**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 4/5	Pearson Correlation	.887**	-.928**	.596**	.786**	1	.673**	.375**	-.573**	-.466**	-.773**	-.831**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.001	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
Economic Activity Rate	Pearson Correlation	.708**	-.786**	.608**	.711**	.673**	1	.879**	-.622**	-.703**	-.845**	-.707**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
Employment Rate	Pearson Correlation	.477**	-.560**	.512**	.545**	.375**	.879**	1	-.420**	-.690**	-.655**	-.470**
	Sig. (2-tailed)	.000	.000	.000	.000	.001	.000		.000	.000	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
Unemployment Rate	Pearson Correlation	-.574**	.608**	-.583**	-.526**	-.573**	-.622**	-.420**	1	.107	.777**	.681**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.349	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
% Retired	Pearson Correlation	-.541**	.561**	-.435**	-.523**	-.466**	-.703**	-.690**	.107	1	.434**	.456**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.349		.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
% permanently sick/disabled	Pearson Correlation	-.761**	.874**	-.748**	-.766**	-.773**	-.845**	-.655**	.777**	.434**	1	.845**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000
	N	78	78	78	78	78	78	78	78	78	78	78
All Claimants - Rate	Pearson Correlation	-.858**	.879**	-.688**	-.772**	-.831**	-.707**	-.470**	.681**	.456**	.845**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	N	78	78	78	78	78	78	78	78	78	78	78

**. Correlation is significant at the 0.01 level (2-tailed).

All MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	% of area taken up by road	% of area taken up by rail	ADSL average speed	Population Weighted Average Road Distance to a Food Store (km)	Distance to Closest City	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.743**	.643**	-.053	.690**	-.218**	-.058	-.119**	.330**	.024	-.221**
	Sig. (2-tailed)		.000	.000	.209	.000	.000	.164	.004	.000	.563	.000
	N	571	571	571	571	571	571	570	571	571	571	571
% with no qualifications	Pearson Correlation	-.743**	1	-.507**	-.476**	-.854**	.132**	.067	-.027	-.206**	.132**	.059
	Sig. (2-tailed)	.000		.000	.000	.000	.002	.108	.519	.000	.002	.161
	N	571	571	571	571	571	571	570	571	571	571	571
% qualified to level 2	Pearson Correlation	.643**	-.507**	1	-.308**	.195**	-.335**	-.093*	-.108**	.257**	.206**	-.324**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.027	.010	.000	.000	.000
	N	571	571	571	571	571	571	570	571	571	571	571
% qualified to level 3	Pearson Correlation	-.053	-.476**	-.308**	1	.394**	.185**	-.005	.100*	-.074	-.253**	.271**
	Sig. (2-tailed)	.209	.000	.000		.000	.000	.908	.017	.075	.000	.000
	N	571	571	571	571	571	571	570	571	571	571	571
% qualified to level 4/5	Pearson Correlation	.690**	-.854**	.195**	.394**	1	-.010	-.037	.125**	.221**	-.187**	.045
	Sig. (2-tailed)	.000	.000	.000	.000		.818	.381	.003	.000	.000	.285
	N	571	571	571	571	571	571	570	571	571	571	571
% of area taken up by road	Pearson Correlation	-.218**	.132**	-.335**	.185**	-.010	1	.110**	.049	-.251**	-.323**	.330**
	Sig. (2-tailed)	.000	.002	.000	.000	.818		.009	.241	.000	.000	.000
	N	571	571	571	571	571	571	570	571	571	571	571
% of area taken up by rail	Pearson Correlation	-.058	.067	-.093*	-.005	-.037	.110**	1	.065	.001	-.059	.082
	Sig. (2-tailed)	.164	.108	.027	.908	.381	.009		.123	.982	.156	.051
	N	570	570	570	570	570	570	570	570	570	570	570
ADSL average speed	Pearson Correlation	-.119**	-.027	-.108**	.100*	.125**	.049	.065	1	-.134**	.041	.074
	Sig. (2-tailed)	.004	.519	.010	.017	.003	.241	.123		.001	.323	.076
	N	571	571	571	571	571	571	570	571	571	571	571
Population Weighted Average Road Distance to a Food Store (km)	Pearson Correlation	.330**	-.206**	.257**	-.074	.221**	-.251**	.001	-.134**	1	.383**	-.234**
	Sig. (2-tailed)	.000	.000	.000	.075	.000	.000	.982	.001		.000	.000
	N	571	571	571	571	571	571	570	571	571	571	571
Distance to Closest City	Pearson Correlation	.024	.132**	.206**	-.253**	-.187**	-.323**	-.059	.041	.383**	1	-.489**
	Sig. (2-tailed)	.563	.002	.000	.000	.000	.000	.156	.323	.000		.000
	N	571	571	571	571	571	571	570	571	571	571	571
Weighted Distance to Nearest City	Pearson Correlation	-.221**	.059	-.324**	.271**	.045	.330**	.082	.074	-.234**	-.489**	1
	Sig. (2-tailed)	.000	.161	.000	.000	.285	.000	.051	.076	.000	.000	
	N	571	571	571	571	571	571	570	571	571	571	571

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Urban MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	% of area taken up by road	% of area taken up by rail	ADSL average speed	Population Weighted Average Road Distance to a Food Store (km)	Distance to Closest City	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.684**	.631**	-.090	.594**	-.168**	-.091	-.151**	.277**	.003	-.188**
	Sig. (2-tailed)		.000	.000	.072	.000	.001	.067	.002	.000	.944	.000
	N	404	404	404	404	404	404	403	404	404	404	404
% with no qualifications	Pearson Correlation	-.684**	1	-.420**	-.517**	-.830**	.075	.093	-.035	-.073	.159**	.012
	Sig. (2-tailed)	.000		.000	.000	.000	.131	.062	.477	.141	.001	.813
	N	404	404	404	404	404	404	403	404	404	404	404
% qualified to level 2	Pearson Correlation	.631**	-.420**	1	-.368**	.064	-.329**	-.118*	-.159**	.225**	.217**	-.291**
	Sig. (2-tailed)	.000	.000		.000	.200	.000	.018	.001	.000	.000	.000
	N	404	404	404	404	404	404	403	404	404	404	404
% qualified to level 3	Pearson Correlation	-.090	-.517**	-.368**	1	.441**	.183**	-.010	.121*	-.119*	-.242**	.257**
	Sig. (2-tailed)	.072	.000	.000		.000	.000	.834	.015	.017	.000	.000
	N	404	404	404	404	404	404	403	404	404	404	404
% qualified to level 4/5	Pearson Correlation	.594**	-.830**	.064	.441**	1	.104*	-.057	.164**	.006	-.269**	.117*
	Sig. (2-tailed)	.000	.000	.200	.000		.036	.252	.001	.900	.000	.018
	N	404	404	404	404	404	404	403	404	404	404	404
% of area taken up by road	Pearson Correlation	-.168**	.075	-.329**	.183**	.104*	1	.087	.093	-.192**	-.282**	.297**
	Sig. (2-tailed)	.001	.131	.000	.000	.036		.081	.062	.000	.000	.000
	N	404	404	404	404	404	404	403	404	404	404	404
% of area taken up by rail	Pearson Correlation	-.091	.093	-.118*	-.010	-.057	.087	1	.065	.011	-.067	.095
	Sig. (2-tailed)	.067	.062	.018	.834	.252	.081		.193	.826	.182	.058
	N	403	403	403	403	403	403	403	403	403	403	403
ADSL average speed	Pearson Correlation	-.151**	-.035	-.159**	.121*	.164**	.093	.065	1	-.230**	.017	.106*
	Sig. (2-tailed)	.002	.477	.001	.015	.001	.062	.193		.000	.741	.034
	N	404	404	404	404	404	404	403	404	404	404	404
Population Weighted Average Road Distance to a Food Store (km)	Pearson Correlation	.277**	-.073	.225**	-.119*	.006	-.192**	.011	-.230**	1	.208**	-.183**
	Sig. (2-tailed)	.000	.141	.000	.017	.900	.000	.826	.000		.000	.000
	N	404	404	404	404	404	404	403	404	404	404	404
Distance to Closest City	Pearson Correlation	.003	.159**	.217**	-.242**	-.269**	-.282**	-.067	.017	.208**	1	-.468**
	Sig. (2-tailed)	.944	.001	.000	.000	.000	.000	.182	.741	.000		.000
	N	404	404	404	404	404	404	403	404	404	404	404
Weighted Distance to Nearest City	Pearson Correlation	-.188**	.012	-.291**	.257**	.117*	.297**	.095	.106*	-.183**	-.468**	1
	Sig. (2-tailed)	.000	.813	.000	.000	.018	.000	.058	.034	.000	.000	
	N	404	404	404	404	404	404	403	404	404	404	404

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Accessible MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	% of area taken up by road	% of area taken up by rail	ADSL average speed	Population Weighted Average Road Distance to a Food Store (km)	Distance to Closest City	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.859**	.417**	.561**	.858**	.044	.034	-.045	.334**	-.058	.044
	Sig. (2-tailed)		.000	.000	.000	.000	.682	.755	.679	.001	.586	.684
	N	89	89	89	89	89	89	89	89	89	89	89
% with no qualifications	Pearson Correlation	-.859**	1	-.630**	-.745**	-.857**	.030	-.016	-.033	-.274**	.134	.049
	Sig. (2-tailed)	.000		.000	.000	.000	.782	.878	.760	.009	.210	.649
	N	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 2	Pearson Correlation	.417**	-.630**	1	.491**	.233*	.024	-.004	.002	.132	-.168	-.395**
	Sig. (2-tailed)	.000	.000		.000	.028	.825	.971	.988	.218	.115	.000
	N	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 3	Pearson Correlation	.561**	-.745**	.491**	1	.552**	.083	.035	.024	.235*	-.076	-.039
	Sig. (2-tailed)	.000	.000	.000		.000	.439	.742	.820	.027	.479	.716
	N	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 4/5	Pearson Correlation	.858**	-.857**	.233*	.552**	1	-.057	.032	.094	.331**	.038	.047
	Sig. (2-tailed)	.000	.000	.028	.000		.595	.767	.380	.002	.721	.663
	N	89	89	89	89	89	89	89	89	89	89	89
% of area taken up by road	Pearson Correlation	.044	.030	.024	.083	-.057	1	.215*	-.029	-.043	-.028	.018
	Sig. (2-tailed)	.682	.782	.825	.439	.595		.043	.785	.686	.792	.868
	N	89	89	89	89	89	89	89	89	89	89	89
% of area taken up by rail	Pearson Correlation	.034	-.016	-.004	.035	.032	.215*	1	.070	.010	.019	-.006
	Sig. (2-tailed)	.755	.878	.971	.742	.767	.043		.513	.924	.859	.954
	N	89	89	89	89	89	89	89	89	89	89	89
ADSL average speed	Pearson Correlation	-.045	-.033	.002	.024	.094	-.029	.070	1	-.220*	.157	-.126
	Sig. (2-tailed)	.679	.760	.988	.820	.380	.785	.513		.038	.142	.241
	N	89	89	89	89	89	89	89	89	89	89	89
Population Weighted Average Road Distance to a Food Store (km)	Pearson Correlation	.334**	-.274**	.132	.235*	.331**	-.043	.010	-.220*	1	.346**	-.303**
	Sig. (2-tailed)	.001	.009	.218	.027	.002	.686	.924	.038		.001	.004
	N	89	89	89	89	89	89	89	89	89	89	89
Distance to Closest City	Pearson Correlation	-.058	.134	-.168	-.076	.038	-.028	.019	.157	.346**	1	-.467**
	Sig. (2-tailed)	.586	.210	.115	.479	.721	.792	.859	.142	.001		.000
	N	89	89	89	89	89	89	89	89	89	89	89
Weighted Distance to Nearest City	Pearson Correlation	.044	.049	-.395**	-.039	.047	.018	-.006	-.126	-.303**	-.467**	1
	Sig. (2-tailed)	.684	.649	.000	.716	.663	.868	.954	.241	.004	.000	
	N	89	89	89	89	89	89	89	89	89	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Remote MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	% of area taken up by road	% of area taken up by rail	ADSL average speed	Population Weighted Average Road Distance to a Food Store (km)	Distance to Closest City	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.885**	.647**	.807**	.887**	-.187	-.113	-.207	.265*	-.496**	.379**
	Sig. (2-tailed)		.000	.000	.000	.000	.101	.324	.069	.019	.000	.001
	N	78	78	78	78	78	78	78	78	78	78	78
% with no qualifications	Pearson Correlation	-.885**	1	-.795**	-.892**	-.928**	.170	.118	.122	-.256*	.488**	-.315**
	Sig. (2-tailed)	.000		.000	.000	.000	.137	.302	.287	.024	.000	.005
	N	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 2	Pearson Correlation	.647**	-.795**	1	.745**	.596**	-.082	-.071	.060	.182	-.257*	-.033
	Sig. (2-tailed)	.000	.000		.000	.000	.474	.537	.601	.110	.023	.774
	N	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 3	Pearson Correlation	.807**	-.892**	.745**	1	.786**	-.177	-.028	-.088	.210	-.441**	.239*
	Sig. (2-tailed)	.000	.000	.000		.000	.120	.807	.446	.065	.000	.035
	N	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 4/5	Pearson Correlation	.887**	-.928**	.596**	.786**	1	-.208	-.125	-.191	.301**	-.485**	.411**
	Sig. (2-tailed)	.000	.000	.000	.000		.067	.276	.093	.007	.000	.000
	N	78	78	78	78	78	78	78	78	78	78	78
% of area taken up by road	Pearson Correlation	-.187	.170	-.082	-.177	-.208	1	.182	-.086	.003	.135	-.165
	Sig. (2-tailed)	.101	.137	.474	.120	.067		.111	.453	.982	.238	.149
	N	78	78	78	78	78	78	78	78	78	78	78
% of area taken up by rail	Pearson Correlation	-.113	.118	-.071	-.028	-.125	.182	1	.083	.119	.139	-.125
	Sig. (2-tailed)	.324	.302	.537	.807	.276	.111		.470	.301	.225	.274
	N	78	78	78	78	78	78	78	78	78	78	78
ADSL average speed	Pearson Correlation	-.207	.122	.060	-.088	-.191	-.086	.083	1	-.395**	.068	-.108
	Sig. (2-tailed)	.069	.287	.601	.446	.093	.453	.470		.000	.557	.344
	N	78	78	78	78	78	78	78	78	78	78	78
Population Weighted Average Road Distance to a Food Store (km)	Pearson Correlation	.265*	-.256*	.182	.210	.301**	.003	.119	-.395**	1	.150	-.164
	Sig. (2-tailed)	.019	.024	.110	.065	.007	.982	.301	.000		.191	.150
	N	78	78	78	78	78	78	78	78	78	78	78
Distance to Closest City	Pearson Correlation	-.496**	.488**	-.257*	-.441**	-.485**	.135	.139	.068	.150	1	-.734**
	Sig. (2-tailed)	.000	.000	.023	.000	.000	.238	.225	.557	.191		.000
	N	78	78	78	78	78	78	78	78	78	78	78
Weighted Distance to Nearest City	Pearson Correlation	.379**	-.315**	-.033	.239*	.411**	-.165	-.125	-.108	-.164	-.734**	1
	Sig. (2-tailed)	.001	.005	.774	.035	.000	.149	.274	.344	.150	.000	
	N	78	78	78	78	78	78	78	78	78	78	78

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

All MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Not entering Higher Education Rate	Not staying on post 16 rate	Rank of Barriers to Housing and Services Score	Broadband Demand Index	Broadband Population Penetration	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.743**	.643**	-.053	.690**	-.673**	-.553**	-.211**	-.077	-.356**	-.221**
	Sig. (2-tailed)		.000	.000	.209	.000	.000	.000	.000	.068	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
% with no qualifications	Pearson Correlation	-.743**	1	-.507**	-.476**	-.854**	.741**	.593**	.145**	.075	.136**	.059
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.001	.073	.001	.161
	N	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 2	Pearson Correlation	.643**	-.507**	1	-.308**	.195**	-.306**	-.304**	-.035	-.117**	-.172**	-.324**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.402	.005	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 3	Pearson Correlation	-.053	-.476**	-.308**	1	.394**	-.284**	-.162**	-.088*	.055	.212**	.271**
	Sig. (2-tailed)	.209	.000	.000		.000	.000	.000	.035	.186	.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
% qualified to level 4/5	Pearson Correlation	.690**	-.854**	.195**	.394**	1	-.822**	-.645**	-.220**	-.130**	-.222**	.045
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.002	.000	.285
	N	571	571	571	571	571	571	571	571	571	571	571
Not entering Higher Education Rate	Pearson Correlation	-.673**	.741**	-.306**	-.284**	-.822**	1	.747**	.237**	.172**	.229**	-.008
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000	.000	.842
	N	571	571	571	571	571	571	571	571	571	571	571
Not staying on post 16 rate	Pearson Correlation	-.553**	.593**	-.304**	-.162**	-.645**	.747**	1	.171**	.120**	.157**	-.026
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.004	.000	.542
	N	571	571	571	571	571	571	571	571	571	571	571
Rank of Barriers to Housing and Services Score	Pearson Correlation	-.211**	.145**	-.035	-.088*	-.220**	.237**	.171**	1	.357**	.254**	-.003
	Sig. (2-tailed)	.000	.001	.402	.035	.000	.000	.000		.000	.000	.935
	N	571	571	571	571	571	571	571	571	571	571	571
Broadband Demand Index	Pearson Correlation	-.077	.075	-.117**	.055	-.130**	.172**	.120**	.357**	1	.372**	.260**
	Sig. (2-tailed)	.068	.073	.005	.186	.002	.000	.004	.000		.000	.000
	N	571	571	571	571	571	571	571	571	571	571	571
Broadband Population Penetration	Pearson Correlation	-.356**	.136**	-.172**	.212**	-.222**	.229**	.157**	.254**	.372**	1	.287**
	Sig. (2-tailed)	.000	.001	.000	.000	.000	.000	.000	.000	.000		.000
	N	571	571	571	571	571	571	571	571	571	571	571
Weighted Distance to Nearest City	Pearson Correlation	-.221**	.059	-.324**	.271**	.045	-.008	-.026	-.003	.260**	.287**	1
	Sig. (2-tailed)	.000	.161	.000	.000	.285	.842	.542	.935	.000	.000	
	N	571	571	571	571	571	571	571	571	571	571	571

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Urban MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Not entering Higher Education Rate	Not staying on post 16 rate	Rank of Barriers to Housing and Services Score	Broadband Demand Index	Broadband Population Penetration	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.684**	.631**	-.090	.594**	-.582**	-.521**	-.058	.165**	-.160**	-.188**
	Sig. (2-tailed)		.000	.000	.072	.000	.000	.000	.247	.001	.001	.000
	N	404	404	404	404	404	404	404	404	404	404	404
% with no qualifications	Pearson Correlation	-.684**	1	-.420**	-.517**	-.830**	.697**	.565**	.055	-.063	-.094	.012
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.269	.206	.058	.813
	N	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 2	Pearson Correlation	.631**	-.420**	1	-.368**	.064	-.193**	-.236**	.114*	.045	-.001	-.291**
	Sig. (2-tailed)	.000	.000		.000	.200	.000	.000	.022	.365	.977	.000
	N	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 3	Pearson Correlation	-.090	-.517**	-.368**	1	.441**	-.324**	-.176**	-.164**	.005	.247**	.257**
	Sig. (2-tailed)	.072	.000	.000		.000	.000	.000	.001	.913	.000	.000
	N	404	404	404	404	404	404	404	404	404	404	404
% qualified to level 4/5	Pearson Correlation	.594**	-.830**	.064	.441**	1	-.780**	-.628**	-.113*	.030	.015	.117*
	Sig. (2-tailed)	.000	.000	.200	.000		.000	.000	.023	.543	.764	.018
	N	404	404	404	404	404	404	404	404	404	404	404
Not entering Higher Education Rate	Pearson Correlation	-.582**	.697**	-.193**	-.324**	-.780**	1	.766**	.113*	-.007	-.011	-.088
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.023	.882	.822	.076
	N	404	404	404	404	404	404	404	404	404	404	404
Not staying on post 16 rate	Pearson Correlation	-.521**	.565**	-.236**	-.176**	-.628**	.766**	1	.083	-.043	-.009	-.093
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.097	.392	.852	.060
	N	404	404	404	404	404	404	404	404	404	404	404
Rank of Barriers to Housing and Services Score	Pearson Correlation	-.058	.055	.114*	-.164**	-.113*	.113*	.083	1	-.007	-.023	-.182**
	Sig. (2-tailed)	.247	.269	.022	.001	.023	.023	.097		.890	.652	.000
	N	404	404	404	404	404	404	404	404	404	404	404
Broadband Demand Index	Pearson Correlation	.165**	-.063	.045	.005	.030	-.007	-.043	-.007	1	.037	.138**
	Sig. (2-tailed)	.001	.206	.365	.913	.543	.882	.392	.890		.453	.005
	N	404	404	404	404	404	404	404	404	404	404	404
Broadband Population Penetration	Pearson Correlation	-.160**	-.094	-.001	.247**	.015	-.011	-.009	-.023	.037	1	.192**
	Sig. (2-tailed)	.001	.058	.977	.000	.764	.822	.852	.652	.453		.000
	N	404	404	404	404	404	404	404	404	404	404	404
Weighted Distance to Nearest City	Pearson Correlation	-.188**	.012	-.291**	.257**	.117*	-.088	-.093	-.182**	.138**	.192**	1
	Sig. (2-tailed)	.000	.813	.000	.000	.018	.076	.060	.000	.005	.000	
	N	404	404	404	404	404	404	404	404	404	404	404

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Accessible MSOAs

Correlations

		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Not entering Higher Education Rate	Not staying on post 16 rate	Rank of Barriers to Housing and Services Score	Broadband Demand Index	Broadband Population Penetration	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.859**	.417**	.561**	.858**	-.780**	-.530**	-.387**	-.274**	-.165	.044
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.009	.121	.684
	N	89	89	89	89	89	89	89	89	89	89	89
% with no qualifications	Pearson Correlation	-.859**	1	-.630**	-.745**	-.857**	.789**	.582**	.280**	.254*	.132	.049
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.008	.016	.219	.649
	N	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 2	Pearson Correlation	.417**	-.630**	1	.491**	.233*	-.316**	-.254*	-.074	-.134	.220*	-.395**
	Sig. (2-tailed)	.000	.000		.000	.028	.003	.016	.491	.209	.038	.000
	N	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 3	Pearson Correlation	.561**	-.745**	.491**	1	.552**	-.461**	-.358**	-.197	-.130	-.027	-.039
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.001	.065	.226	.803	.716
	N	89	89	89	89	89	89	89	89	89	89	89
% qualified to level 4/5	Pearson Correlation	.858**	-.857**	.233*	.552**	1	-.903**	-.612**	-.399**	-.409**	-.358**	.047
	Sig. (2-tailed)	.000	.000	.028	.000		.000	.000	.000	.000	.001	.663
	N	89	89	89	89	89	89	89	89	89	89	89
Not entering Higher Education Rate	Pearson Correlation	-.780**	.789**	-.316**	-.461**	-.903**	1	.644**	.397**	.431**	.312**	.015
	Sig. (2-tailed)	.000	.000	.003	.000	.000		.000	.000	.000	.003	.889
	N	89	89	89	89	89	89	89	89	89	89	89
Not staying on post 16 rate	Pearson Correlation	-.530**	.582**	-.254*	-.358**	-.612**	.644**	1	.163	.329**	.106	.013
	Sig. (2-tailed)	.000	.000	.016	.001	.000	.000		.128	.002	.325	.900
	N	89	89	89	89	89	89	89	89	89	89	89
Rank of Barriers to Housing and Services Score	Pearson Correlation	-.387**	.280**	-.074	-.197	-.399**	.397**	.163	1	.587**	.069	.367**
	Sig. (2-tailed)	.000	.008	.491	.065	.000	.000	.128		.000	.518	.000
	N	89	89	89	89	89	89	89	89	89	89	89
Broadband Demand Index	Pearson Correlation	-.274**	.254*	-.134	-.130	-.409**	.431**	.329**	.587**	1	.208*	.483**
	Sig. (2-tailed)	.009	.016	.209	.226	.000	.000	.002	.000		.050	.000
	N	89	89	89	89	89	89	89	89	89	89	89
Broadband Population Penetration	Pearson Correlation	-.165	.132	.220*	-.027	-.358**	.312**	.106	.069	.208*	1	-.128
	Sig. (2-tailed)	.121	.219	.038	.803	.001	.003	.325	.518	.050		.230
	N	89	89	89	89	89	89	89	89	89	89	89
Weighted Distance to Nearest City	Pearson Correlation	.044	.049	-.395**	-.039	.047	.015	.013	.367**	.483**	-.128	1
	Sig. (2-tailed)	.684	.649	.000	.716	.663	.889	.900	.000	.000	.230	
	N	89	89	89	89	89	89	89	89	89	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Rural Remote MSOAs

Correlations

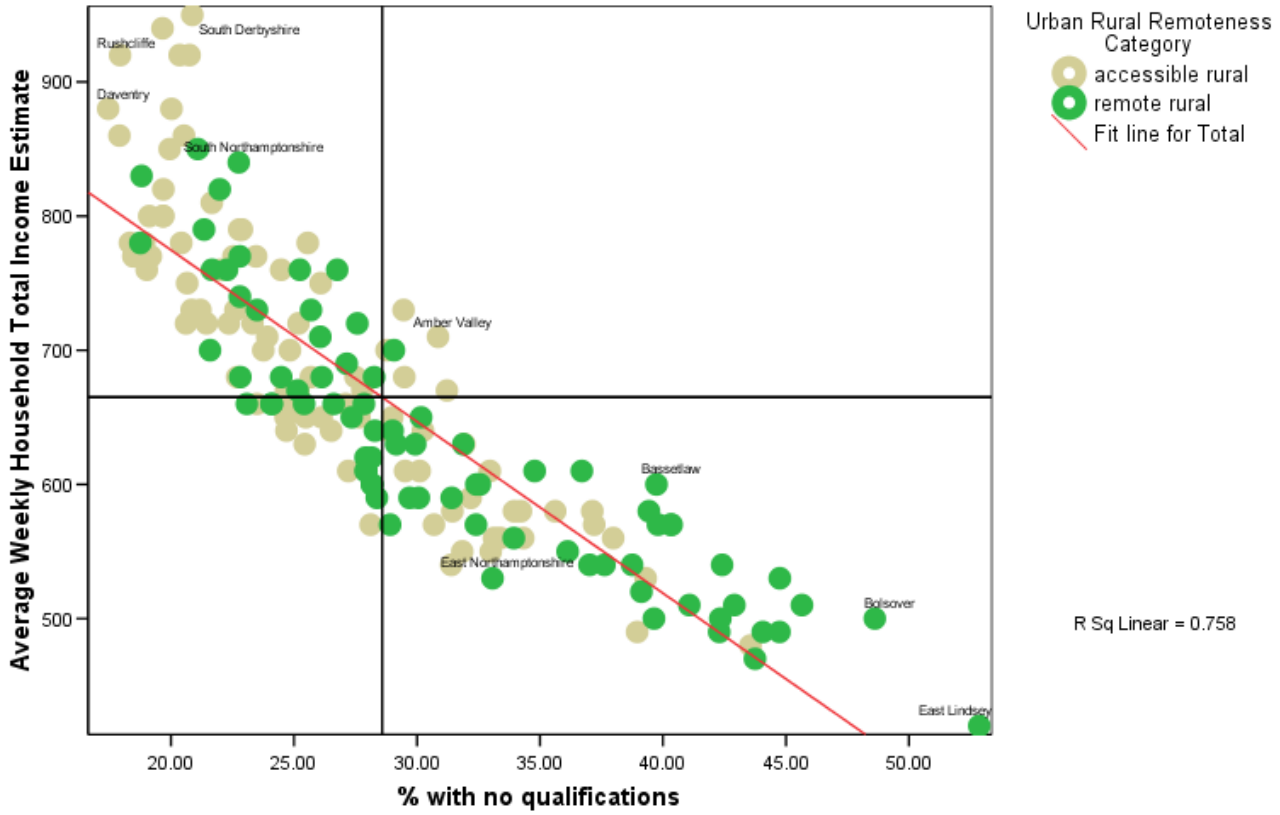
		Average Weekly Household Total Income Estimate	% with no qualifications	% qualified to level 2	% qualified to level 3	% qualified to level 4/5	Not entering Higher Education Rate	Not staying on post 16 rate	Rank of Barriers to Housing and Services Score	Broadband Demand Index	Broadband Population Penetration	Weighted Distance to Nearest City
Average Weekly Household Total Income Estimate	Pearson Correlation	1	-.885**	.647**	.807**	.887**	-.822**	-.535**	-.273*	-.091	-.367**	.379**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.016	.428	.001	.001
	N	78	78	78	78	78	78	78	78	78	78	78
% with no qualifications	Pearson Correlation	-.885**	1	-.795**	-.892**	-.928**	.842**	.616**	.213	.097	.216	-.315**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.061	.399	.058	.005
	N	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 2	Pearson Correlation	.647**	-.795**	1	.745**	.596**	-.635**	-.468**	-.076	-.085	.047	-.033
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.507	.458	.683	.774
	N	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 3	Pearson Correlation	.807**	-.892**	.745**	1	.786**	-.687**	-.523**	-.160	-.009	-.180	.239*
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.162	.935	.115	.035
	N	78	78	78	78	78	78	78	78	78	78	78
% qualified to level 4/5	Pearson Correlation	.887**	-.928**	.596**	.786**	1	-.880**	-.624**	-.328**	-.175	-.348**	.411**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.003	.126	.002	.000
	N	78	78	78	78	78	78	78	78	78	78	78
Not entering Higher Education Rate	Pearson Correlation	-.822**	.842**	-.635**	-.687**	-.880**	1	.592**	.376**	.296**	.209	-.160
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.001	.009	.066	.161
	N	78	78	78	78	78	78	78	78	78	78	78
Not staying on post 16 rate	Pearson Correlation	-.535**	.616**	-.468**	-.523**	-.624**	.592**	1	.271*	.280*	.108	-.040
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.017	.013	.345	.731
	N	78	78	78	78	78	78	78	78	78	78	78
Rank of Barriers to Housing and Services Score	Pearson Correlation	-.273*	.213	-.076	-.160	-.328**	.376**	.271*	1	.706**	.104	.193
	Sig. (2-tailed)	.016	.061	.507	.162	.003	.001	.017		.000	.365	.091
	N	78	78	78	78	78	78	78	78	78	78	78
Broadband Demand Index	Pearson Correlation	-.091	.097	-.085	-.009	-.175	.296**	.280*	.706**	1	-.068	.441**
	Sig. (2-tailed)	.428	.399	.458	.935	.126	.009	.013	.000		.553	.000
	N	78	78	78	78	78	78	78	78	78	78	78
Broadband Population Penetration	Pearson Correlation	-.367**	.216	.047	-.180	-.348**	.209	.108	.104	-.068	1	-.615**
	Sig. (2-tailed)	.001	.058	.683	.115	.002	.066	.345	.365	.553		.000
	N	78	78	78	78	78	78	78	78	78	78	78
Weighted Distance to Nearest City	Pearson Correlation	.379**	-.315**	-.033	.239*	.411**	-.160	-.040	.193	.441**	-.615**	1
	Sig. (2-tailed)	.001	.005	.774	.035	.000	.161	.731	.091	.000	.000	
	N	78	78	78	78	78	78	78	78	78	78	78

**. Correlation is significant at the 0.01 level (2-tailed).

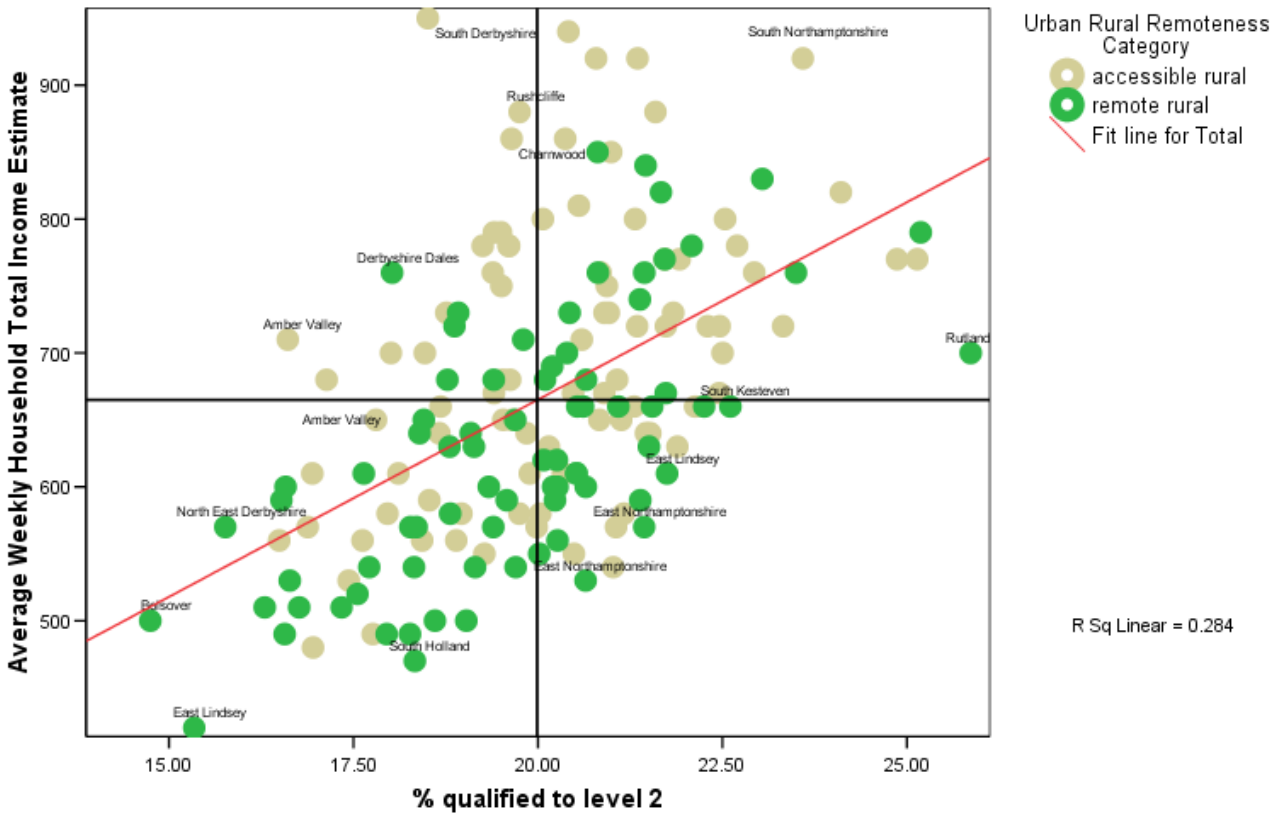
*. Correlation is significant at the 0.05 level (2-tailed).

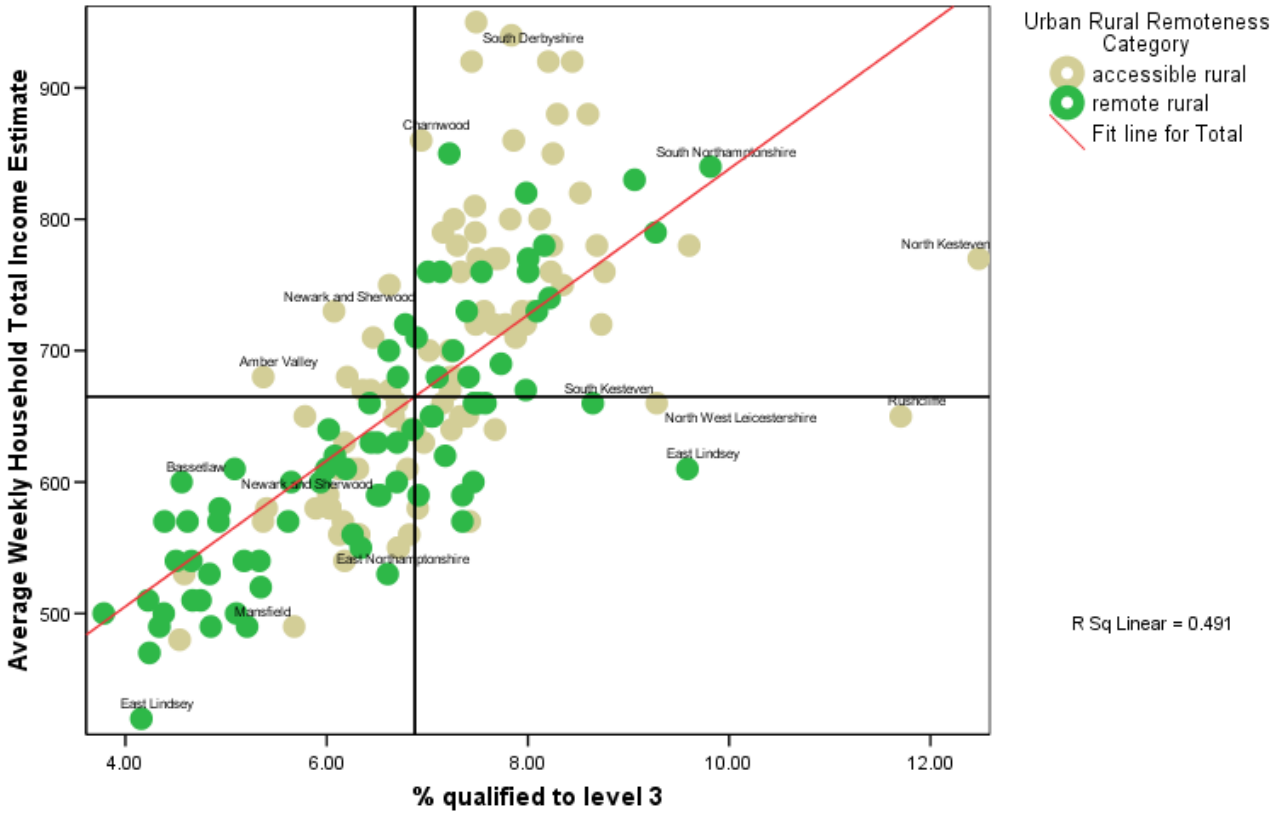
Appendix 3: Key Regression Graphs at MSOA level

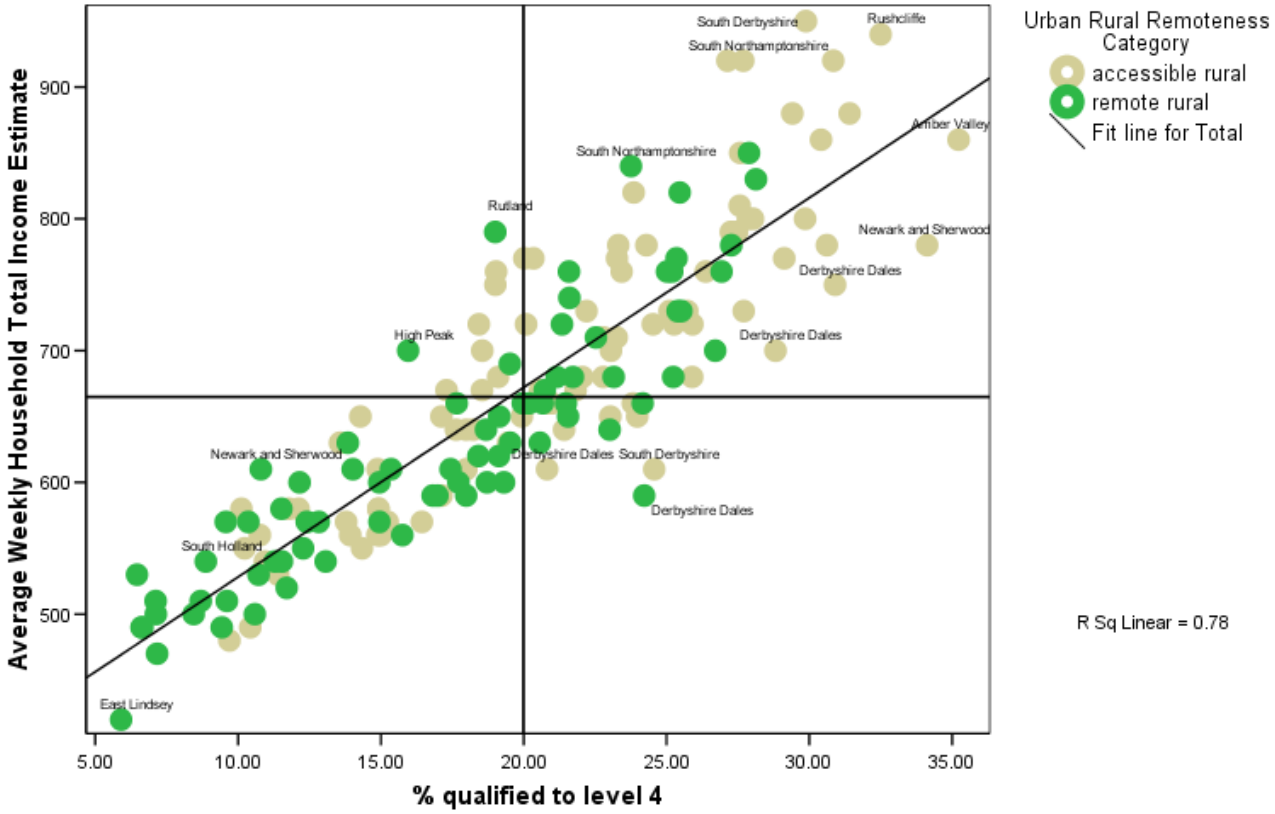
Income and Qualification Levels



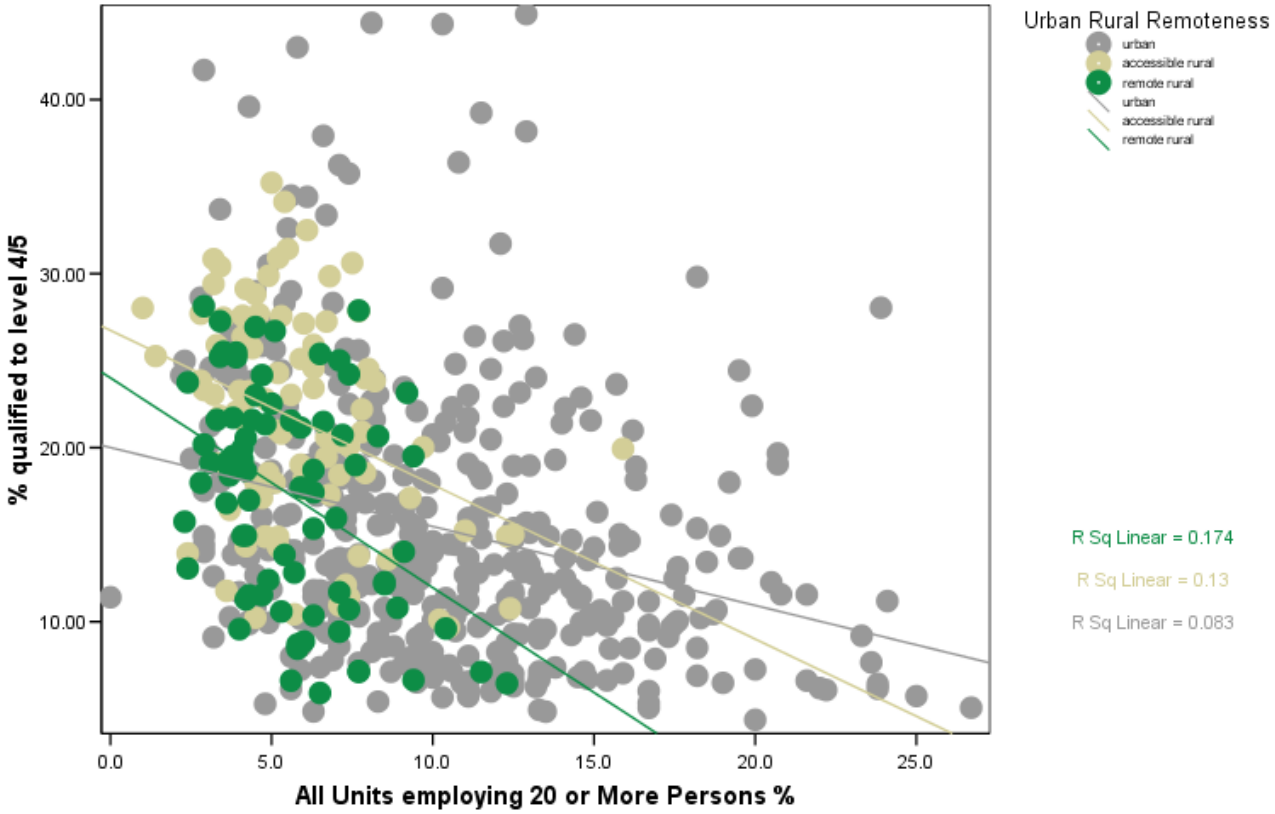
5.1

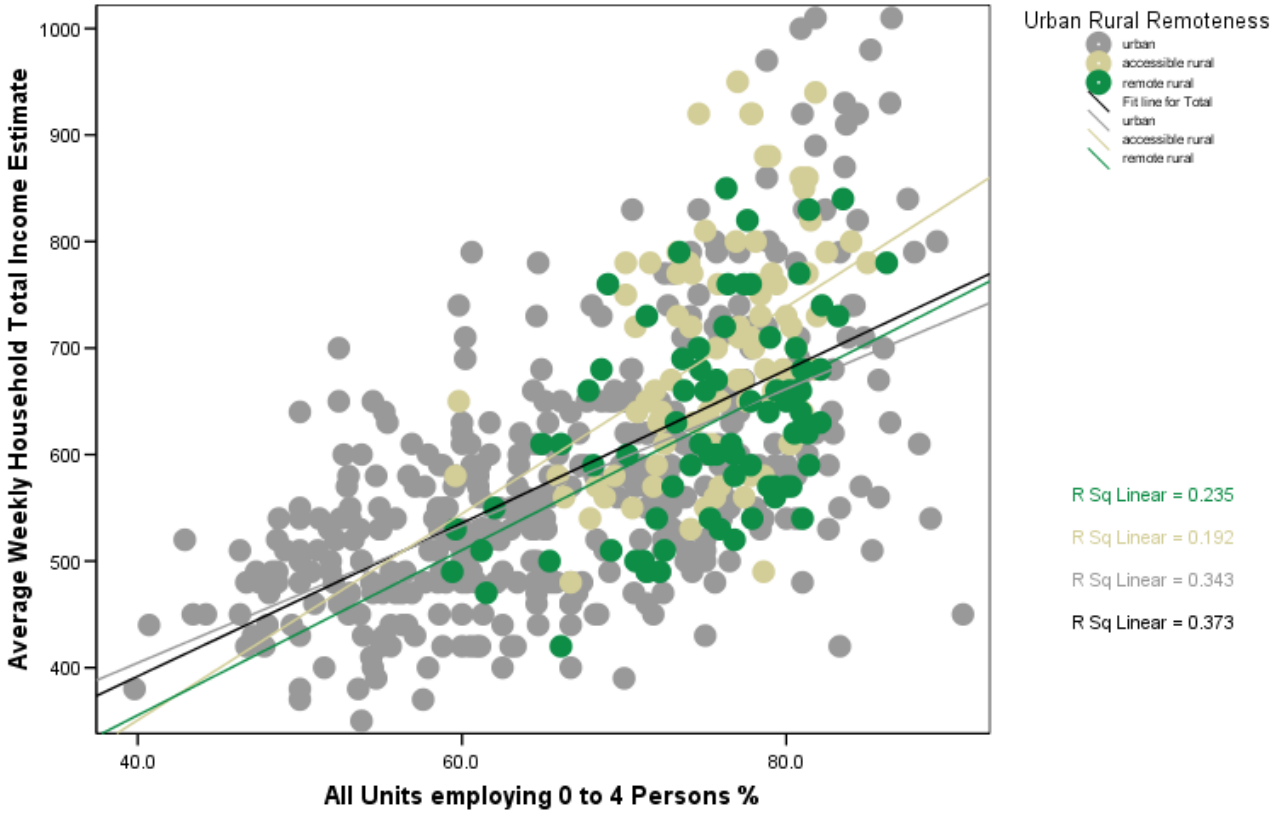


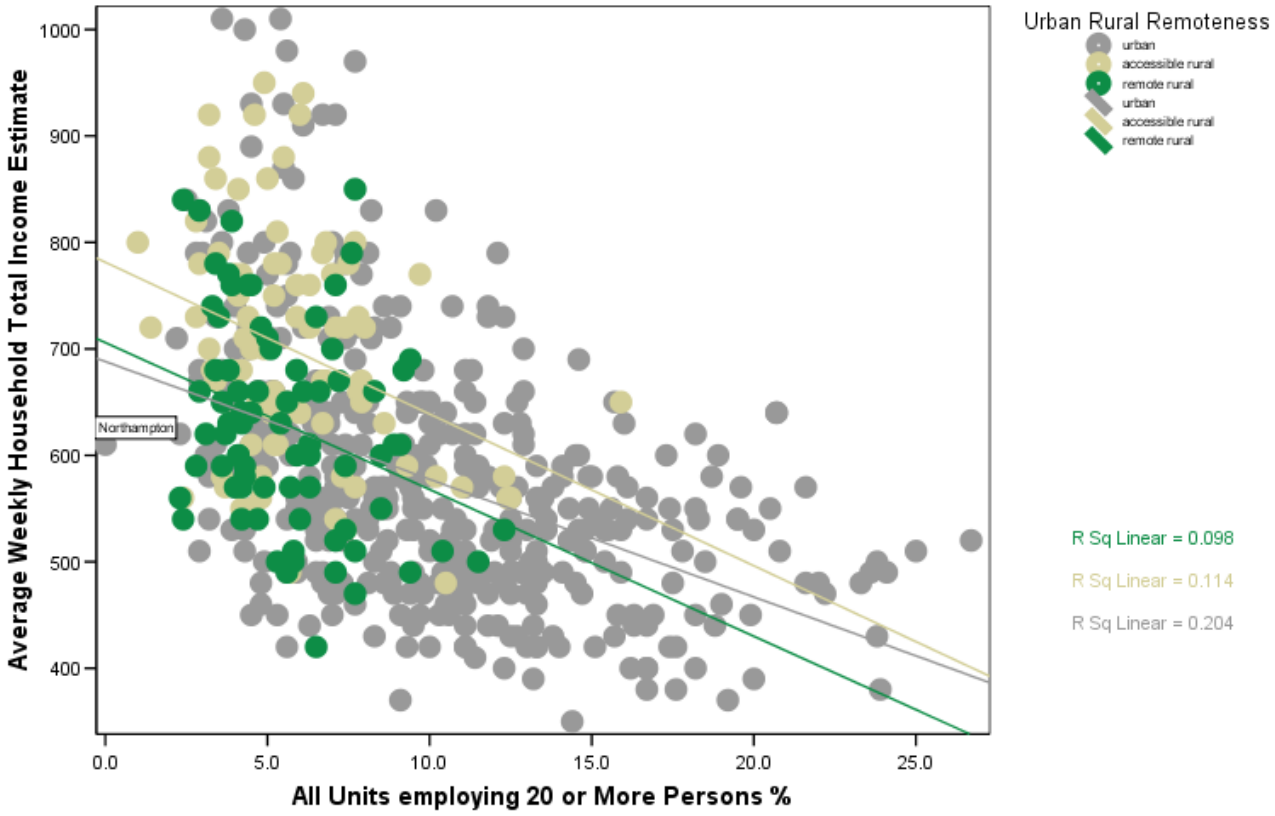

Average Weekly Household Total Income Estimate
900
800
700
600
500
4.00
6.00
8.00
10.00
12.00
% qualified to level 3
South Derbyshire
Charnwood
South Northamptonshire
North Kesteven
Newark and Sherwood
Amber Valley
South Kesteven
Rushcliffe
North West Leicestershire
East Lindsey
Bassetlaw
Newark and Sherwood
East Northamptonshire
Mansfield
East Lindsey
Urban Rural Remoteness Category
accessible rural
remote rural
Fit line for Total
R Sq Linear = 0.491

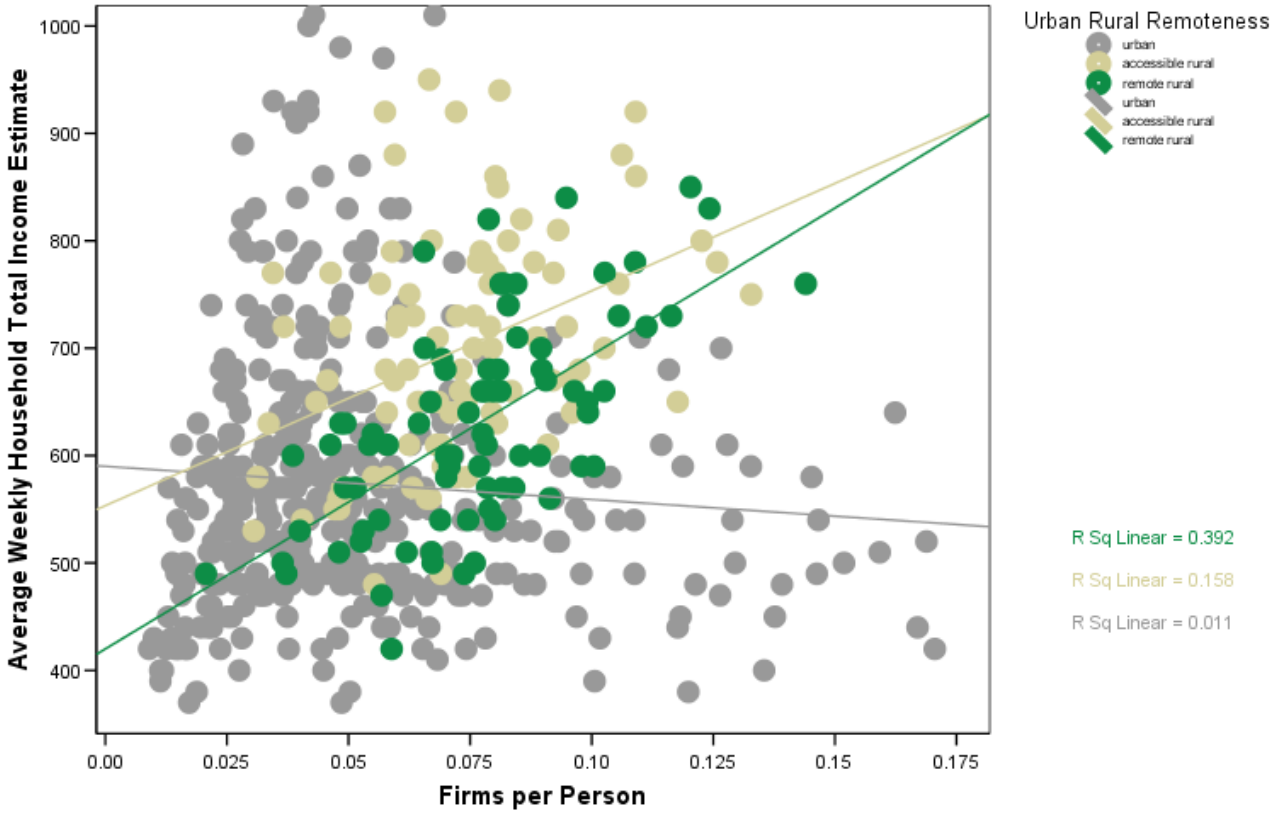

Average Weekly Household Total Income Estimate
900
800
700
600
500
5.00
10.00
15.00
20.00
25.00
30.00
35.00
% qualified to level 4
South Derbyshire
Rushcliffe
South Northamptonshire
Amber Valley
South Northamptonshire
Rutland
Newark and Sherwood
Derbyshire Dales
High Peak
Derbyshire Dales
Newark and Sherwood
Derbyshire Dales
South Derbyshire
Derbyshire Dales
South Holland
East Lindsey
Urban Rural Remoteness Category
accessible rural
remote rural
Fit line for Total
R Sq Linear = 0.78

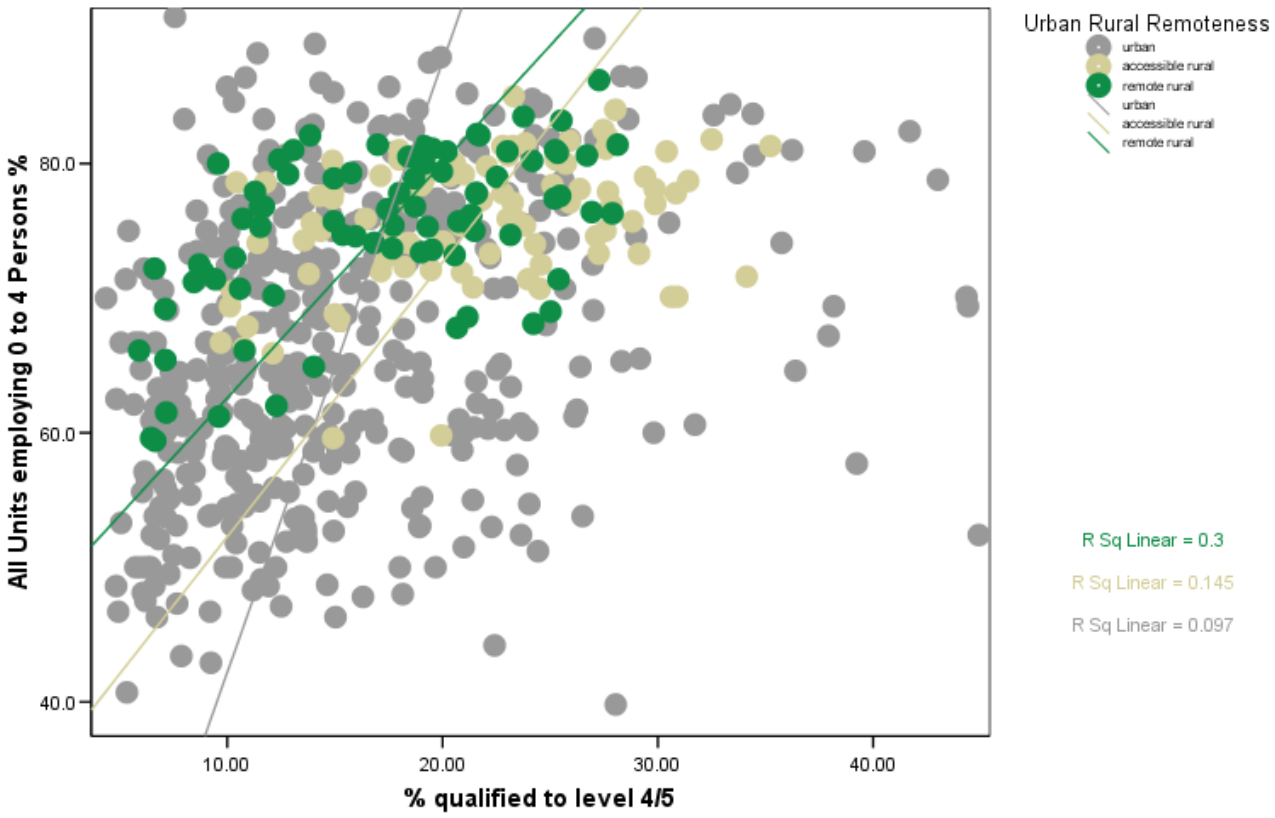
Qualifications and Income by Firm Size

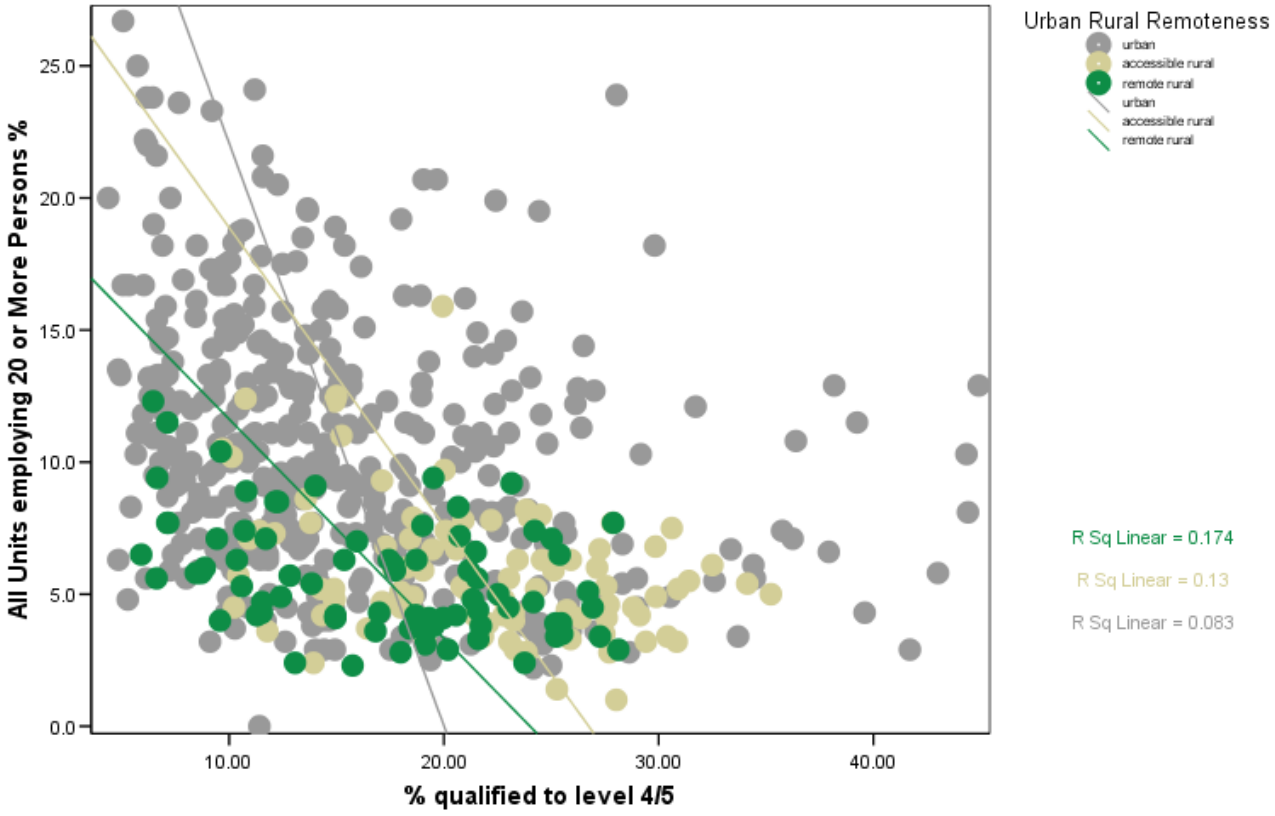




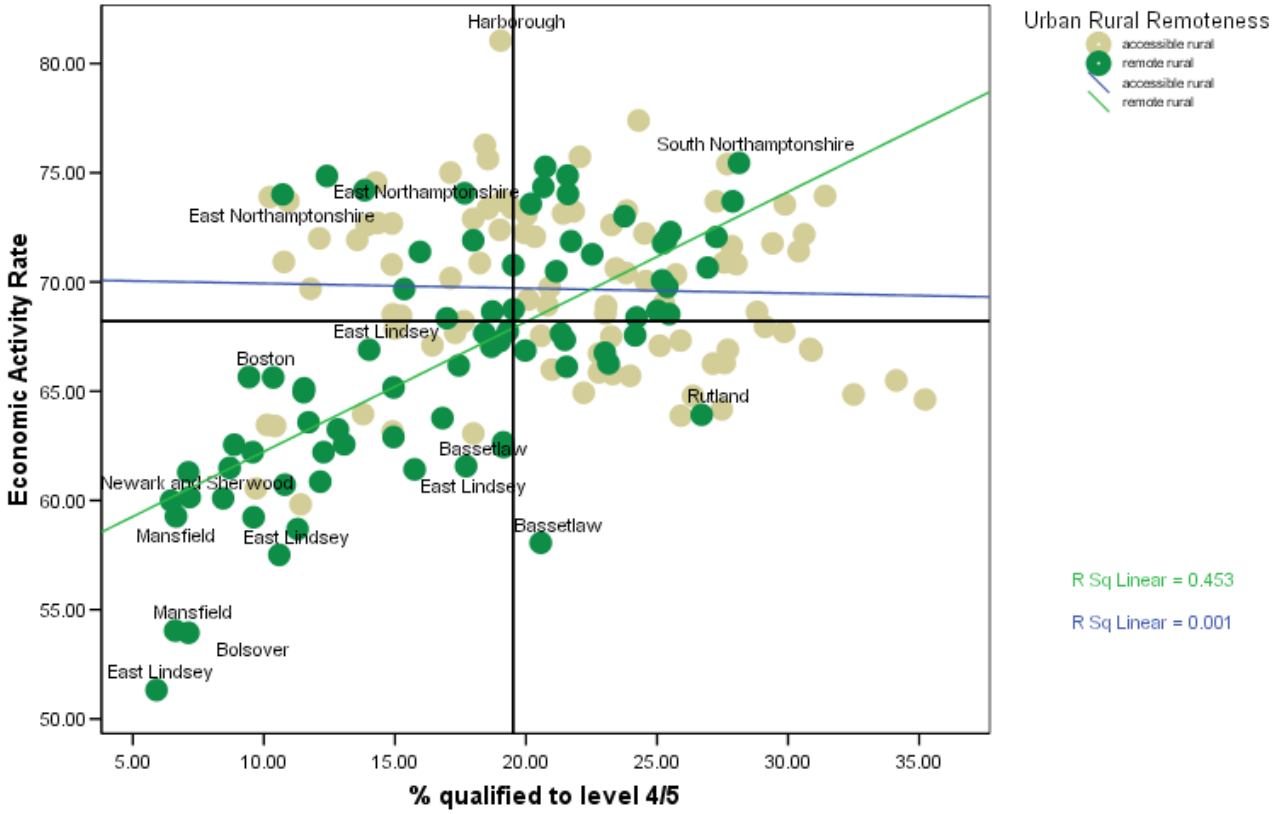

Average Weekly Household Total Income Estimate
1000
900
800
700
600
500
400
Northampton
0.0
5.0
10.0
15.0
20.0
25.0
All Units employing 20 or More Persons %
Urban Rural Remoteness
urban
accessible rural
remote rural
urban
accessible rural
remote rural
R Sq Linear = 0.098
R Sq Linear = 0.114
R Sq Linear = 0.204

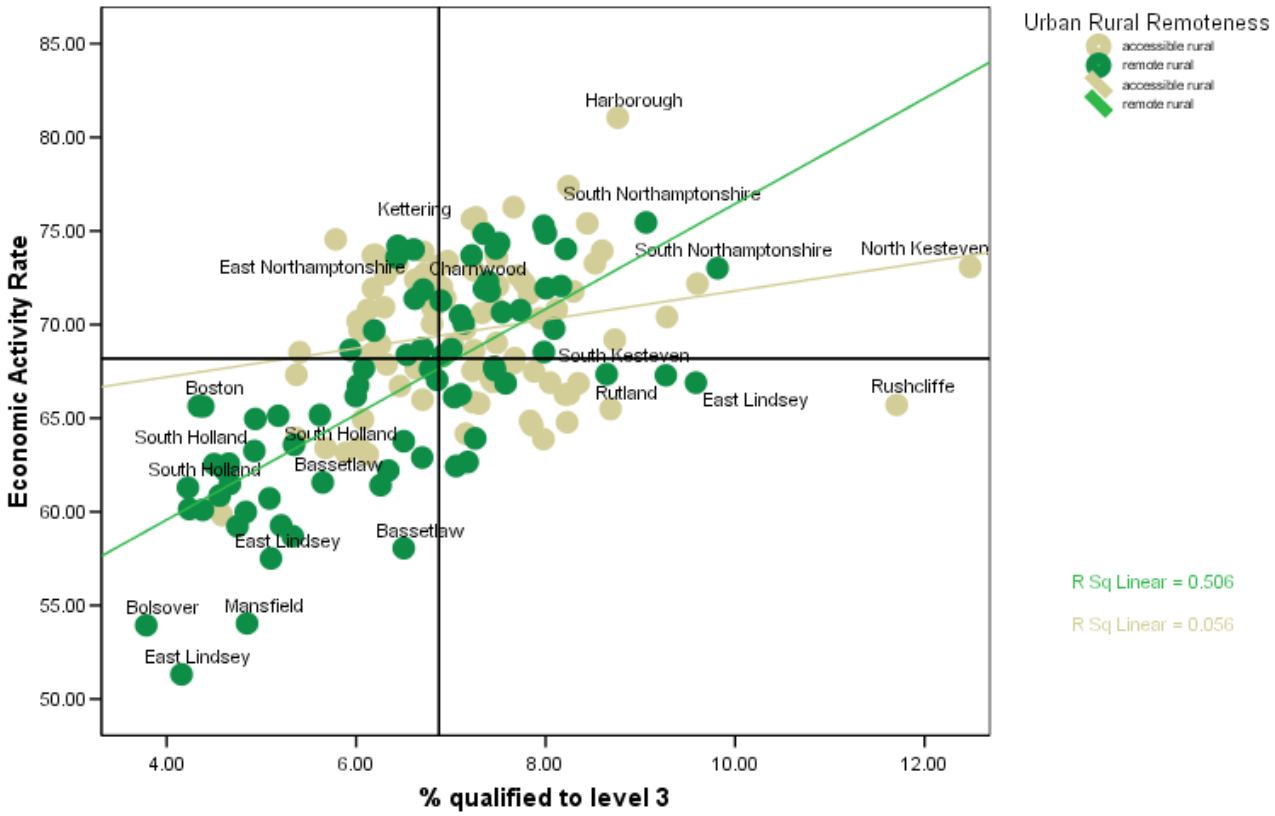

Average Weekly Household Total Income Estimate
1000
900
800
700
600
500
400
0.00
0.025
0.05
0.075
0.10
0.125
0.15
0.175
Firms per Person
Urban Rural Remoteness
urban
accessible rural
remote rural
urban
accessible rural
remote rural
R Sq Linear = 0.392
R Sq Linear = 0.158
R Sq Linear = 0.011

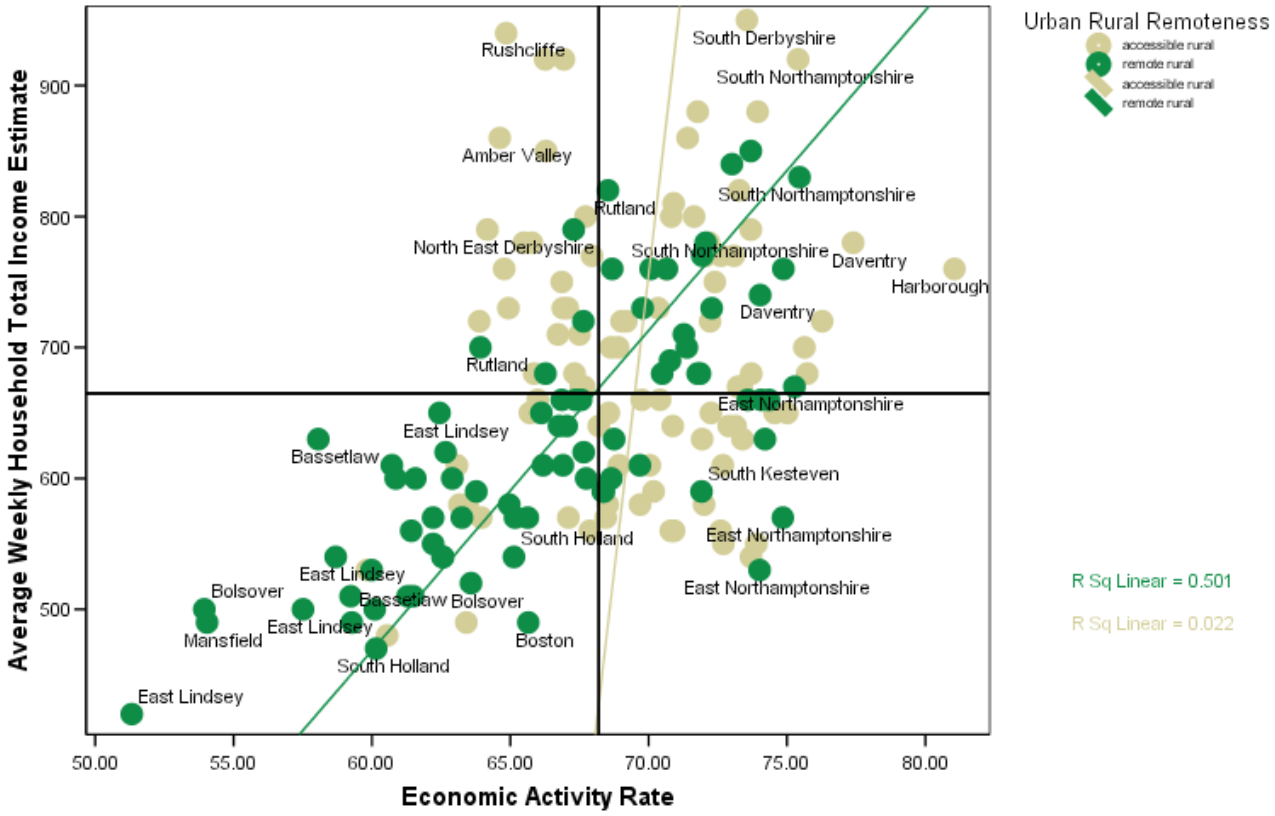

Urban Rural Remoteness
urban
accessible rural
remote rural
urban
accessible rural
remote rural
All Units employing 0 to 4 Persons %
80.0
60.0
40.0
10.00
20.00
30.00
40.00
% qualified to level 4/5
R Sq Linear = 0.3
R Sq Linear = 0.145
R Sq Linear = 0.097


Urban Rural Remoteness
urban
accessible rural
remote rural
urban
accessible rural
remote rural
All Units employing 20 or More Persons %
25.0
20.0
15.0
10.0
5.0
0.0
10.00
20.00
30.00
40.00
% qualified to level 4/5
R Sq Linear = 0.174
R Sq Linear = 0.13
R Sq Linear = 0.083

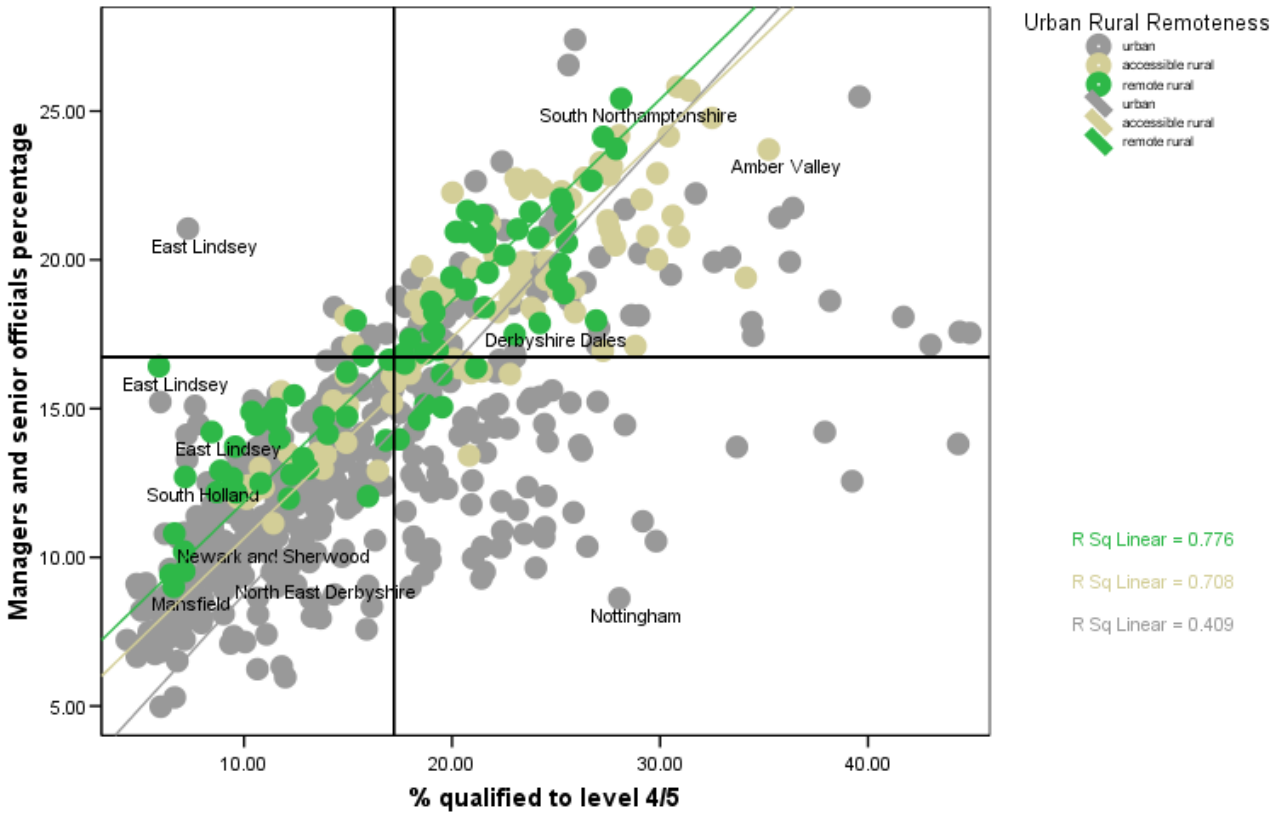
Qualifications and Income by Labour Market Participation



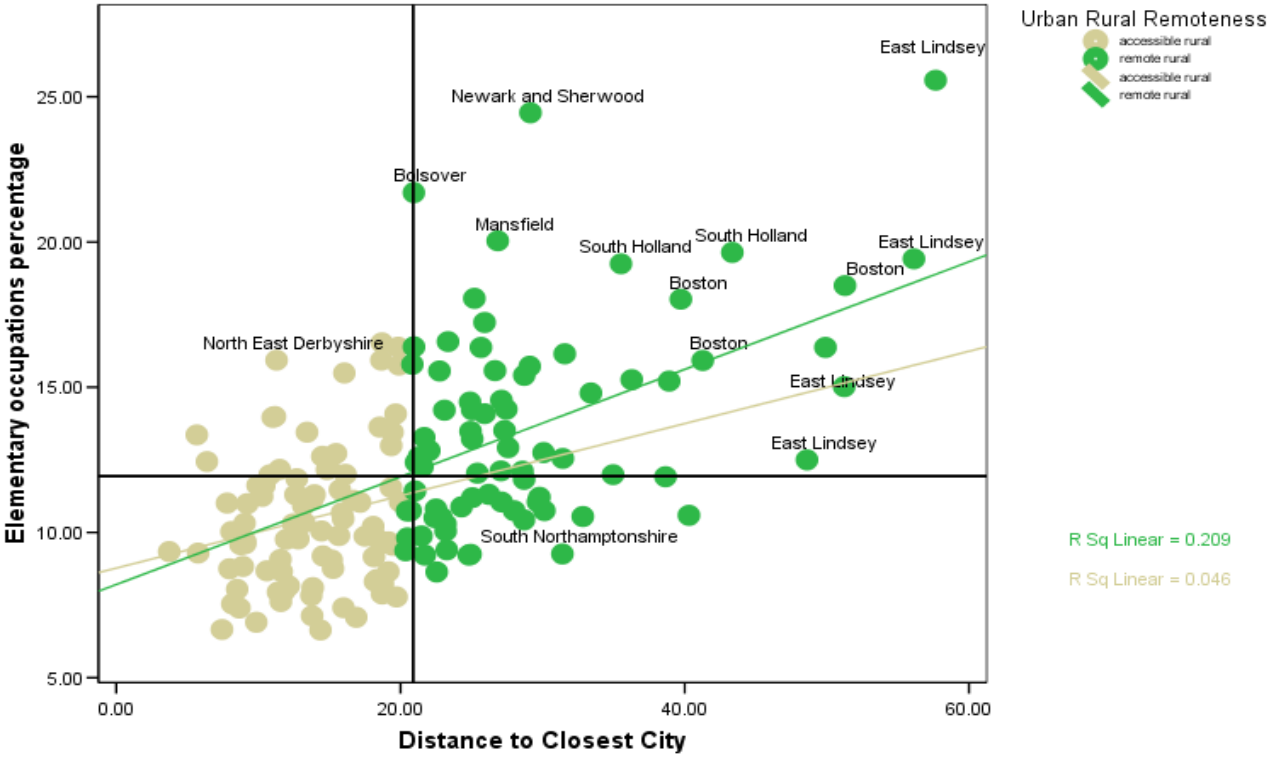


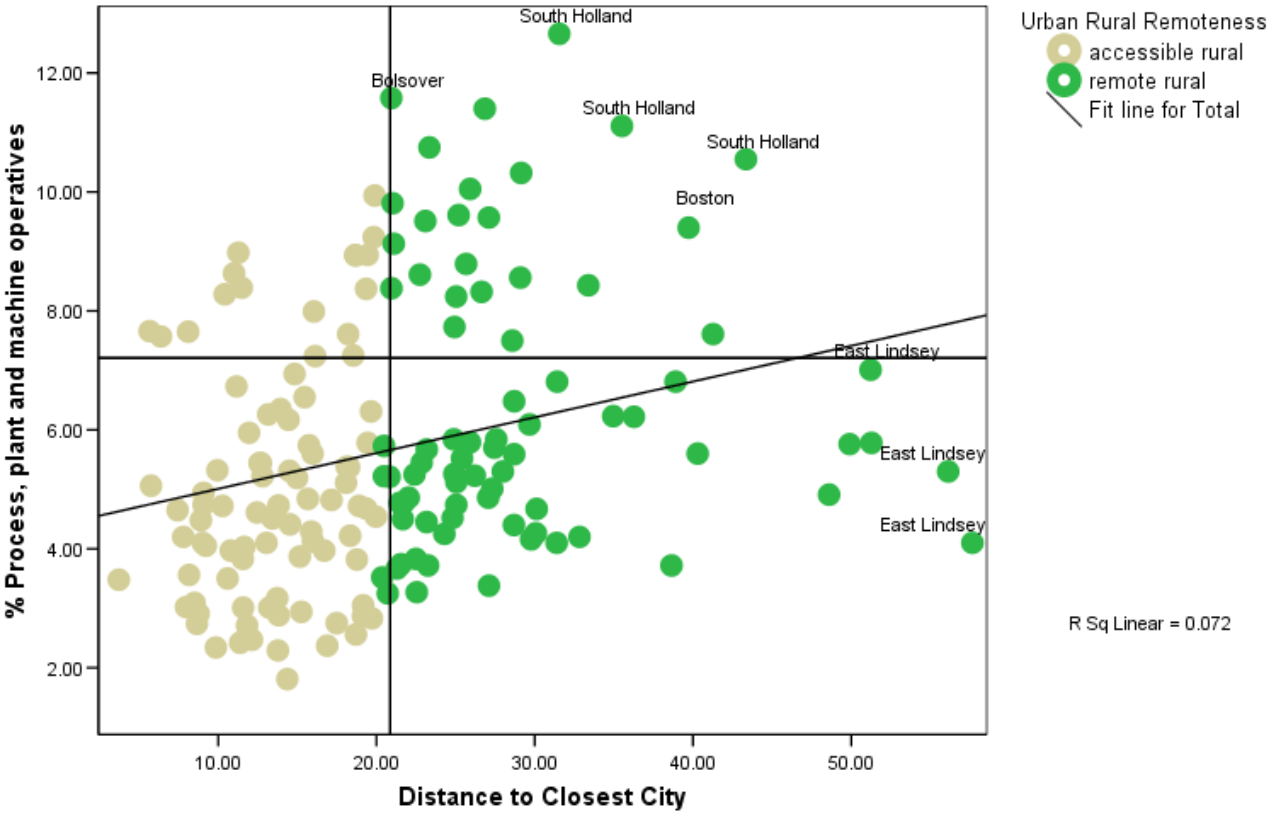


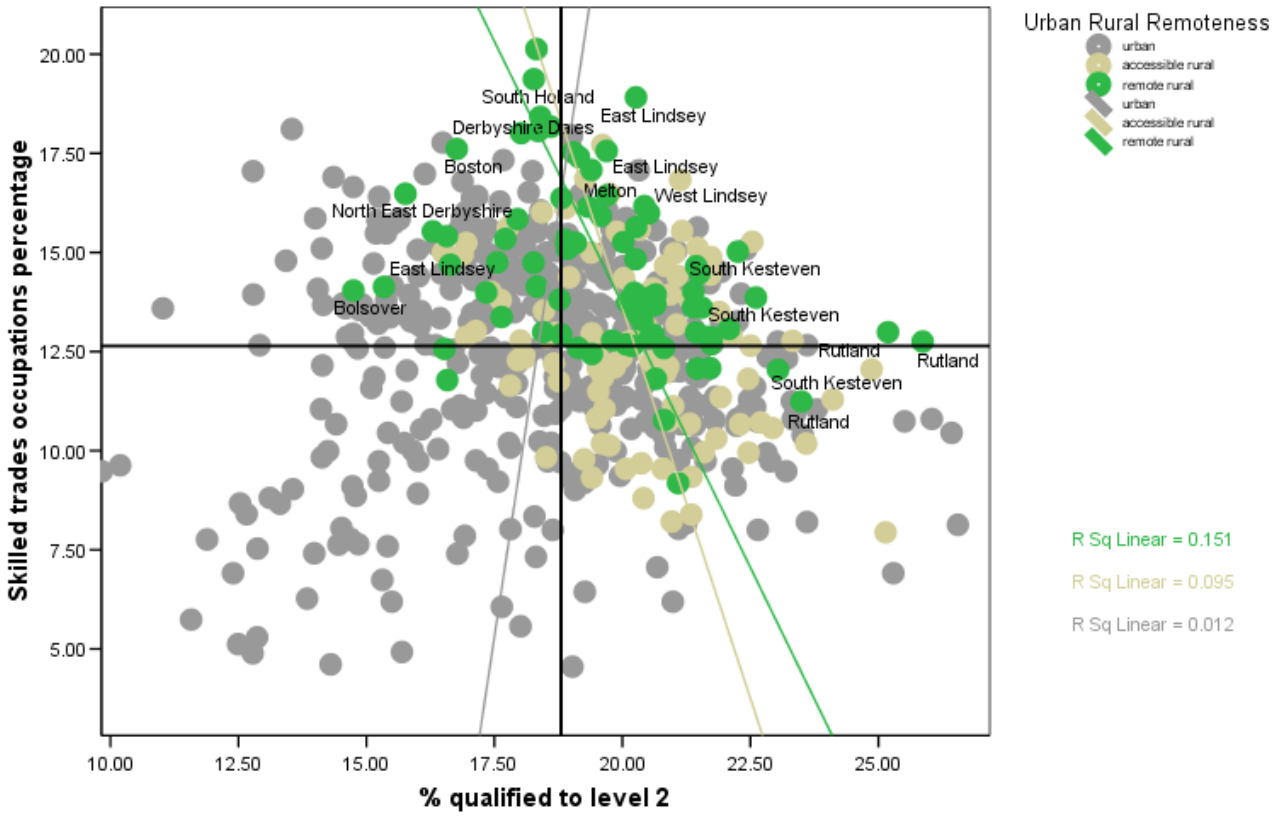
Qualifications and Income by Occupational Sector

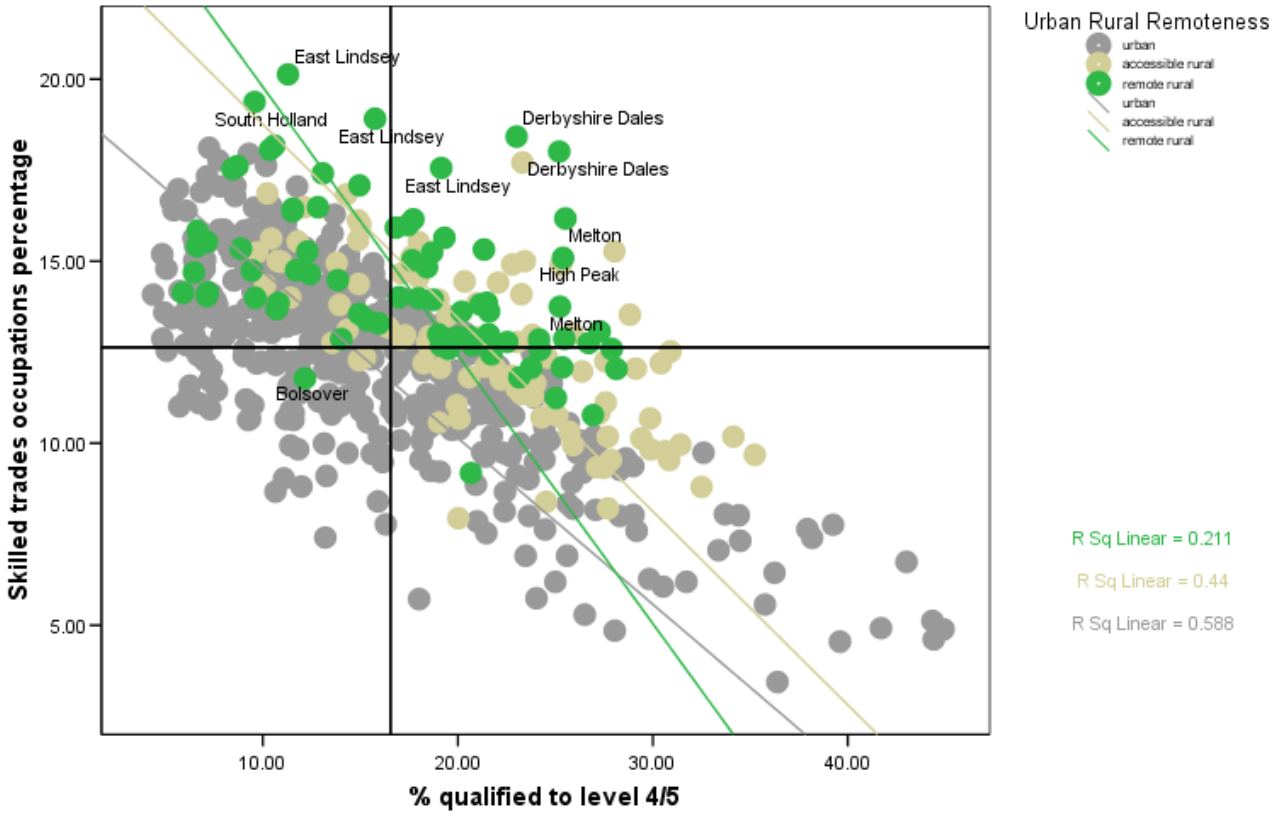


Urban Rural Remoteness
urban
accessible rural
remote rural
urban
accessible rural
remote rural
Average Weekly Household Total Income Estimate
1000
900
800
700
600
500
400
5.00
10.00
15.00
20.00
25.00
Managers and senior officials percentage
South Northamptonshire
South Northamptonshire
Rutland
High Peak
North West Leicestershire
Melton
Daventry
Rutland
East Northamptonshire
Derbyshire Dales
Bassetlaw
East Lindsey
Broxtowe
East Lindsey
Hinckley and Bosworth
East Northamptonshire
South Holland
East Lindsey
R Sq Linear = 0.641
R Sq Linear = 0.736
R Sq Linear = 0.693


Urban Rural Remoteness
accessible rural
remote rural
accessible rural
remote rural
Elementary occupations percentage
25.00
20.00
15.00
10.00
5.00
0.00
20.00
40.00
60.00
Distance to Closest City
East Lindsey
Newark and Sherwood
Bolsover
Mansfield
South Holland
South Holland
East Lindsey
Boston
Boston
North East Derbyshire
Boston
East Lindsey
East Lindsey
South Northamptonshire
R Sq Linear = 0.209
R Sq Linear = 0.046

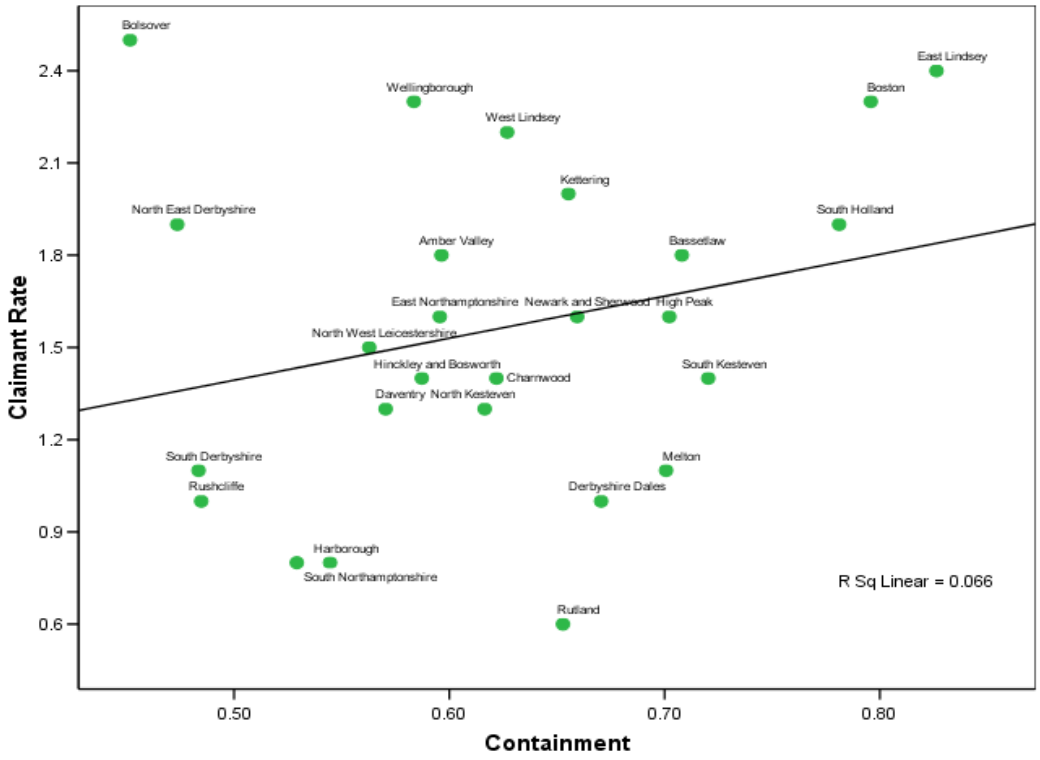

South Holland
Bolsover
South Holland
South Holland
Boston
East Lindsey
East Lindsey
East Lindsey
% Process, plant and machine operatives
12.00
10.00
8.00
6.00
4.00
2.00
10.00
20.00
30.00
40.00
50.00
Distance to Closest City
Urban Rural Remoteness
accessible rural
remote rural
Fit line for Total
R Sq Linear = 0.072

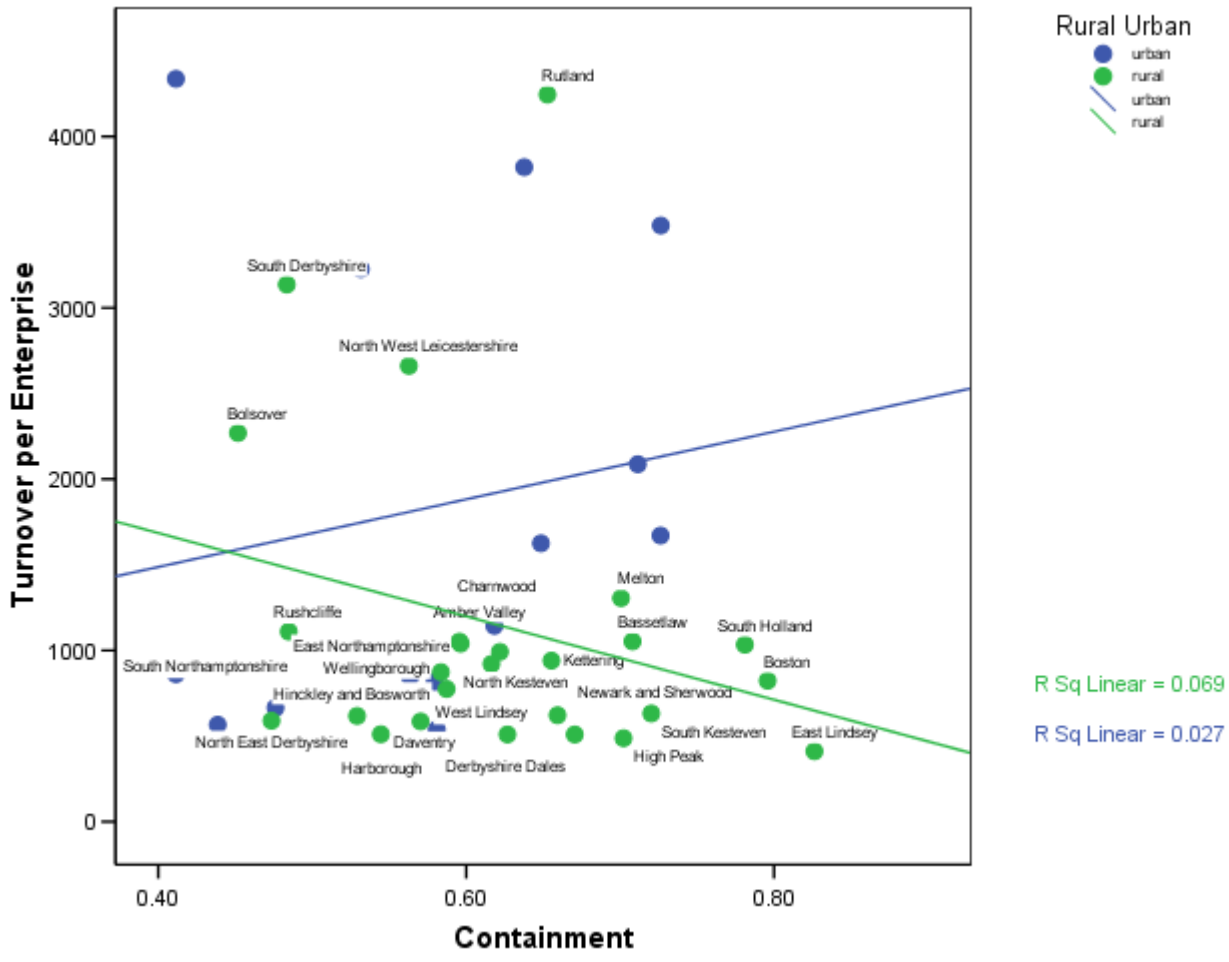

South Holland
East Lindsey
Derbyshire Dales
Boston
East Lindsey
Melton
West Lindsey
North East Derbyshire
East Lindsey
South Kesteven
Bolsover
South Kesteven
Rutland
Rutland
South Kesteven
Rutland
Skilled trades occupations percentage
20.00
17.50
15.00
12.50
10.00
7.50
5.00
10.00
12.50
15.00
17.50
20.00
22.50
25.00
% qualified to level 2
Urban Rural Remoteness
urban
accessible rural
remote rural
urban
accessible rural
remote rural
R Sq Linear = 0.151
R Sq Linear = 0.095
R Sq Linear = 0.012


Urban Rural Remoteness
urban
accessible rural
remote rural
urban
accessible rural
remote rural
East Lindsey
South Holland
East Lindsey
Derbyshire Dales
Derbyshire Dales
East Lindsey
Melton
High Peak
Melton
Bolsover
20.00
15.00
10.00
5.00
Skilled trades occupations percentage
10.00
20.00
30.00
40.00
% qualified to level 4/5
R Sq Linear = 0.211
R Sq Linear = 0.44
R Sq Linear = 0.588

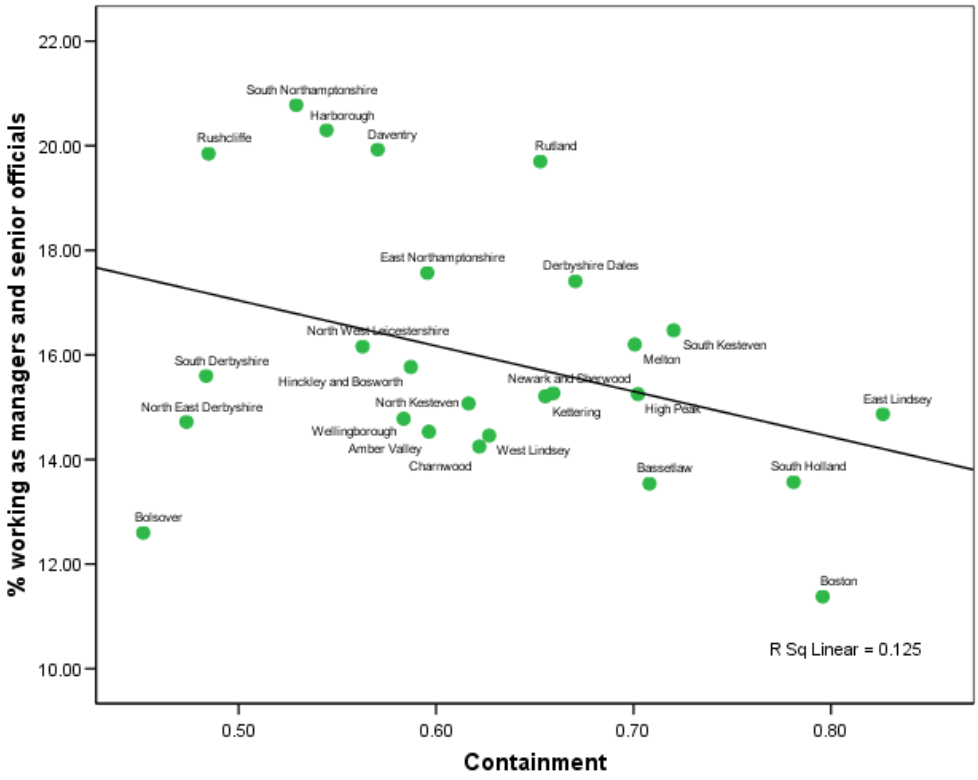
Appendix 4: Key Regression Graphs at LAD level

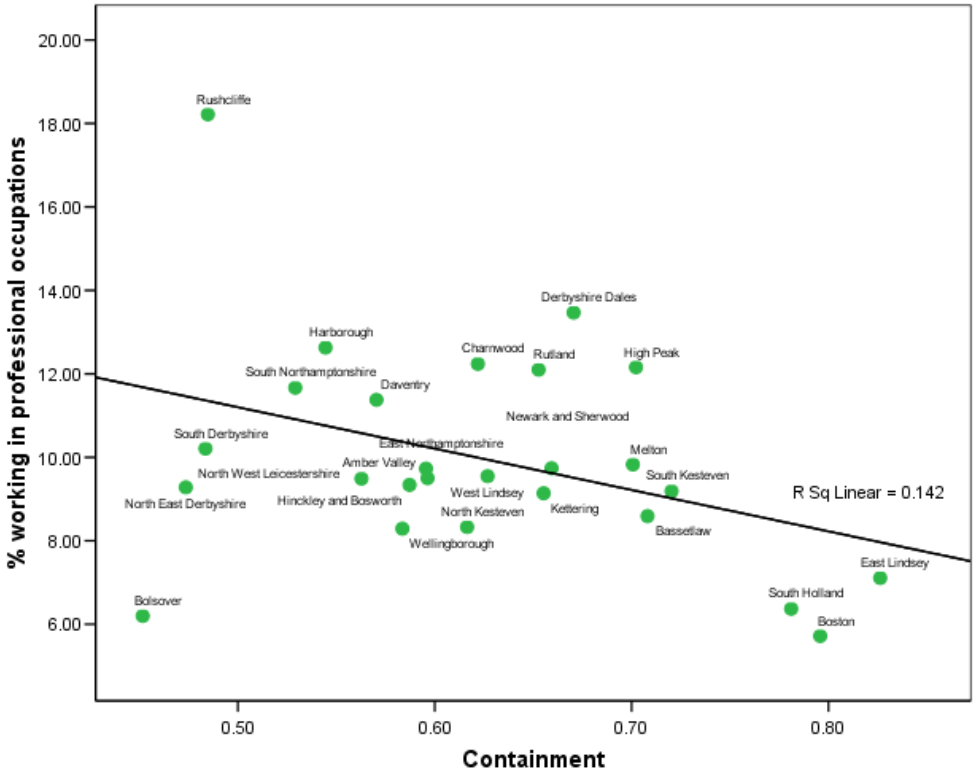
Claimant Rate and Turnover per Enterprise in contained and less contained labour markets

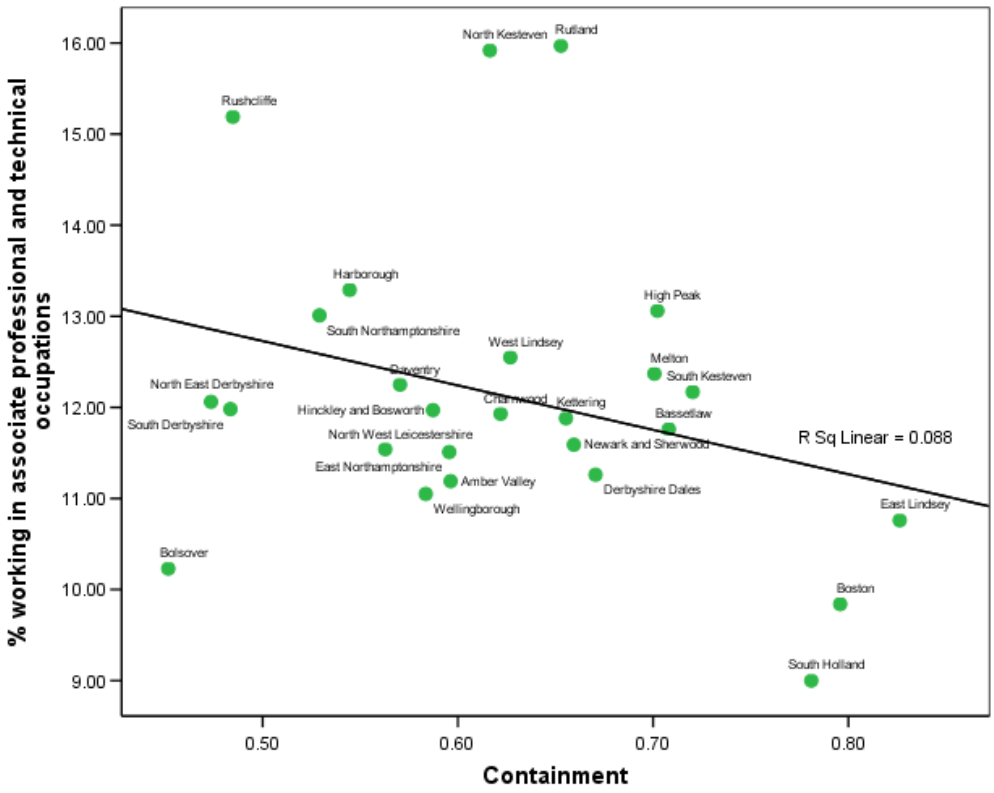


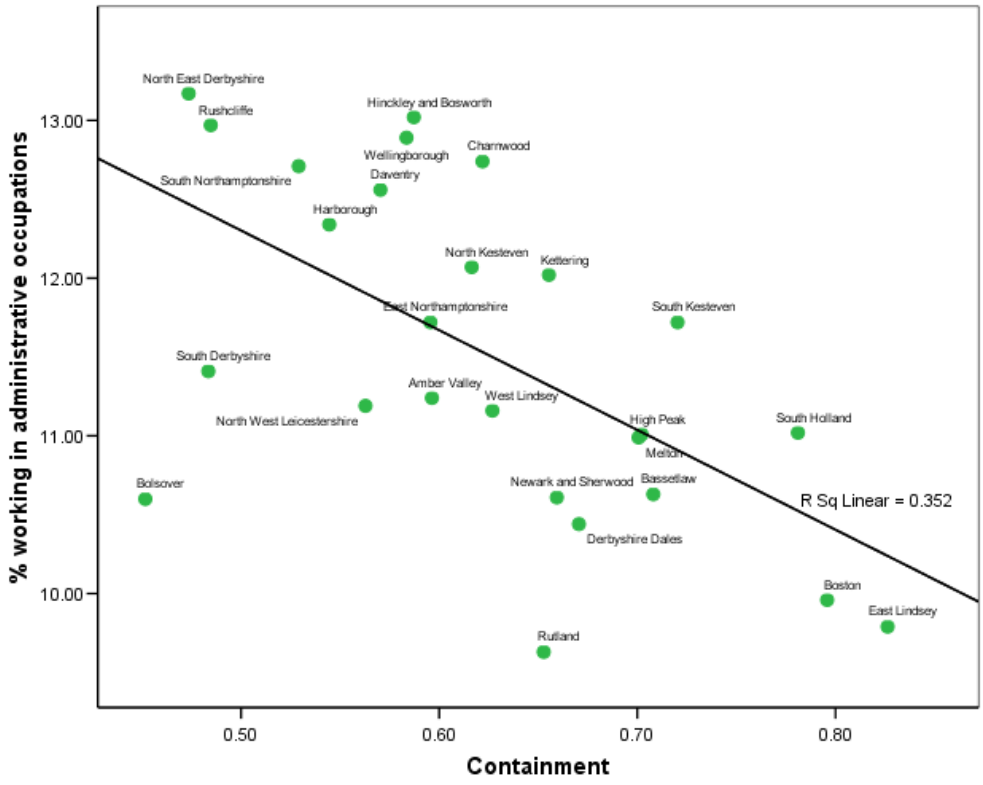


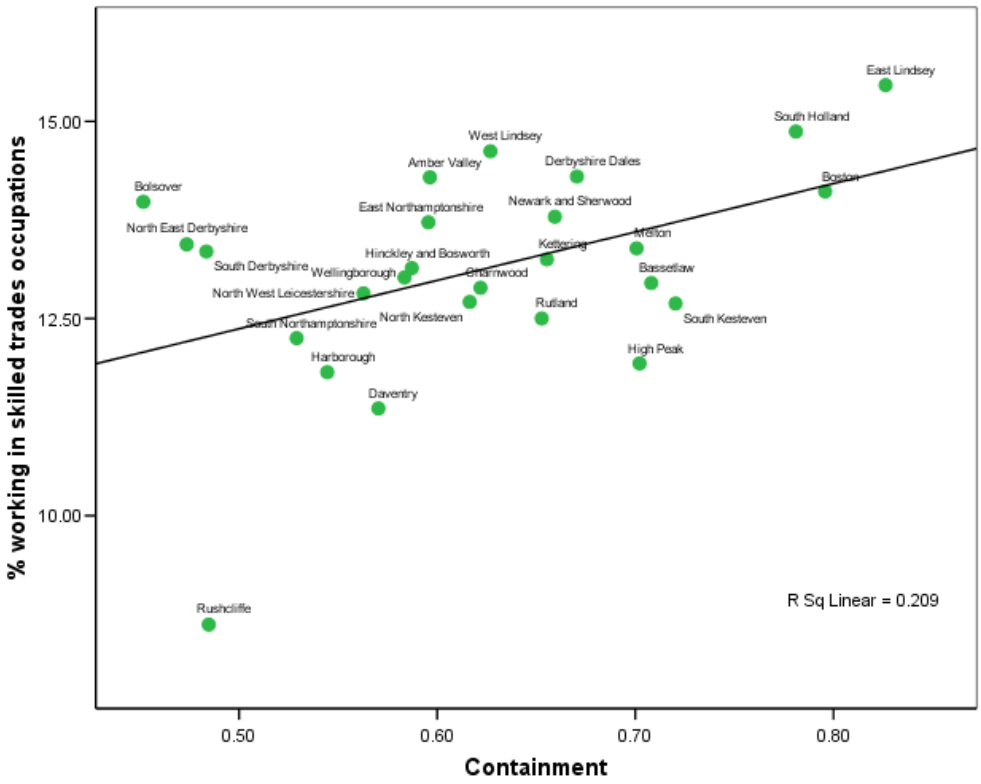
Occupation types in contained and less contained labour markets

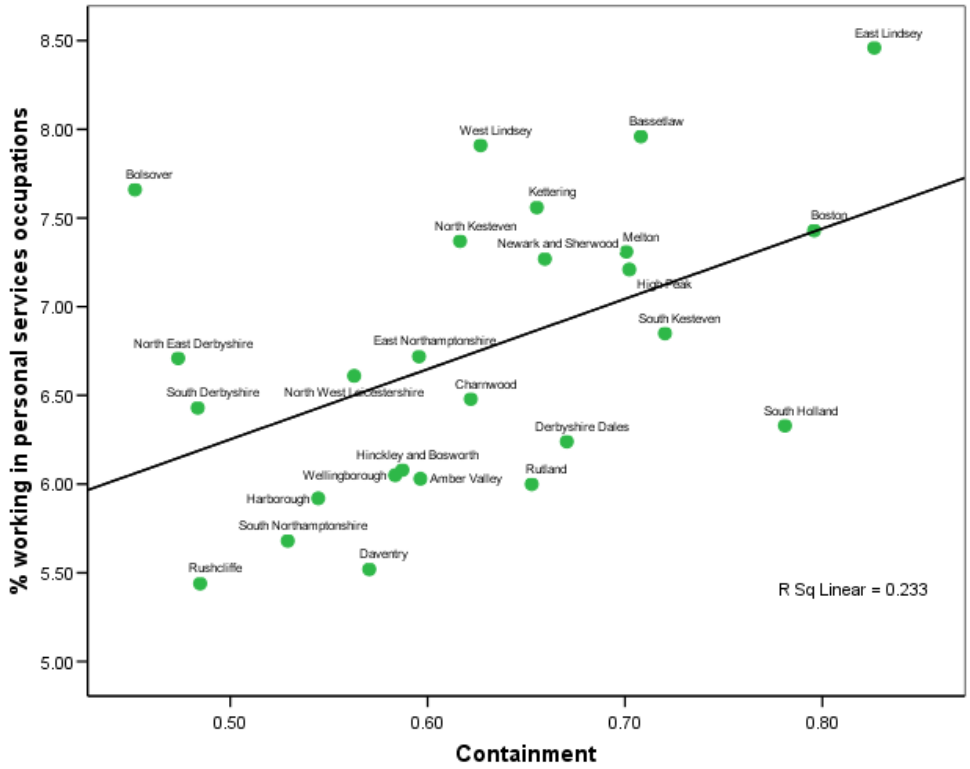


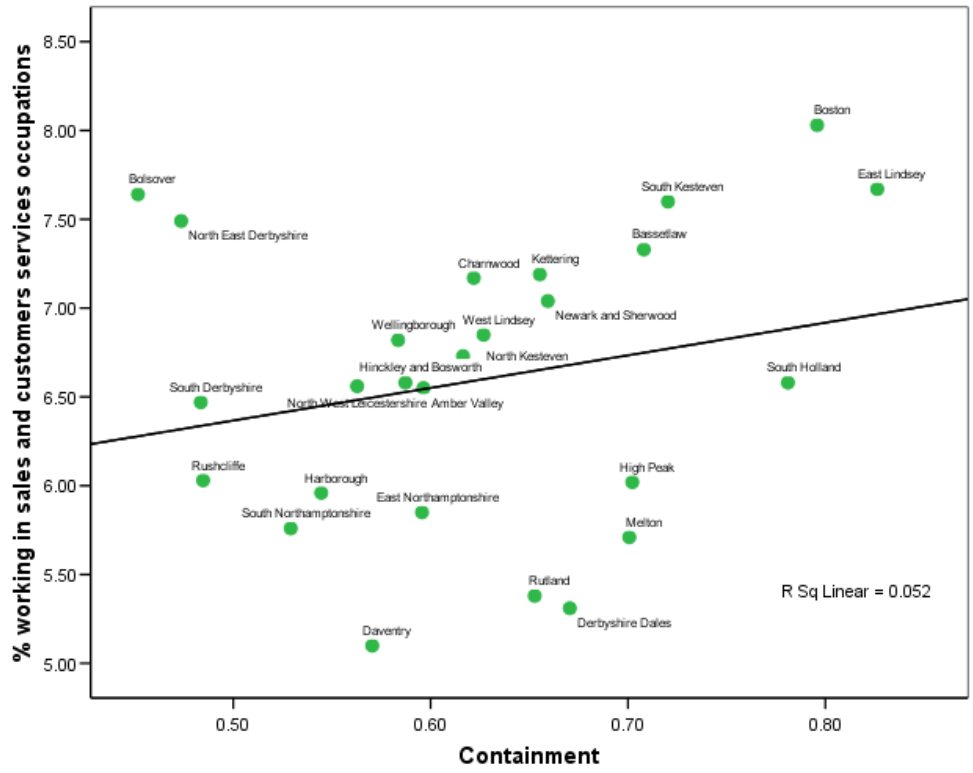


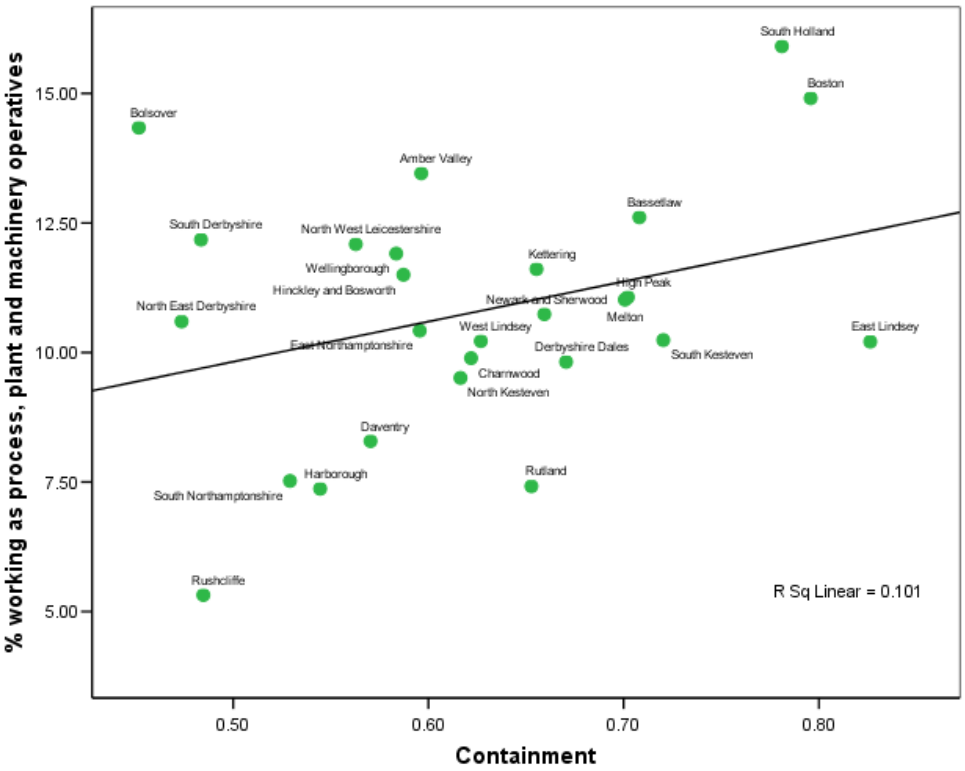

% working in associate professional and technical occupations
16.00
15.00
14.00
13.00
12.00
11.00
10.00
9.00
0.50
0.60
0.70
0.80
Containment
North Kesteven
Rutland
Rushcliffe
Harborough
High Peak
South Northamptonshire
West Lindsey
Melton
South Kesteven
Daventry
North East Derbyshire
Hinckley and Bosworth
Kettering
Bassetlaw
South Derbyshire
North West Leicestershire
Newark and Sherwood
R Sq Linear = 0.088
East Northamptonshire
Amber Valley
Derbyshire Dales
Wellingborough
East Lindsey
Bolsover
Boston
South Holland

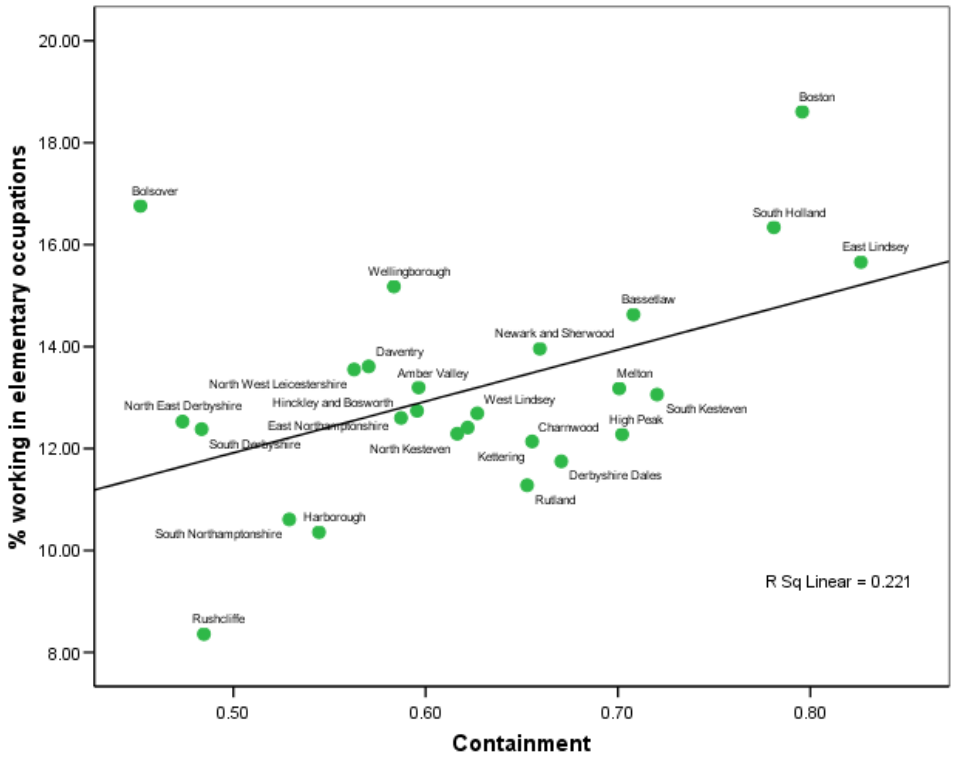

% working in administrative occupations
13.00
12.00
11.00
10.00
0.50
0.60
0.70
0.80
Containment
North East Derbyshire
Rushcliffe
Hinckley and Bosworth
Wellingborough
Charnwood
South Northamptonshire
Daventry
Harborough
North Kesteven
Kettering
East Northamptonshire
South Kesteven
South Derbyshire
Amber Valley
West Lindsey
North West Leicestershire
High Peak
South Holland
Melton
Bolsover
Newark and Sherwood
Bassetlaw
R Sq Linear = 0.352
Derbyshire Dales
Boston
East Lindsey
Rutland


% working in skilled trades occupations
15.00
12.50
10.00
0.50
0.60
0.70
0.80
Containment
East Lindsey
South Holland
West Lindsey
Amber Valley
Derbyshire Dales
Boston
Bolsover
East Northamptonshire
Newark and Sherwood
North East Derbyshire
Melton
Kettering
Hinckley and Bosworth
South Derbyshire
Wellingborough
Charnwood
Bassetlaw
North West Leicestershire
Rutland
South Kesteven
South Northamptonshire
North Kesteven
High Peak
Harborough
Daventry
Rushcliffe
R Sq Linear = 0.209

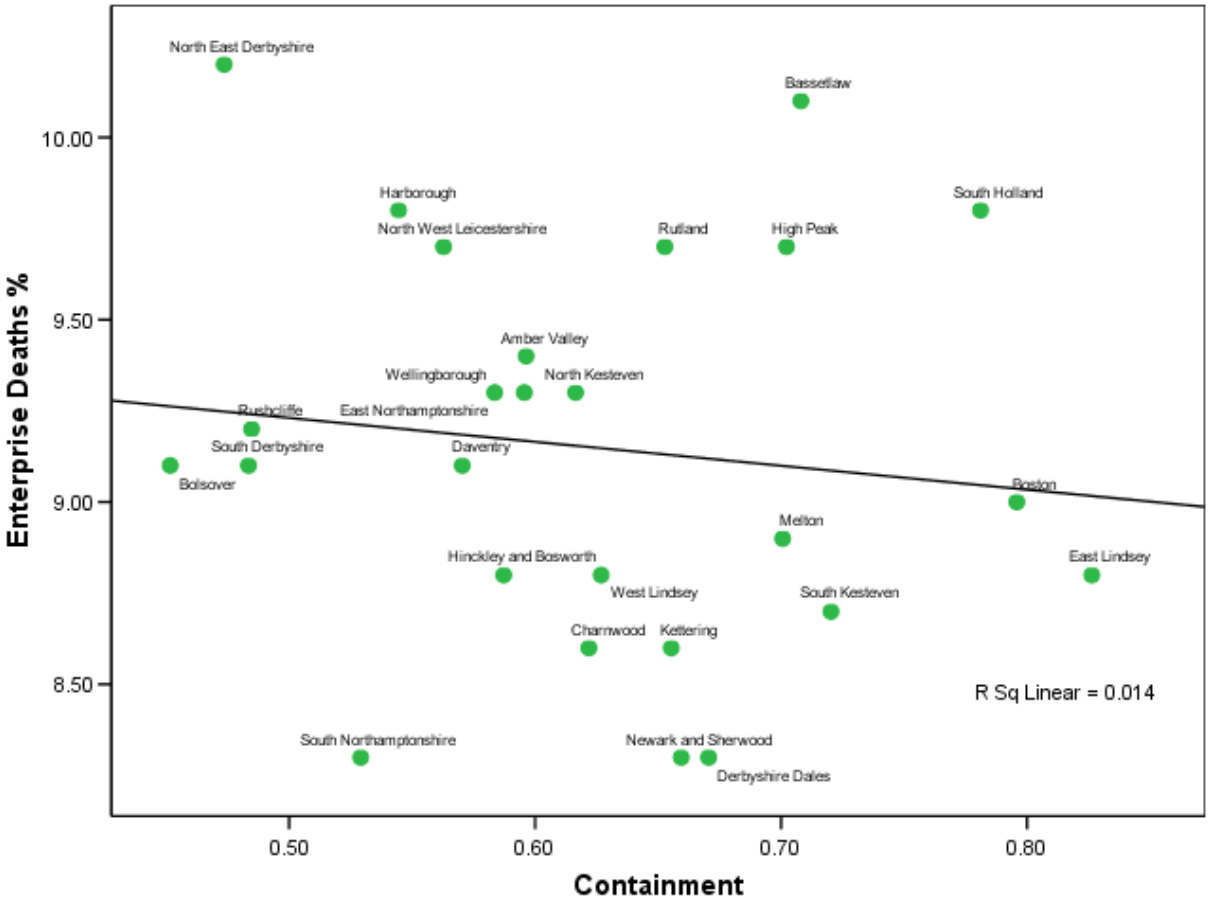

% working in personal services occupations
8.50
8.00
7.50
7.00
6.50
6.00
5.50
5.00
0.50
0.60
0.70
0.80
Containment
East Lindsey
Bassetlaw
West Lindsey
Bolsover
Kettering
Boston
North Kesteven
Newark and Sherwood
Melton
High Peak
South Kesteven
North East Derbyshire
East Northamptonshire
South Derbyshire
North West Leicestershire
Charnwood
South Holland
Derbyshire Dales
Hinckley and Bosworth
Wellingborough
Amber Valley
Rutland
Harborough
South Northamptonshire
Daventry
Rushcliffe
R Sq Linear = 0.233


% working in sales and customers services occupations
8.50
8.00
7.50
7.00
6.50
6.00
5.50
5.00
0.50
0.60
0.70
0.80
Containment
Boston
Bolsover
East Lindsey
South Kesteven
North East Derbyshire
Bassetlaw
Charnwood
Kettering
Newark and Sherwood
Wellingborough
West Lindsey
North Kesteven
Hinckley and Bosworth
South Holland
South Derbyshire
North West Leicestershire
Amber Valley
Rushcliffe
Harborough
High Peak
East Northamptonshire
South Northamptonshire
Melton
Rutland
Derbyshire Dales
Daventry
R Sq Linear = 0.052


% working as process, plant and machinery operatives
15.00
12.50
10.00
7.50
5.00
0.50
0.60
0.70
0.80
Containment
South Holland
Boston
Bolsover
Amber Valley
Bassetlaw
South Derbyshire
North West Leicestershire
Kettering
Wellingborough
Hinckley and Bosworth
High Peak
North East Derbyshire
Newark and Sherwood
Melton
East Lindsey
West Lindsey
East Northamptonshire
Derbyshire Dales
South Kesteven
Charnwood
North Kesteven
Daventry
Harborough
Rutland
South Northamptonshire
Rushcliffe
R Sq Linear = 0.101



Enterprise deaths and containment of the labour market



Appendix 5 - Determinants of Rural Productivity - Findings from the Literature Review

Enterprise	▪ "rural firms are overwhelmingly independent, locally owned, locally managed compared to urban" (Keeble and Tyler, 1996) ▪ Firms and households are "more intrinsically bound up together in rural economies" (Ward, 2006) ▪ Rural businesses are smaller than urban ones, contain much higher levels of self-employment, underemployment, seasonal and part-time work and deploy lower level skills, leading to lower wages than in urban business" (Curry and Webber, 2009) ▪ The role of in-migrants in creating rural businesses is increasing acknowledged (Stockdale and Findlay 2006) ▪ Rural businesses constrained by low levels of local demand, costs of reaching customers and suppliers and problems in recruiting appropriate skills staffed ▪ Rural businesses tend to be established longer, giving less 'churn' or volatility in business formation (Deakins, 2007) ▪ "rural settlements have been able to attract a high proportion of actual or potential entrepreneurs because of their desirable residential characteristics" (Keeble and Tyler, 1995) ▪ "the presence of high technology manufacturing is the micro-economic driver of rural productivity" (Benneworth, 2003) ▪ "some sectoral mixes can create low productivity equilibria which supply-side measures are inadequate to address" (Benneworth, 2003) ▪ From 2003-2005, employment in rural firms increased by nearly 6% (2.7% for urban firms) but many rural firms do not meet the criteria for being recorded on the IDBR (CRC, 2007) ▪ From 1995-2004, rural areas saw an increase in 7% of the number of new businesses registering for VAT (37,000 per year). This was marginally higher than urban or mixed authorities. De-registrations also declined. Increased entrepreneurship/business starts by women (CRC, 2007)
Innovation	▪ Rural firms are less innovative than urban firms, but this may be to the availability of technology rather than their propensity to adopt (Ward, 2006) ▪ Existing, accepted views of rural firms are that they are slow to take up innovation and technology, including ICT but Deakins (2007) argues that rural SMEs innovate more because of their remote locations and the need to innovate to access markets ▪ Being located in a remote rural location appears to be a barrier to innovation. This is evident in internet use, and "may be an indication of where the additional costs of delivering effective business and technology support in areas where business densities are low is slowing down the diffusion and adoption of new technologies" (North and Smallbone, 2000) ▪ "however, the need to overcome local constraints can induce [rural] firms to be more innovative than they otherwise would be" (North & Smallbone, 2000) ▪ "there is no clear indication that being located in a remote rural environment is having an adverse effect on the ability of SMEs to innovation overall but rather that it has various influences on the motivation and ability of owner managers to make innovations" (North and Smallbone, 2000) ▪ For SMEs to innovate and grow, they need access to HE and research institutions (Deakins, 2007) ▪ The low cost of labour in remote rural locations encourages firms (particularly in manufacturing) to use labour-intensive production methods rather than modernising their production process equipment (North and Smallbone, 1995) ▪ Firms with web access have productivity levels some 7.1% above others. Web-access is used as a general indicator of likely propensity to innovate and to adopt efficient working practices. (Boddy et al) ▪ Agricultural restructuring, diversification and pluriactivity is growing but often household level, survival mentality (Lobley and Potter 2004)
Competition	▪ "Despite the rush to measure, compare and promote 'regional competitiveness', the very notion is very contentious and far from well

	understood" (Kitson et al, 2004) ▪ Quality of life is a spur for migrants to locate in rural areas, but this influences performance as incomers are prepared to make a smaller return in exchange for living in a nice community (North, 1998) ▪ Firms in remote rural locations are more likely to develop new national or international markets, as they have limited local markets (North and Smallbone, 2000) ▪ Agriculture and primary industries face oligopolistic buyers which combined with EU payments, creates a weak competitive environment. In the "post productive" countryside, rural areas are increasing reconstructed as consumption spaces (Marsden and Sonnino 2008) ▪ State of the Countryside (2007, p98) shows that Lincolnshire and other more northerly districts in the East Midlands are less competitive based on an index derived by Huggins (2006) which includes R&D expenses, economic activity, business start up rates, businesses per 1,000 population, GCSE/NVQ data, proportion of Knowledge based businesses, GVA per head, Exports per head, imports per head, % of exporting companies, productivity output per hour worked, employment rates, gross weekly pay and unemployment rates.
Investment	▪ 17 out of 20 districts with the lowest level of capital investment are in DEFRA's 'most rural' category (SQW, Cambridge Econometrics 2006). Only 1 of the top 20 districts is "rural". ▪ Capital employed per work has an important impact on productivity (Boddy et al) ▪ There is less of a policy leverage on capital investment than skills, however (Boddy et al)
Leadership/ Endowment	▪ Confused government policy – regional/national focus on productivity, local authority focus on 'economic well-being' (Curry and Webber, 2009) ▪ Sub-regional arrangements for improving economic performance "fragmented, confused…lacking leadership" (Curry and Webber, 2009) ▪ Sub-National Review will bring economic development function to a more local level – implications? ▪ There is an unfulfilled potential of £347bn per year in the rural economy – there's a need for 'hubs', affordable housing, business support initiatives and digital infrastructure (Stuart Burgess, CRC) ▪ Rural businesses struggle to access government support or work in partnership to address the obstacles they face, such as planning, infrastructure, accessing services or training (Burgess, 2008) ▪ Ownership structures are important – multinationals, especially from the US, are found to be more efficient than non-multinationals" (Boddy et al) ▪ "Rural development emerges from an interaction of effects produced by global forces and local responses….Local responses depend to a large extent on the structural and institutional make-up of the community, its history, local leadership, and how the effects of restructuring are interpreted: as a threat or an opportunity" (Terluin 2003) ▪ A starting point in improving productivity is ensuring that the management have the capability to introduce necessary changes (Gambin et al, 2009)
Infrastructure/ Connectivity	▪ Remoteness has a more significant influence over productivity than rurality (Curry and Webber, 2009) ▪ City regions make more remote, weak regions even weaker (Curry and Webber, 2009) ▪ Rural areas within city regions are about 8% more productive and earnings of rural residents within city regions are 18% higher than those outside (SQW, Cambridge Econometrics 2006) ▪ Rural areas within two or more city regions perform better than those only in one (SQW, Cambridge Econometrics 2006) ▪ "what is required is less a policy need for a consistent way of assigning England and Wales into an urban and rural classification but rather some generally accepted categorisations of the different patterns of conditions in local areas" (Hodge and Monk, 2004) ▪ Rural can be defined by density of human settlement, remoteness from urban centres, balance of economic sectors, patterns of land use

	(Hodge and Monk, 2004) ▪ Keeble and Tyler (1995) and North and Smallbone (2000) distinguish between accessible and remote rural areas, and show that accessible rural firms are more innovative than either their remote rural or urban counterparts ▪ 25% of hard-to-fill vacancies in rural areas may be unfilled due to location and poor transport. Rural employer find it particularly difficult to recruit managers and professionals (Burgess, 2008) ▪ "rural regions may be disadvantaged by cost-benefit rules which favour urban investments although nowhere in rural England could be considered remote from transport infrastructure" (Benneworth, 2003) ▪ Rural areas are affected by the performance of their core regions, and city-region indicators may be appropriate to estimate the performance of rural regions" (Benneworth, 2003) ▪ Journey time rather than distance in miles is important for regional productivity. This suggests the productivity penalties faced by establishments locating some distance from the capital region. (Boddy et al) ▪ "Establishments located in areas of higher population density are more productive than others. This provides some support for arguments based in new economic geography that clustering or agglomeration may have some effects on productivity" (Boddy et al). ▪ Distance and peripherality are an important addition to the five Treasury productivity drivers (Boddy et al) ▪ More than two thirds of the productivity variation between areas is due to variation in their access to economic mass - a 10% reduction in average journey times throughout the Great Britain would raise productivity by 1.12%, and nearly twice this amount for areas whose access to large population mass is increased the most. (Rice and Venables, 2004) ▪ In sparse rural areas, 75-90% of workers live and work in the same authority area compared to approximately 60% for less sparse areas (CRC, 2007) ▪ Rural England supports 5.4 million employees but only 4.6 million people work in rural workplaces (State of the Countryside 2007).
(Skills)	▪ Rural firms experience shortages of skilled labour due to net outward migration of younger age groups (Deakins, 2007) ▪ In remote rural areas, high levels of poorly skilled residents are evident. This is compounded by limited availability of HE, FE and training provision (Burgess, 2008) ▪ Small rural businesses are particularly disadvantaged in terms of their uptake of training – in terms of access to urban providers, and the importance owner managers attach to training (Bennett and Errington, 1995) ▪ "People with high skills tend to be more geographically mobile than those with low skills" (Gambin et al, 2009) ▪ "For skills to raise productivity, there needs to be increased awareness amongst employer regarding the skills there needs to be increased awareness amongst employers regarding the skills they need for success and effective deployment of skills" (Gambin et al, 2009) ▪ "concentrations of low-skilled labour have a stronger negative effect on productivity in more peripheral areas – and that from a policy perspective, addressing such skill deficiencies is particularly important in such areas." (Webber et al, 2007) ▪ "The proportion of the local labour force with high or medium level qualification both have a positive effect on productivity, although only high level qualifications (NVQ4 and above) are statistically significant" (Boddy et al) ▪ Rural areas have an ageing population (Defra Productivity report; Lowe and Speakman, Green 2006) ▪ "Policies and practice need to be bundled together to ensure that if new technologies are being implemented there is the requisite amount of organisational change and employee training to ensure that gains from its introduction are fully captured" (Gambin, 2009) ▪ Skills have increased across the country but this has not led to increases in productivity due to lack of investment in R&D, capital, and infrastructure, and lack of consideration of how and what skills are needed to improve firm productivity (Keep and Mayhew, 2006) ▪ The most remote rural areas have seen the biggest increases in non-UK nationals (DEFRA)

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