The East Midlands in 2010: The Economy

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3. Economy Chapter

3.1 Introduction

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

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

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

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

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

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

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

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

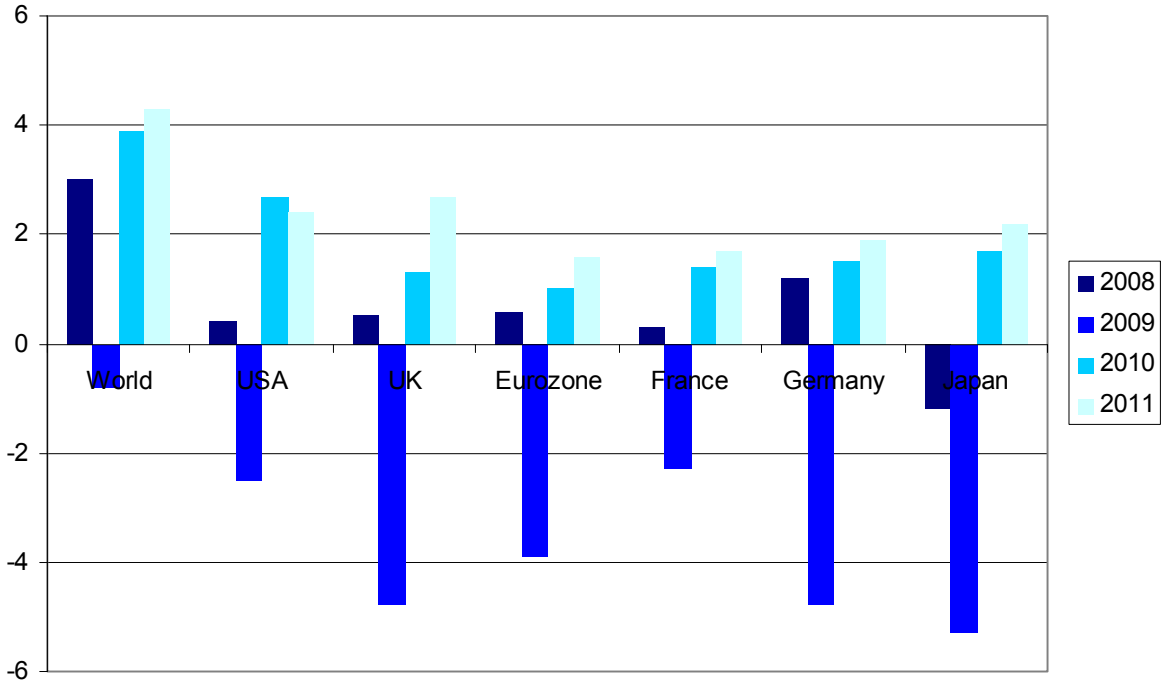
3.2 The global economy and the recession

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

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

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

Chart 1: Economic growth 2008-2011 (%)



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

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

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

- The most significant contractions in 2009 were reported in Japan, Germany and the UK. Germany and Japan are major exporters and demand for the goods they produce (in particular cars) fell significantly in 2009. The Japanese economy is estimated to have contracted by around 5.25% in 2009, and Germany and the UK by around 4.75%;

- The IMF estimate growth to have been -3.9% in the Eurozone in 2009 forecast growth of 1.0% in 2010. Within the Eurozone expected performance varies. In contrast to Germany, the French economy contracted by -2.3% in 2009. The IMF forecast growth of 1.5% and 1.4% respectively for Germany and France in 2010;

- The IMF expect the performance of the UK to be above the average for the Eurozone, at 1.3% in 2010; and

- They also report that the recession has been less severe in the United States, where output fell by -2.5% in 2009 and is forecast to grow more rapidly than Europe, at 2.7% in 2010.

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

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

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

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

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

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

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

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

3.2.1 Long-term trends in the global economy

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

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

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

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

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

[1] BRICs and Beyond, Goldman Sachs Global Economics Group, November 2007.
[2] The BRICs Nifty 50: The EM&DM winners, Goldman Sachs, November 2009.
[3] The G7 comprise of the United States, Japan, Germany, United Kingdom, France, Italy, Canada.
[4] BRICs monthly, BRICs Lead the Global Recovery, Goldman Sachs, May 2009: BRICs monthly, The BRICs as Drivers of Global Consumption, Goldman Sachs, August 2009.

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

3.2.2 International comparisons of productivity

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

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

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

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

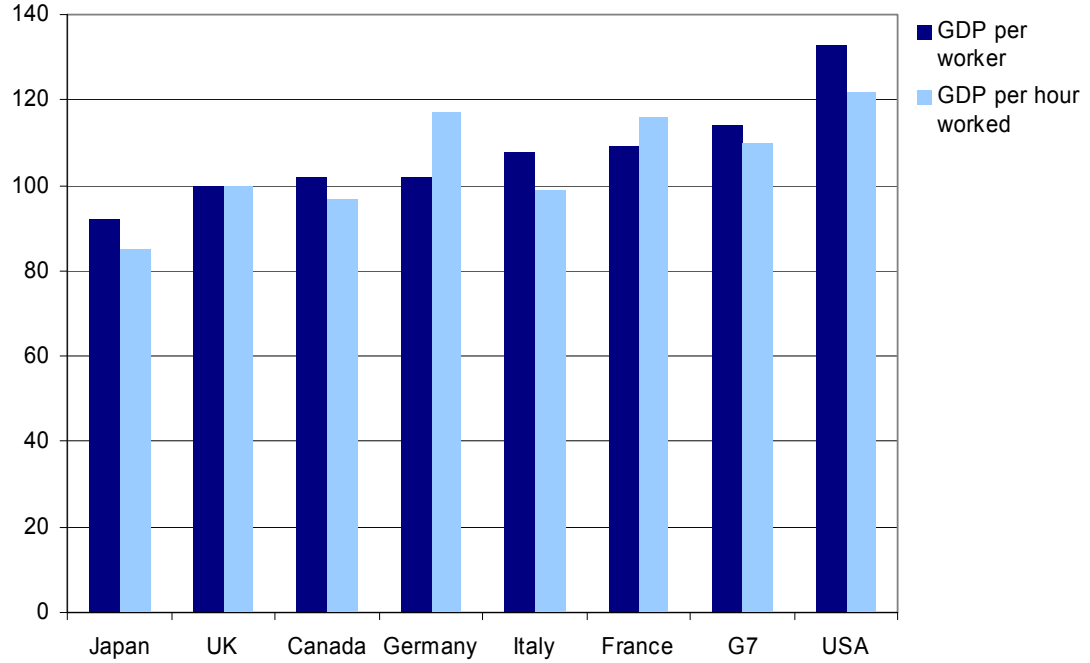
The second measure that allows international comparisons of productivity is GDP per hour worked. This measure takes account of the fact that, due to many social, cultural and economic factors, workers in different countries work, on average, for differing amounts of time. In the USA for instance, workers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

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

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

[5] Comparable data are not available for the BRIC countries identified above.
[6] OECD figures show that, in 2007, average annual hours worked in the USA were 2% higher than in the UK, 10% higher than in France and 16% higher than in Germany.

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



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

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

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

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

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

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

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

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

3.2.3 Wellbeing

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

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

[9] The acceleration in U.S. total factor productivity after 1995: The role of information technology, Fernald, J G and Ramnath, S, Economic Perspectives, Federal Reserve Bank of Chicago, 2004
[10] The American Economic Model and European Economic Policy, M Kitson, Regional Studies, Vol 36:7, October 2005

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

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

Key Points: The global economy

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

3.3 Output and productivity in the East Midlands

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

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

[11] Wellbeing over time in Britain and the USA: Blanchflower, D, Oswald, A, Journal of Public Economics, 2004.

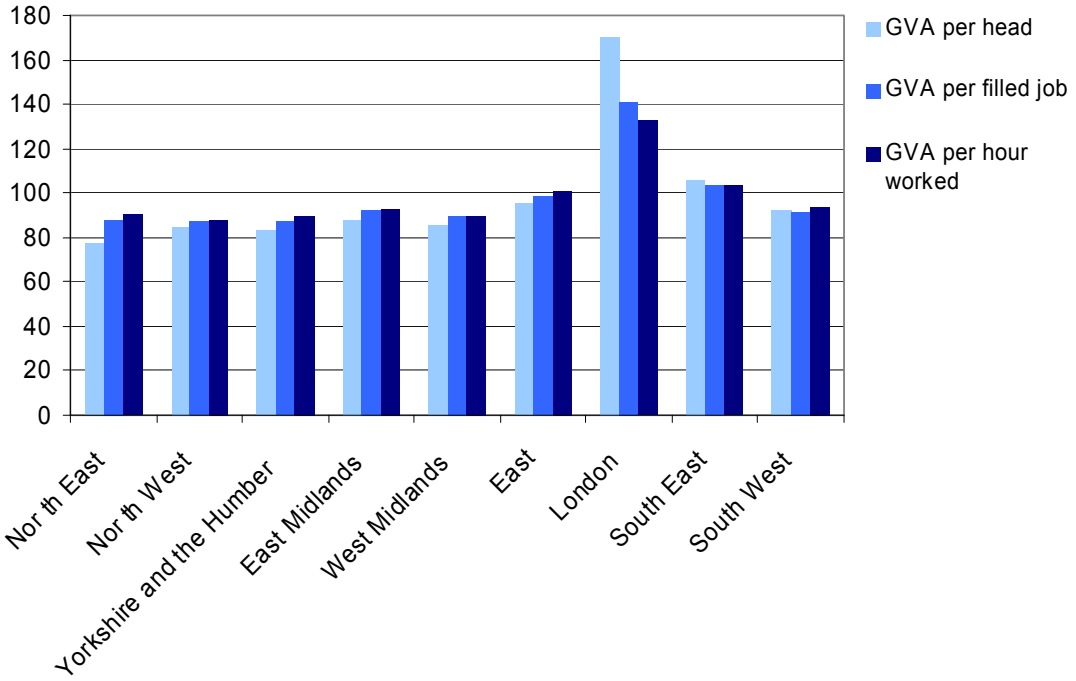
[12] Gross Value Added is the recognised measure of economic output used at a regional level. It is a measure of output at basic prices, whereas GDP is a measure of output at market prices. The difference between the two lies in the treatment of taxes and subsidies: GDP = GVA + taxes -subsidies. It is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

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

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

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

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



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

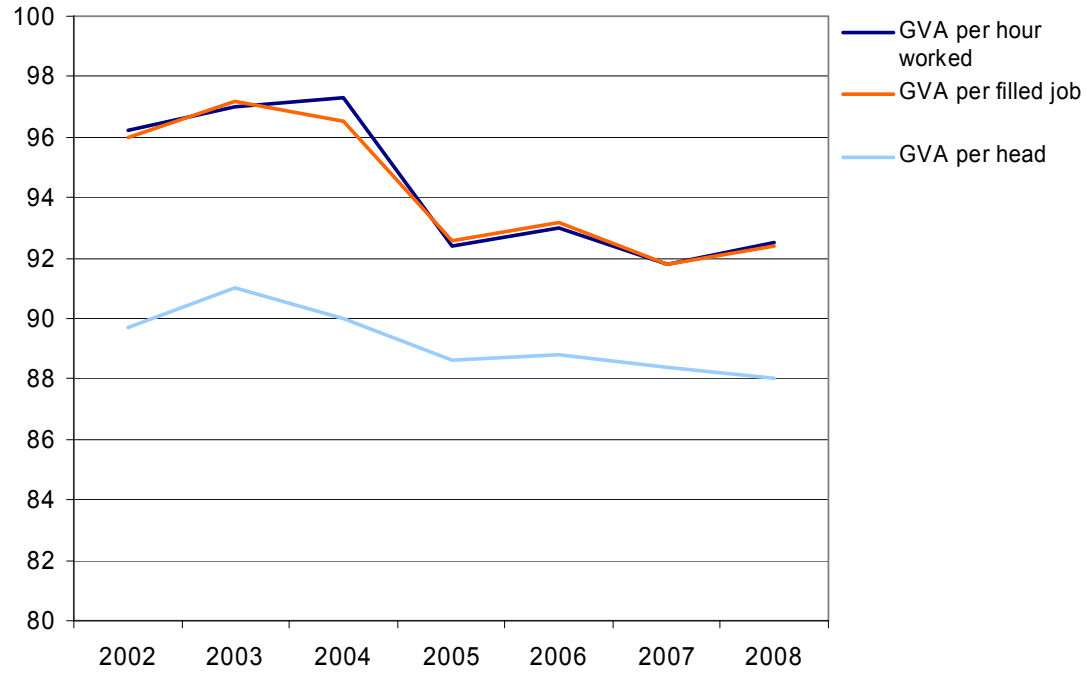
Chart 4 shows how the East Midlands has performed relative to the national average for each of the three measures between 2002 and 2008.

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

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

- GVA per filled job and GVA per hour worked follow broadly the same trend over the period from 2002 to 2008. Starting from a level of around 96% of the UK average in 2002, GVA per filled job and GVA per hour worked rose to about 97% in 2003 and 2004, and then both measures declined to their current levels of around 92.5% of the UK average by 2008.[13]

Chart 4: Change in output and productivity in the East Midlands, 2002-2008 (UK=100)



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

3.3.1 Regional Short-Term Indicators

Following the onset of the economic downturn, towards the end of 2007, an increased requirement for more timely regional statistics was highlighted to monitor the state of the economy at a regional level. The Regional Short-Term Indicators Pilot project was developed by the Office for National Statistics with assistance from the Regional

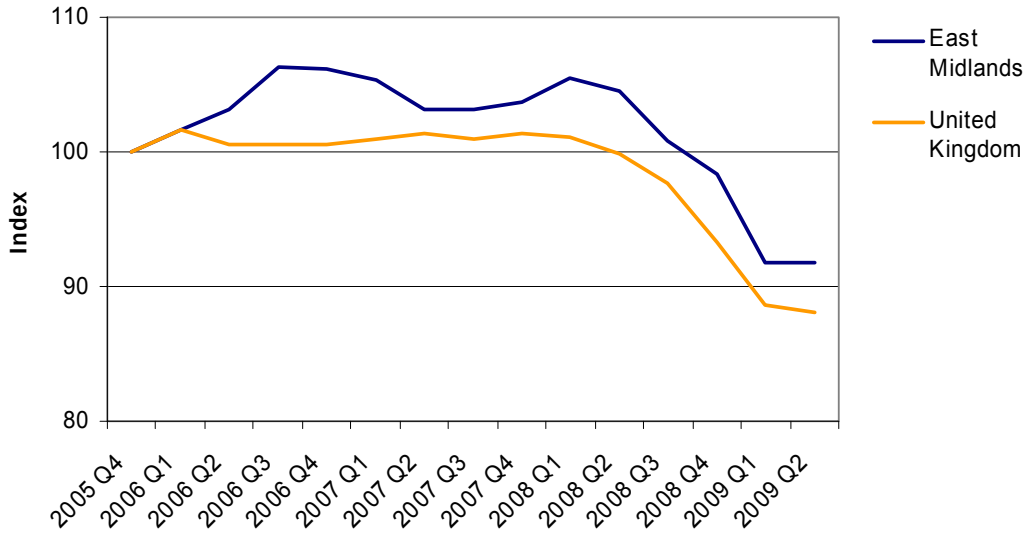
[13] ONS have investigated the fall in GVA per filled job and GVA per hour worked between 2004 and 2005 in the East Mid lands. It ha s be en s uggested tha t a nu mber of contr ibuting fac tors inclu ding re al chan ge, methodological issues and statistical variation are responsible for this anomaly.

Development Agency network to fulfil this requirement. The output of the project has been the publication of a series of regional output indexes providing quarterly data from 2005 quarter four for the production, construction and market services sectors.

Analysis of these indicators provides a clearer picture of the direction of growth in these sectors and a number of their sub-sectors. Caution should, however, be used in analysis of the exact magnitude of growth as they are experimental data and have not been published as National Statistics.

Chart 5 shows that the production sector has been significantly affected due to the economic downturn and onset of the recession. The sector experienced a degree of stability between 2005 quarter four and 2008 quarter one where the East Midlands consistently tracked growth above that of the UK. Following the onset of the economic downturn the production sector experienced a significant decline in output, falling well below levels experienced since 2005 quarter four. The sub-sector of manufacturing experienced one of the steepest declines in output over the same period, with the East Midlands being affected to a greater extent than the UK as a whole.

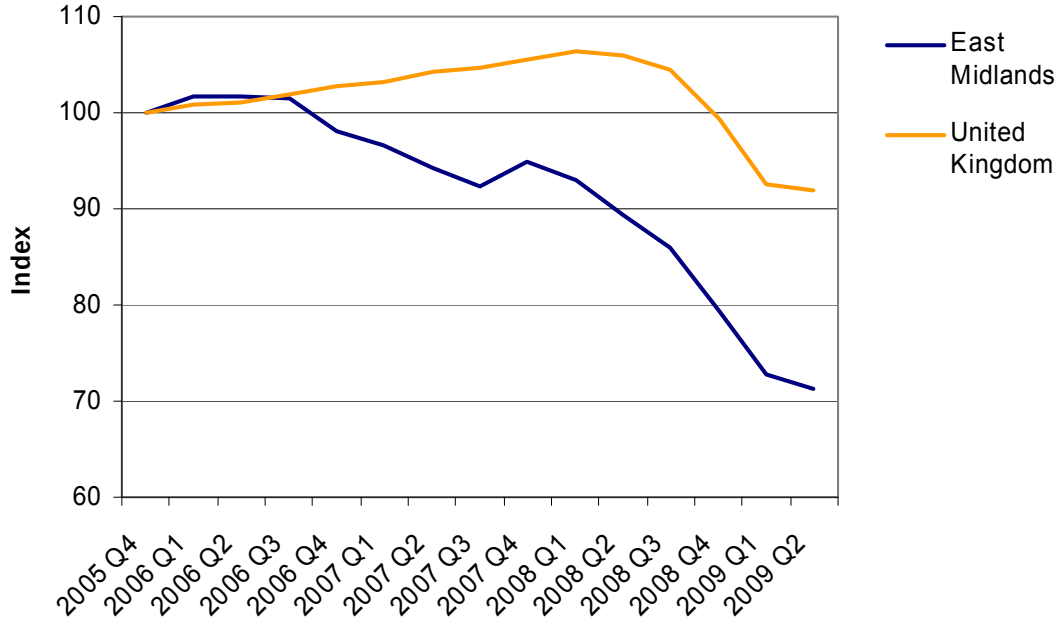
Chart 5: Index of production, 2005 quarter four – 2009 quarter two, (2005 quarter four = 100)



Source: Regional Short-Term Indicators Pilot, Office for National Statistics, January 2010.

The construction sector has experienced a downward trend in output in the East Midlands since 2006 quarter three, contrary to the slight growth experienced nationally. However, the economic downturn had a significant and negative impact on businesses confidence and ability to invest which in turn reduced output in the construction sector in both the East Midlands and UK. Chart 6 shows that the negative effects were considerably more pronounced in the East Midlands than in the UK. The data also suggests that construction output in the region began to fall from 2007 quarter four, almost two quarters before a discernable impact was experienced in the UK as a whole.

Chart 6: Index of construction, 2005 quarter four – 2009 quarter two, (2005 quarter four = 100)



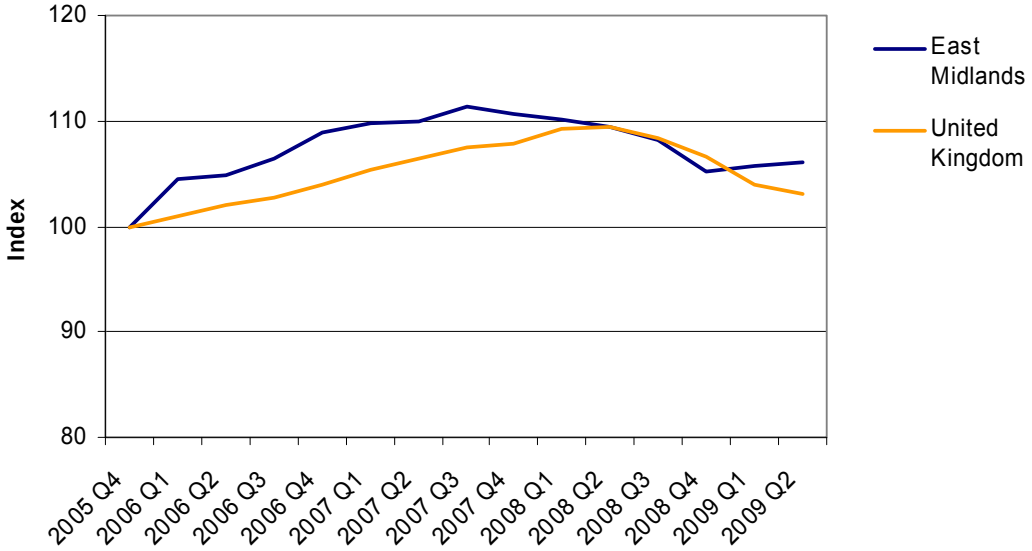
Source: Regional Short-Term Indicators Pilot, Office for National Statistics, January 2010.

In contrast to the sectors of production and construction, market services has performed relatively well during the recession. Between 2005 quarter four and 2008 quarter two, the sector experienced significant growth. Between 2008 quarter two and 2008 quarter four the sector experienced a fall in output. However, levels remained above those of 2005 quarter four.

In 2008 quarter four, output from the market services sector in the East Midlands stabilised and experienced a slight increase in growth to 2009 quarter two. Over the same period output in the UK as a whole continued to fall.

Within this sector the sub-sector of hotels & restaurants experienced the greatest fall in output, whilst business services demonstrated a higher level of resistance to the recession than most other sub-sectors.

Chart 7: Index of market services, 2005 quarter four – 2009 quarter two, (2005 quarter four = 100)



Source: Regional Short-Term Indicators Pilot, Office for National Statistics, January 2010.

3.3.2 Sub-regional performance

Data on sub-regional performance is more limited. GVA per head by NUTS3[14] area is available for 2007 (the latest available) and is displayed in Chart 8. As this is a workplace based measure, at this level of sub-regional geography commuting patterns skew the data. This leads to an overstatement of GVA per head in areas that encompass larger proportions of workplaces relative to resident population e.g. the three cities of Nottingham, Derby and Leicester. Keeping this in mind, the data provides a useful indication of differing levels of economic activity and performance in the region. Chart 8 shows the sub-regional disparities that exist in the East Midlands:

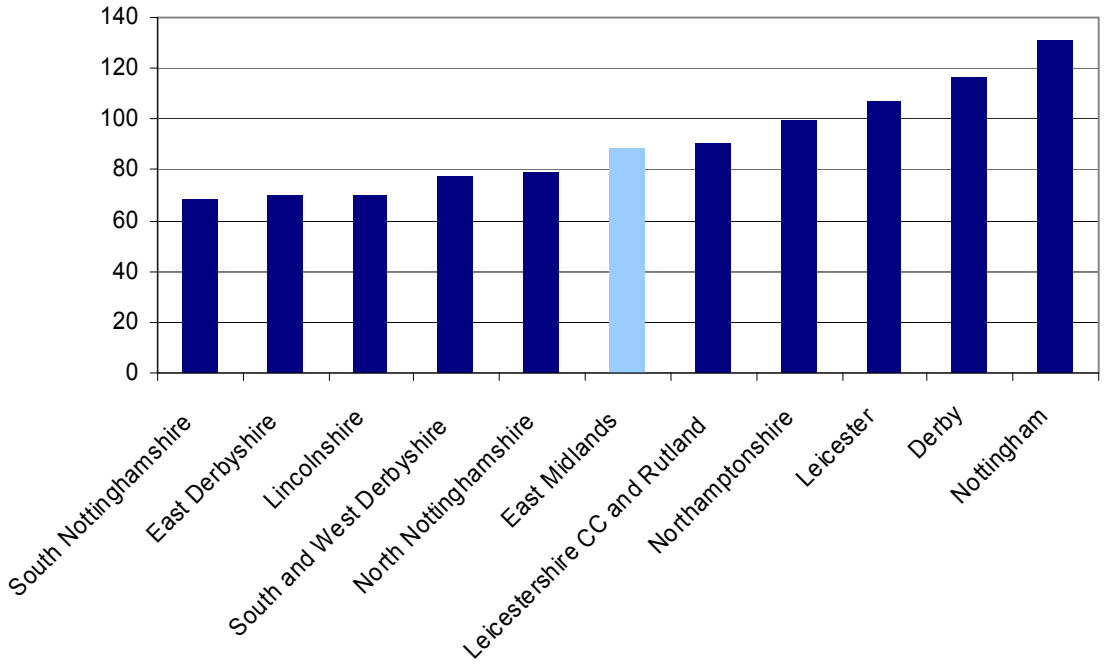
- GVA per head is highest in Nottingham City and Derby, where the levels are 31% and 16% above the UK average respectively;
- GVA per head is also above the UK average in Leicester City (by 7%), whilst Northamptonshire has GVA per head equal to the UK average;
- GVA per head is above the East Midlands average (88% of UK average) in these four areas and Leicestershire and Rutland;
- South Nottinghamshire, East Derbyshire and Lincolnshire have the lowest levels of GVA per head within the region, at just 67%, 70% and 70% of the UK average

[14] Nomenclature of Units for Territorial Statistics (NUTS) areas were created by Eurostat as a hierarchical classification of spatial units used for statistical production across the European Union. NUTS3 regions are Counties, Unitary Authorities or groups of Local Authority districts.

respectively. It should be noted that these areas, more than most, experience a high level of out commuting, skewing the data; and

- GVA per head is also below both the UK and East Midlands averages in South and West Derbyshire (77%) and North Nottinghamshire (79%).

Chart 8: Index of GVA per head by NUTS3 region in the East Midlands, 2007, (UK=100)



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

Between 1997 and 2007 there has been a reduction in the gap between the best and worst performing sub-regions in the East Midlands from 79 percentage points to 62 percentage points. This has been brought about through a reduction in GVA per head in Nottingham from 145% of the UK average to 131% and an increase in South Nottinghamshire from 66% to 69% over this period. Commuting patterns are likely to be responsible in part for this change along with the changes to the labour market and demography in these areas. More information on this can be found in the Demography chapter.

Derby has experienced the greatest fluctuation on this measure increasing from 104% of the UK average in 1997 to 125% in 2001, before falling back to 116% in 2007.

Derby, East Derbyshire, South Nottinghamshire and Northamptonshire have all experienced growth relative to the UK average in this time period, whilst South and West Derbyshire, Nottingham, North Nottinghamshire, Leicester and Leicestershire, Lincolnshire and Rutland have all fallen.

3.3.3 EU regional performance

It is important that the region remains competitive within a European context, increasing the attractiveness of the region to investment from overseas. Strong international business links promote growth and stability making the region more resilient to domestic shocks in the economy.

One measure used to compare productivity between EU regions is Gross Domestic Product (GDP) using an artificial currency known as Purchasing Power Standards (PPS)[15] and is based on Purchasing Power Parities (PPP).[16] Data is limited at regional level and is not provided for all European regions but offers an insight into the relative productivity of many regions. Chart 9 shows the five regions with the highest output per head and the five regions with the lowest output per head in Europe, as well as the East Midlands.

- In 2006, output per head in the East Midlands was 25,300pps. This is around a third of that in Inner London (the leading region in the EU with output of 79,400pps) but over four times greater than the Romanian region of Macroregiunea doi (the poorest region in the EU with output per head of just 6,600pps). The East Midlands is also ranked above the average for the EU27, which is 23,600pps.

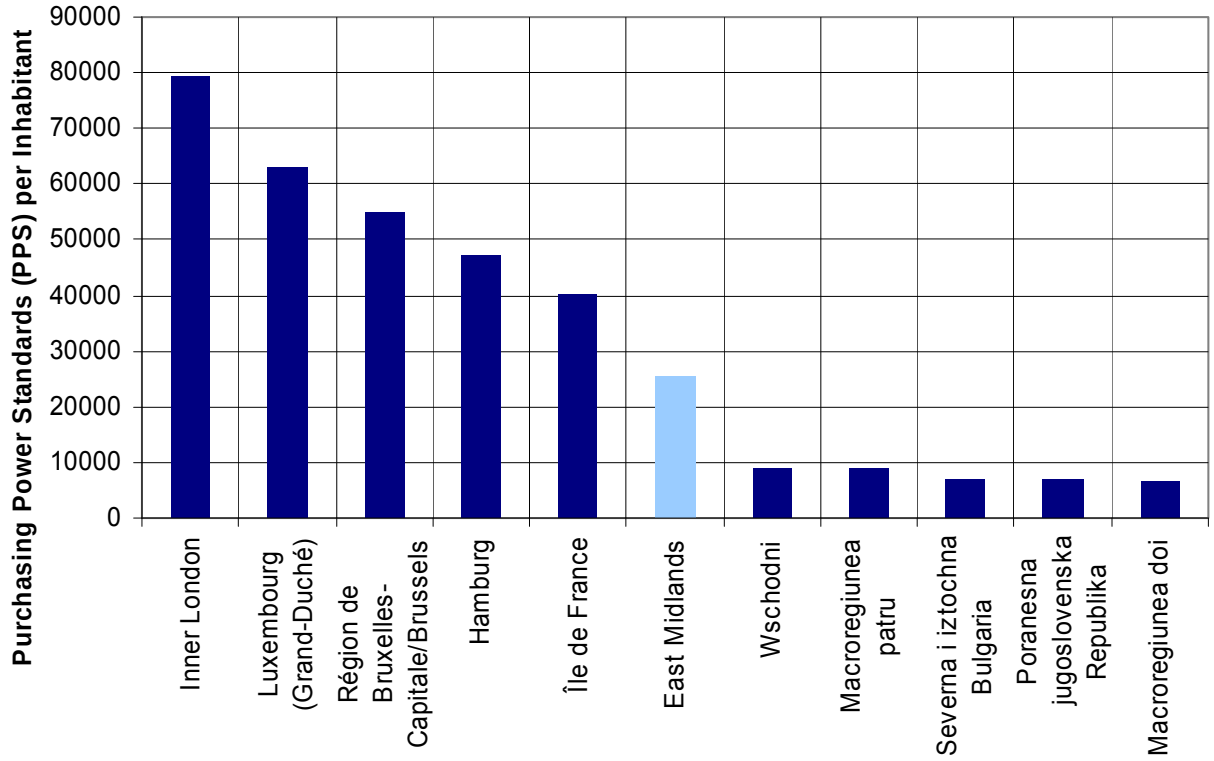
- The top performing regions all tend to be based around large, prosperous cities. This highlights the importance of cities to the prosperity of regions throughout Europe. In contrast, the lagging regions tend to be from those of recent entrants to the EU such as Poland, Romania and the Baltic States.

- There are 13 regions comparable to the East Midlands (i.e. those within +/- 5% of East Midlands output per head, as measured by PPS). These include Norra Sverige in Sweden, Südösterreich in Austria, Oost-Nederland in Holland, Centre-Est in France, Közép-Magyarország in Hungary and the West Midlands, North West and South West in the UK.

[15] "The PPS (Purchasing Power Standard) is an artificial currency that takes into account differences in national price levels. This unit allows meaningful volume comparisons of economic indicators between countries. Aggregates expressed in PPS are derived by dividing aggregates in current prices and national currency by the respective Purchasing Power Parity (PPP)" Eurostat News Release, 12th February 2008.

[16] Purchasing Power Parities (PPP) are the rates of currency conversion (much like an exchange rate) that are used to remove the differences in price levels between countries.

Chart 9: Leading and lagging NUTS1 regions in the EU, 2006 (latest available) – in relation to the East Midlands (Purchasing Power Standards (PPS) per Inhabitant)



Source: Eurostat Data Tables, Accessed February 2010.

3.3.4 Gross Disposable Household Income in the East Midlands

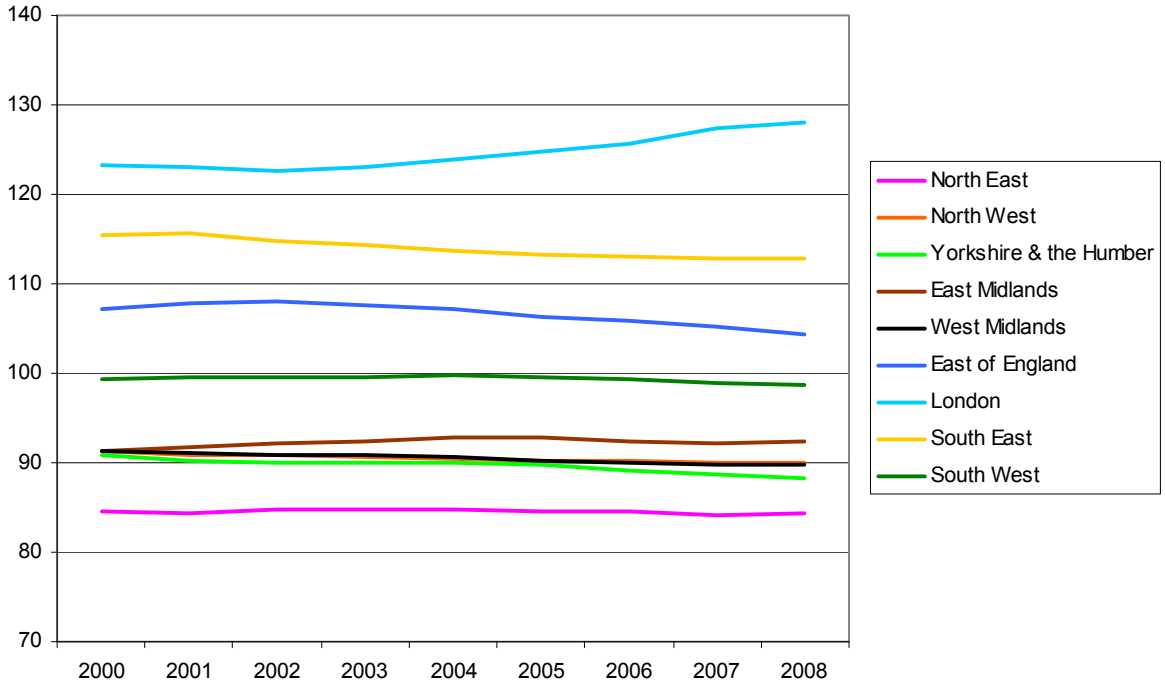
An alternative measure of economic performance is Gross Disposable Household Income (GDHI). This is the total household income less income and property taxes and National Insurance and social contributions. This provides a picture of how much money the household sector actually has at their disposal to spend or save.

This section uses the latest data provided by the Office for National Statistics. Between 2007 and 2008, GDHI per head in the UK increased by 3.9% from £14,300 to £14,900. Over the same period the East Midlands experienced an increase of 3.3% from £13,200 to £13,600.

Using indexed GDHI per head it is possible to show how the nine Government Office regions have performed relative to the UK (UK=100). Chart 10 shows that London has been the top performing region on this measure whilst the North East has performed relatively badly. In 2008, GDHI in London was 28% above the UK average whilst it was just 84% of the UK average in the North East.

GDHI in the East Midlands has remained relatively stable, fluctuating between 91% and 93% of the UK average between 2000 and 2008.

Chart 10: Indexed GDHI per head (UK=100), 2000 – 2008(p)



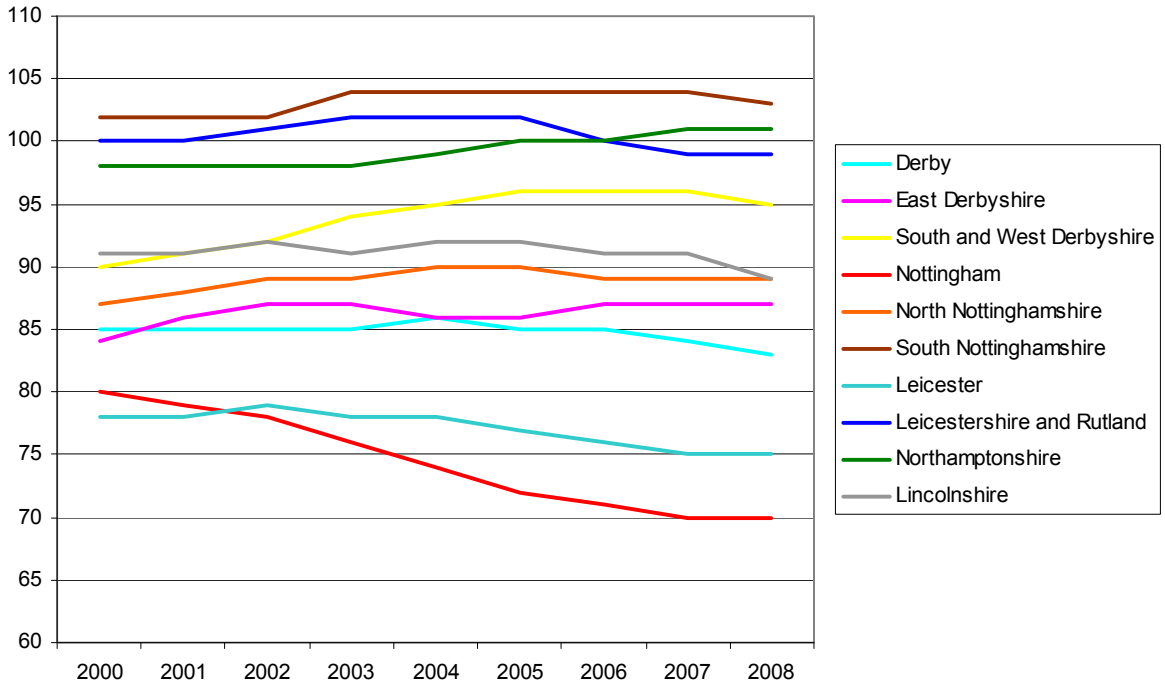
Source: Regional Accounts, Office for National Statistics, 2010.

The data for NUTS3 areas shows that there are large sub-regional disparities in this measure. There is currently a gap of 33 percentage points separating the NUTS3 regions in the East Midlands. There is a sharp contrast to the GVA data as the commuting effects are absent from the data. This clearly shows that the most affluent areas of the region are to the south and tend to be more rural areas.

Of the NUTS3 areas, only South Nottinghamshire and Northamptonshire were above the UK average in 2008. Derby, East Derbyshire, Nottingham, North Nottinghamshire, Leicester and Lincolnshire all have GDHI per head of less than 90% of the UK average.

Since 1997 GDHI in the NUTS3 areas has remained relatively stable with the exception of South and West Derbyshire and Nottingham. GDHI per head in South and West Derbyshire increased from 90% of the UK average in 2000 to 95% in 2008. In contrast, in Nottingham there has been a decline, falling from 80% of the UK average in 2000 to 70% in 2008.

Chart 11: Indexed GDHI per head (UK=100), 1997 – 2008 (p), by NUTS3 areas



Source: Regional Accounts, Office for National Statistics, 2010.

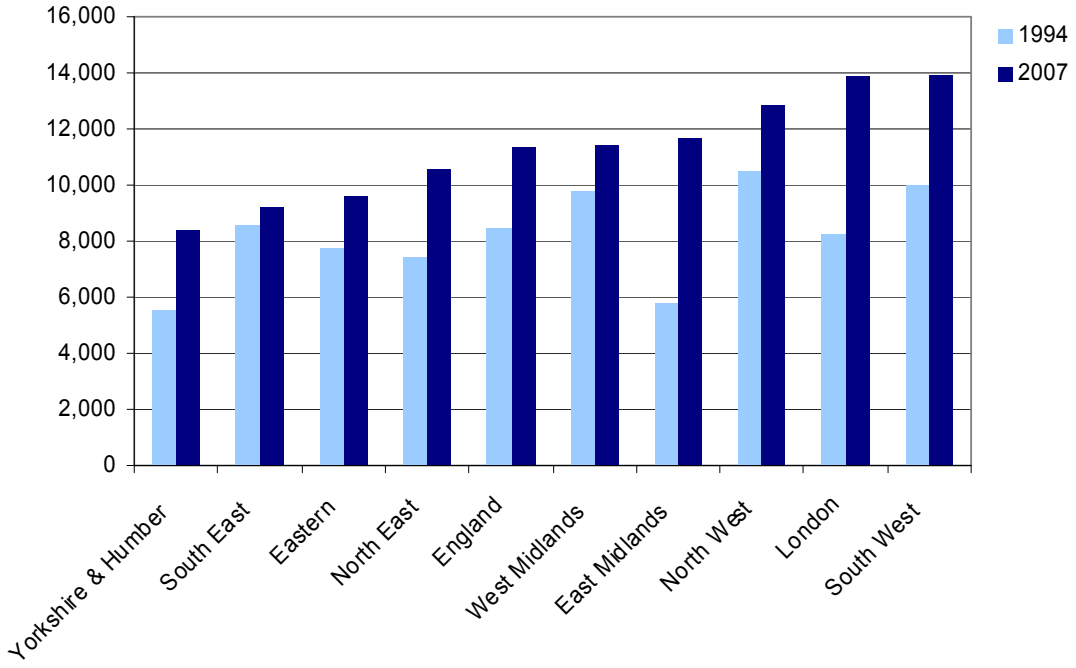
More information on earnings, a key component of GDHI, in the East Midlands can be found in the Labour Market chapter *of The East Midlands in 2010.*

3.3.5 Economic wellbeing in the East Midlands

The previous section highlighted differences in productivity and hours worked between countries. It suggested that a range of factors contributed to the individual decisions that led to those macroeconomic outcomes and their associated consequences for quality of life and economic wellbeing. In recent years there has been significant interest in measuring wellbeing and this sub-section presents a short analysis of the Regional Index of Sustainable Economic Wellbeing (RISEW).

The RISEW is a composite indicator that seeks to measure the different factors that contribute to economic wellbeing in monetary terms. It starts with consumer expenditure, and a series of adjustments are made to account for economic, social and environmental factors. The most recent data shows that in 2007, RISEW per person in the East Midlands was £11,689, representing a significant increase on the levels experienced in 1994.

Chart 12: Regional Index of Sustainable Economic Wellbeing per capita 1994-2007 (£)



Source: RISEW, nef, autumn 2009.

Chart 12 shows the RISEW for the English regions. It is immediately apparent that this is quite different to the data on gross value added presented in Figure 5.3. The highest level of RISEW per capita in 2007 was £13,946 in the South West. London, which has the highest level of GVA per capita, has RISEW per capita of £13,818. RISEW per capita was lowest in Yorkshire and the Humber, at £8,357 followed by the South East, at £9,214. Again, this contrasts with GVA per capita which is lowest in the North East.

Chart 12 also shows how RISEW per capita has changed over time. Between 1994 and 2007 RISEW per capita has increased by 102.5% in the East Midlands, significantly more than the average of 35.0% for England and the fastest of all the English regions. Among the nine English regions the East Midlands has risen from eighth in 1994 to fourth in 2007. Much of the change in the region has been driven by a reduction in environmental costs as a result of improvements in the costs of resource depletion and air pollution. There has also been significant growth in RISEW per capita in Yorkshire and the Humber (51.0%) and London (68.2%). The slowest growth in RISEW per capita has been in the South East (8.0%) and the West Midlands (16.5%).

Key Points: Output and productivity in the East Midlands

- In 2007, Gross Value Added (GVA) per head in the East Midlands was 88% of the UK average.
- The East Midlands is currently ranked fourth and fifth respectively of all the English regions on GVA per filled job and GVA per hour worked measures of productivity.
- GVA per head is highest in Nottingham City and Derby, where the levels are 31% and 16% above the UK average respectively.
- South Nottinghamshire, East Derbyshire and Lincolnshire have the lowest levels of GVA per head within the region, at just 67%, 70% and 70% of the UK average respectively.
- Gross Disposable Household Income in the East Midlands has remained relatively stable compared to the UK level, fluctuating between 91% and 93% of the UK average between 2000 and 2008.
- Looking at international comparisons of output, the East Midlands experiences output per head at around a third of that seen in Inner London (the leading region in the EU) but over four times greater than the Romanian region of Macroregiunea doi (the poorest region in the EU). The East Midlands is also ranked above the average for the EU27.
- Economic wellbeing, as measured by the RISEW, experienced rapid growth between 1994 and 2007 in the East Midlands and is currently above the UK average.
- The recession has had a significantly larger negative impact on the sectors of construction and manufacturing in the East Midlands than nationally. Market services has held up reasonably well.

3.4 Drivers of productivity in the East Midlands

It has been established that regional productivity is of prime importance to the growth and stability of the UK economy. Whilst improvements in productivity are generated from producers, they have direct impacts on consumers in the form of lower prices, higher quality and more innovative goods and services.[17] Productivity growth, therefore, has the potential to benefit both producer and consumer welfare alike.

There has been a substantial body of literature written on the subject of regional productivity and competitiveness. Whilst this literature offers no consensus as to the extent to which regions compete, it does identify a number of factors which affect regional economic performance. These include: productive capital (the region's economic and business structure), human capital (labour force skills and qualifications), creative capital (knowledge, innovation and entrepreneurship), infrastructure, socio-institutional capital

[17] Productivity and Competition: An OFT perspective on the productivity debate. Office of Fair Trading, January 2007.

(business networks and associations, workplace traditions, public organisations etc.) and cultural capital (range and quality of cultural assets and facilities).[18]

The Government has produced an economic performance framework with two main long-term objectives. The first objective is to maintain macroeconomic stability allowing individuals and businesses to have the certainty they need to make long-term investment decisions. The second objective is to introduce microeconomic reforms to tackle market failures associated with the drivers of productivity.

The five key drivers of regional productivity that underlie long-term economic performance work in synergy and should therefore be developed together. The five drivers are:

- Investment;
- Innovat ion;
- Skills;
- Enterpr ise; and
- Competit iveness.

This section will use the five drivers to analyse the position of the UK relative to its key competitors, and the East Midlands relative to other English regions. This section will examine four of these drivers in detail – skills will be covered in depth in the Labour Market chapter of The East Midlands in 2010.

3.4.1 Investment

Investment in the UK had increased prior to the recession, due to a prolonged period of economic stability and stable interest rates. In this section the term 'investment' is used to describe all business investment by UK and foreign owned companies. The current recession will have an impact on investment, through tighter credit conditions that will not be captured by the data for two to three years.

Investment is a key driver of productivity as increasing the quality and use of capital allows a greater level of output to be produced from the same level of inputs e.g. investment in training for a single worker increases the capital that the worker can utilise, enabling them to produce a higher level of output. Studies have shown that capital per worker in the UK is significantly lower than its major competitors of the USA, France and Germany. Investment in physical capital would go some way to closing the gap.[19] It is estimated that every 1 percentage point increase in total investment leads, in the long-term, to a 0.05 percentage point increase in the growth rate of labour productivity.

[18] Thinking About Regional Competitiveness: Critical Issues, Martin, R, University of Cambridge, *emda* RES evidence commission, August 2005.
[19] Cross-country productivity performance at sector level: the UK compared with the US, France and Germany. BERR Occasional paper No 1, February 2008.

Foreign Direct Investment (FDI) is one method through which the UK can directly benefit from investment by foreign firms. Firms may look at many parts of a country's economy (fiscal system, labour market, geography etc.) before making an investment decision. The more prosperous and stable an economy, the more open and attractive it will be to FDI. Stable and attractive conditions in the UK have led to high levels of FDI compared to the UK's major competitors. The key benefits from FDI include:

- Utilisation of innovative practices and technology that were developed abroad in domestic production;
- Increased domestic competition stimulating production and the diffusion of innovative processes; and
- Spillovers increasing the productivity of domestic firms.[20]

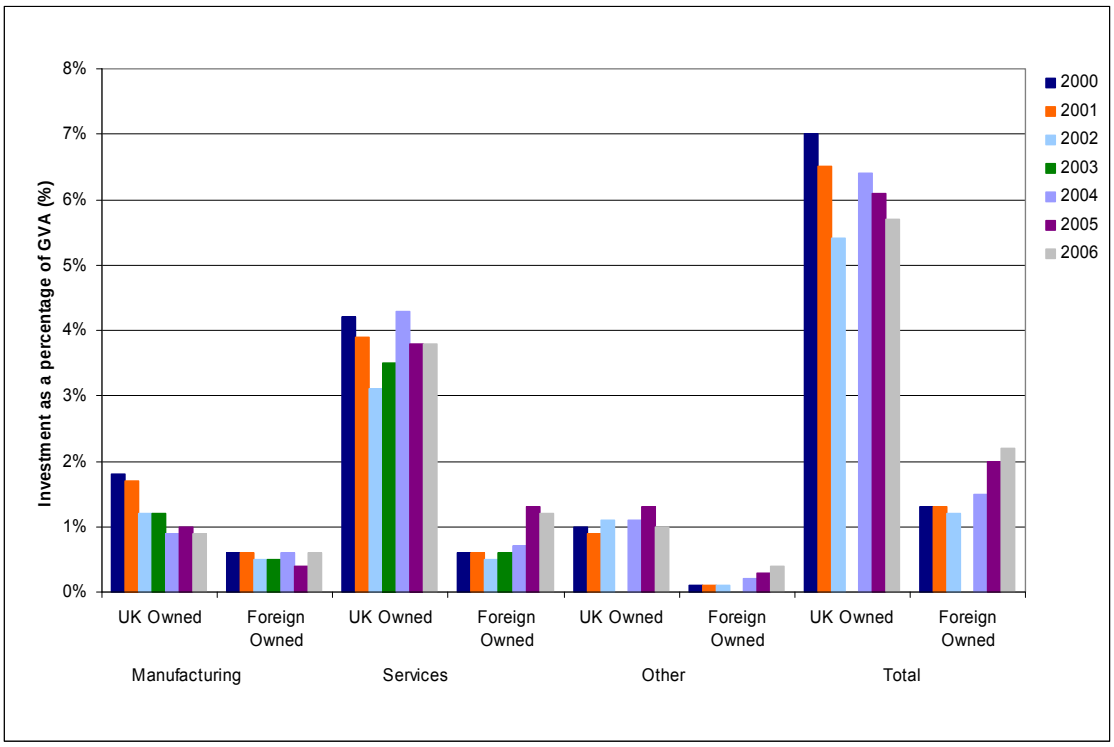
A body of literature exists that gives weight to the argument that foreign owned firms are generally more productive than incumbent firms, in some cases by up to 25%.[21] A study looking into FDI in the UK concluded that foreign firms, in particular US owned multinationals, which operate in the UK, are more productive than their UK owned counterparts.[22] This suggests that there may be a higher return to foreign investment, making it an attractive proposition for governments to pursue.

Chart 13 shows investment by UK and foreign owned companies in the East Midlands as a proportion of regional GVA. It can be seen from the chart that, in 2006, the level of investment by UK owned firms appeared to have been in decline whilst investment from foreign owned firms appeared to be rising.

The global nature of the economic downturn has affected the ability and desire for firms to invest in the UK, either from domestic firms or foreign firms in the form of FDI. The magnitude of the decline in investment will become clearer as published statistics begin to pick up the effects of the economic downturn, in the next two to three years.

[20] Productivity in the UK 6: Progress and New Evidence, HM Treasury and the Department of Trade & Industry, March 2006.
[21] Foreign Ownership and Productivity: New Evidence from the Service Sector and the R&D Lab, Griffith, R, Redding, S,J, Simpson, H, October 2004.
[22] Multinationals and US Productivity Leadership: Evidence from Great Britain, Criscuolo, C, Martin, R.,OECD, April 2004.

Chart 13: Investment by UK and foreign owned companies in the East Midlands as a percentage of regional GVA



Source: Annual Business Inquiry and Regional Accounts, Office for National Statistics, 2009, available from 'Regional Economic Performance Indicators', BIS, May 2009, 2009.
Note: Data for 2003 'other' and 'total' is missing due to disclosure controls.

- In 2006 the level of investment by UK owned companies was equivalent to 5.7% of GVA in the East Midlands. This is 0.3 percentage points higher than in 2002 (5.4%) but remains considerably lower than the peak of 7% in 2000. Investment by UK owned companies in the East Midlands is currently 0.3 percentage points below the UK average but above the levels experienced in the South West (4.9%), East of England (5.1%), London (5.2%) and the North East (5.4%)

- There has been less volatility in the level of investment by foreign owned companies than by UK owned companies. In 2006 the level of investment by foreign owned companies was 2.2% of GVA, which is the highest level of investment recorded. The East Midlands is currently ranked second on this measure behind the North East (2.5%) and is 0.4 percentage points above the UK average.

A breakdown of the data by broad sector is also available and is also shown in Chart 13. This shows that:

- Investment by UK owned manufacturing companies in the East Midlands declined from 1.8% of GVA in 2000 to 0.9% in 2006. This level of decline in investment mirrors national trends. The UK average has declined from 1.3% in 2000 to 0.6%

in 2006. Investment by UK owned manufacturing companies is highest in the North West, at 1.0% of GVA, and lowest in London, at 0.1%;

- The level of investment by foreign owned manufacturing companies has remained relatively stable, fluctuating between 0.4% and 0.6% of GVA from 2000 to 2006. Investment is currently 0.2 percentage points above the UK average and compares favourably with other regions. Only foreign owned manufacturing companies in the North East invested relatively more;

- Investment by UK owned service companies has remained consistently greater than among manufacturing companies between 2000 and 2006. The level of investment by UK owned service companies has fallen from 4.2% of GVA in 2000 to 3.8% in 2006. This has brought the East Midlands in line with other regions of the UK, and is currently 0.6 percentage points below the UK average; and

- There has been an increase in the level of investment by foreign owned service companies in the region from 0.6% of GVA in 2000 to 1.2% in 2006. This is against a relatively stagnant national trend.

3.4.2 Innovation

This sub-section seeks to outline the links between innovation, growth and productivity. The area of innovation has received significant attention over the last few years. The Office for National Statistics defines innovation activity in the following way:

> "We define innovation activity here as where enterprises were engaged in any of the following:
>
> - Introduction of new or significantly improved products (goods or services) or processes;
> - Engagement in innovation projects not yet complete or abandoned; and
> - Expenditure in areas such as internal research and development, training, acquisition of external knowledge or machinery and equipment linked to innovation activities" (ONS, Economic Trends, 2006 page 59).

Without innovative activity an economy would be limited in its capacity to grow.

HM Treasury states that one key area of innovation policy is the strengthening of links between universities and business. Between 2000-2001 and 2005-2006, universities experienced an increase in their income generated by business of more than 100% and growth in income from licensing arrangements of more than 200%.[23] Despite having a strong academic base, the UK still lags behind its major competitors in terms of the levels of research and development and patent applications.

[23] Productivity in the UK 7, securing long-term prosperity, HMT, 2007.

The East Midlands Universities Association (EMUA) includes 10 East Midlands Universities[24], which are major regional employers and they contribute significantly to the regional economy. Universities in the East Midlands employ over 25,000 staff directly and contribute to the employment of an additional 30,000 people in the region.[25] The network of universities in the East Midlands provides not only a significant contribution to the regions labour market, but also the regions economy and capacity for innovation. According to EMUA the Higher Education sector generates around £3.3bn of GVA and an annual income of £13.8bn whilst undertaking around £260m of research.

East Midlands universities have a tradition of scientific excellence and research breakthroughs, including the development of magnetic resonance imaging (MRI) at The University of Nottingham and genetic fingerprinting at Leicester. Research strengths in the region include biological sciences at Leicester, the built environment at Loughborough and engineering disciplines at Nottingham, Leicester and Loughborough. The 2008 Research Assessment Exercise (RAE) highlighted the quality of research being conducted by higher education institutions in the UK. The report judged 17% of research conducted in UK HEIs to be world-leading and 37% as internationally excellent, towards which HEIs in the East Midlands contribute significantly.

The Higher Education (HE) sector is a key player in innovation and knowledge exchange. The HE sector has been proactive in employer engagement for learning and teaching and responding to the needs of businesses and individuals during the recession.[26]

There is a significant body of literature addressing the subject of innovation. Schumpeterian growth theory[27] suggests that innovative activity is sparked in firms when there is a perceived threat from foreign firms. This is backed up by Aghion et al (2007 pg23):[28]

> "Threat of technologically advanced entry encourages incumbent innovation and productivity growth in sectors that are initially close to the technological frontier, whereas it may discourage incumbents in sectors further behind the frontier."

This statement suggests that firms that are close to the technology frontier in a strong market position will seek to maintain their advantage through innovation. Firms that are already further behind the frontier may not experience an economic benefit to such innovation due to the lower expected returns from innovating.

[24] Bishop Grosseteste University College Lincoln, University of Derby, De Monfort University Leicester, University of Leicester, University of Lincoln, Loughborough University, the University of Northampton, The University of Nottingham, Nottingham Trent University, The Open University. http://www.emua.ac.uk/pages/members.html
[25] East Midlands Universities Association (EMUA) http://www.emua.ac.uk/he/economic.html
[26] East Midlands Universities Association (EMUA) http://www.emua.ac.uk/he/business.html
[27] Schumpeter, J. (1942), Capitalism, Socialism and Democracy. Harper and Row.
[28] The Effects of Entry on Incumbent Innovation and Productivity, Aghion ,P , et al, 2007

Innovation is heavily dependent on the available skills of the workforce. A recent report[29] summarises the direct and indirect linkages between skills, innovation and enterprise with productivity and regional performance. Each of the drivers, skills, enterprise and innovation, have direct and indirect implications for regional (and firm) productivity. Innovation is significantly influenced by skills: academic skills, research skills and creativity are examples of skills that enhance innovation activity and knowledge creation. However, management and entrepreneurial skills are also crucial to turn innovative ideas into economically valuable business opportunities.

Innovative activity is subject to a high level of competition increasing the need to protect innovative products or processes. Patents exist to protect the inventor from competitors emulating their inventions and benefiting from them. In reality patents are so specific that opportunities to engineer or "innovate around" the patented product exist, as noted by the then DTI (2005).[30] As noted by Striukova (2007),[31] Mansfield et al (1981)[32] in their influential paper suggest that around 60% of patents are imitated within four years of the patent being issued. This has been widely quoted in subsequent work, see Grandstand (2004).[33] When a firm decides to invest in innovation, a key decision they must make is whether they will be able to gain a suitable level of return for the effort they put in. To increase the size of the return and the time period it can be extracted over, firms utilise a range of tools to protect themselves.

Research and development (R&D) is conducted to enhance the position of a firm in a market. Research has suggested that the social return to private investment far outweighs the private return. Griliches et al (2000)[34] found excess return to firms is around 10% whilst the social return is 25% (these figures are only relevant for privately financed research). Although many studies miss important elements of R&D expenditure or spillovers e.g. the international affects of R&D it can still be said that R&D produces social benefits that outweigh the private return. The fact that spillovers occur and firms are not able to enjoy the full benefit of an investment in innovative activities is an example of market failure and provides a justification for public policy to address the imbalance.

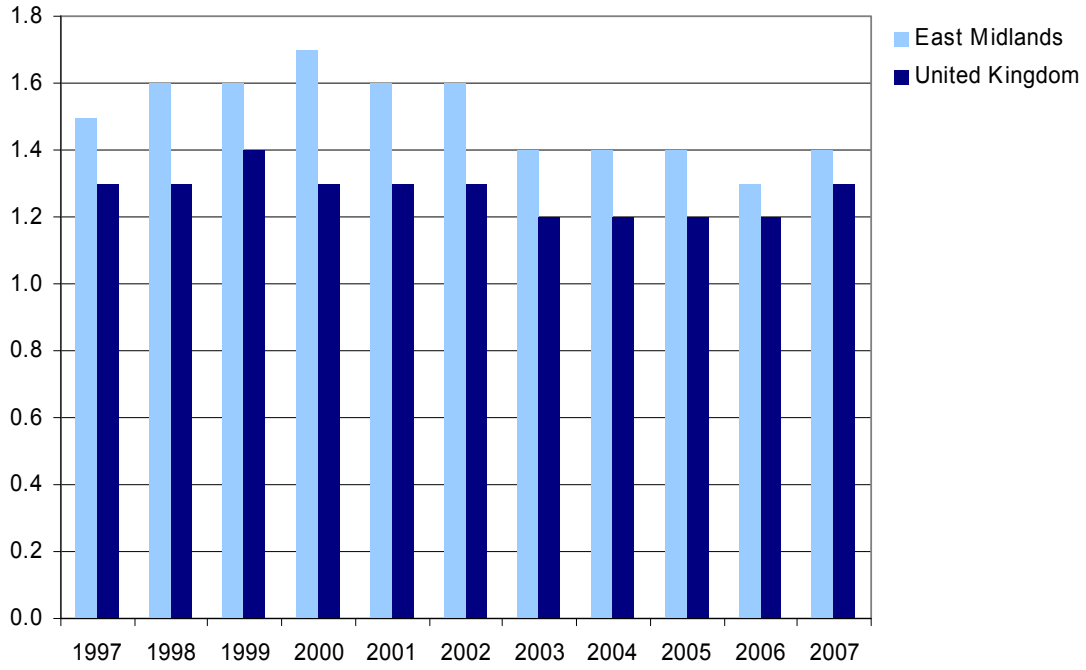
3.4.2.1 Business enterprise research and development (BERD)

Business enterprise research and development (BERD) measured as a percentage of GVA gives an indication of the level of innovation activity that is generated from within firms operating in the UK. BERD has been consistently higher in the East Midlands than the UK average between 1997 and 2007. Placing this data alongside more anecdotal

[29] Source: Gambin Lynn et al., Warwick Institute for Employment Research, University of Warwick, commissioned on behalf of *emda,* 'Exploring the links between skills and Productivity', 2009.
30 Creativity, Design and Business Performance, DTI Economics Paper, DTI, November 2005.
31 Striukova, L, (2007), Patents and corporate value creation: theoretical approach, Journal of Intellectual Capital.
32 Imitation Costs and Patents: An Empirical Study, Mansfield, E, Schwartz, M, and Wagner, S, The Economic Journal, Vol. 91, No. 364, 1981.
33 Grandstand, O. (2004), Economics, Law and Intellectual Property, Boston.
[34] Do subsidies to commercial R&D reduce market failures? Microeconometric evaluation studies, Department of Economics, University of Oslo, Griliches et al, 2000.

evidence suggests that, whilst the East Midlands has a higher than average level of BERD, this is concentrated in a relatively few large multinational firms with many smaller firms in the region spending very little on R&D. It is unclear how the recession will impact on R&D expenditure. For some businesses it will be viewed as an item of expenditure that can be cut back, while for others it will be viewed as an essential means of competing in their market.

Chart 14: Business enterprise research and development as percentage of GVA, 1997-2007



Source: Business Enterprise R&D Survey and Regional Accounts, Office for National Statistics. Available from 'Regional Economic Performance Indicators', BIS, May 2009.

- As Chart 14 shows, in 2007 BERD in the East Midlands was equal to 1.4% of GVA and has remained at roughly this level since 2003. It is currently 0.1 percentage points greater than the national average.

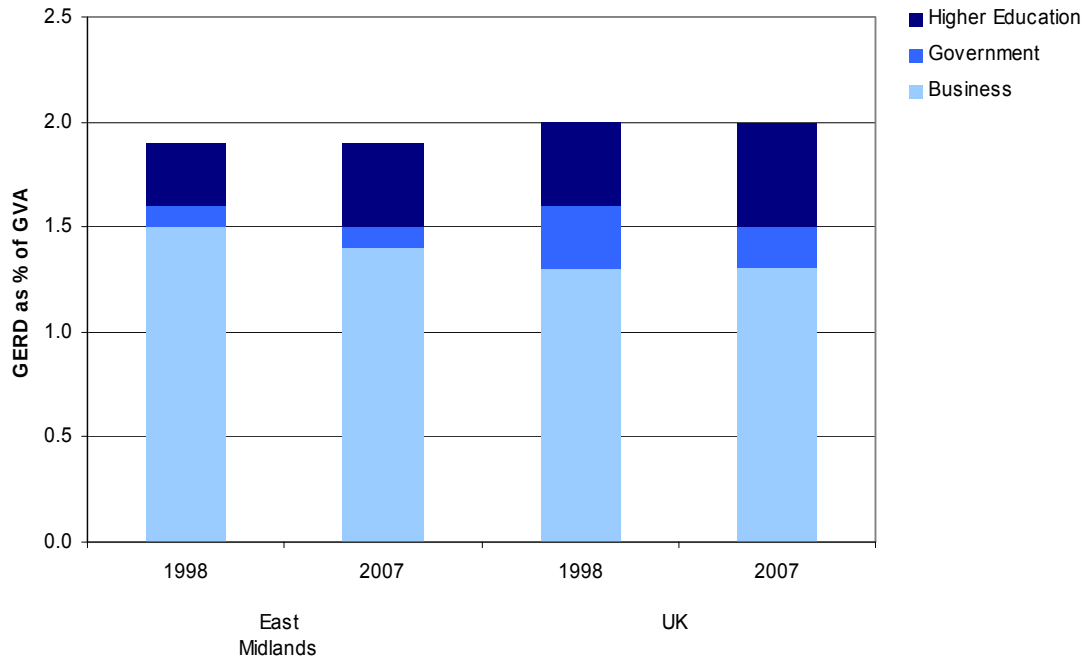
- The East Midlands has experienced a decline in the level of BERD between 2000 and 2007 falling from 1.7% of GVA to 1.4%. In contrast BERD in the UK has remained relatively stable over this period, fluctuating between 1.3% and 1.2% between 2000 and 2007.

- Regions with the highest level of BERD in 2005 were the East of England and the South East, at 4.1% and 2.0% of GVA respectively.

3.4.2.2 Gross domestic expenditure on research and development

As well as BERD, spending in the public sector via Government and Higher Education both contribute to the total level of spend on R&D. Due to the structural nature of these two additional contributions to BERD they are substantially less variable over time.

Chart 15: Gross domestic expenditure on research and development as % of GVA, 1998 and 2007



Source: Government R&D Survey and Regional Accounts, Office for National Statistics. Available from 'Regional Economic Performance Indicators', BIS, May 2009.

- It can be seen from Chart 15 that Higher Education is the next largest contributor to expenditure on R&D after business. Levels of spending on R&D from Higher Education in the East Midlands, at 0.4% of GVA, are currently below the national average of 0.5%. In 2007, only the West Midlands and the South West had lower expenditure on R&D from Higher Education than the East Midlands.

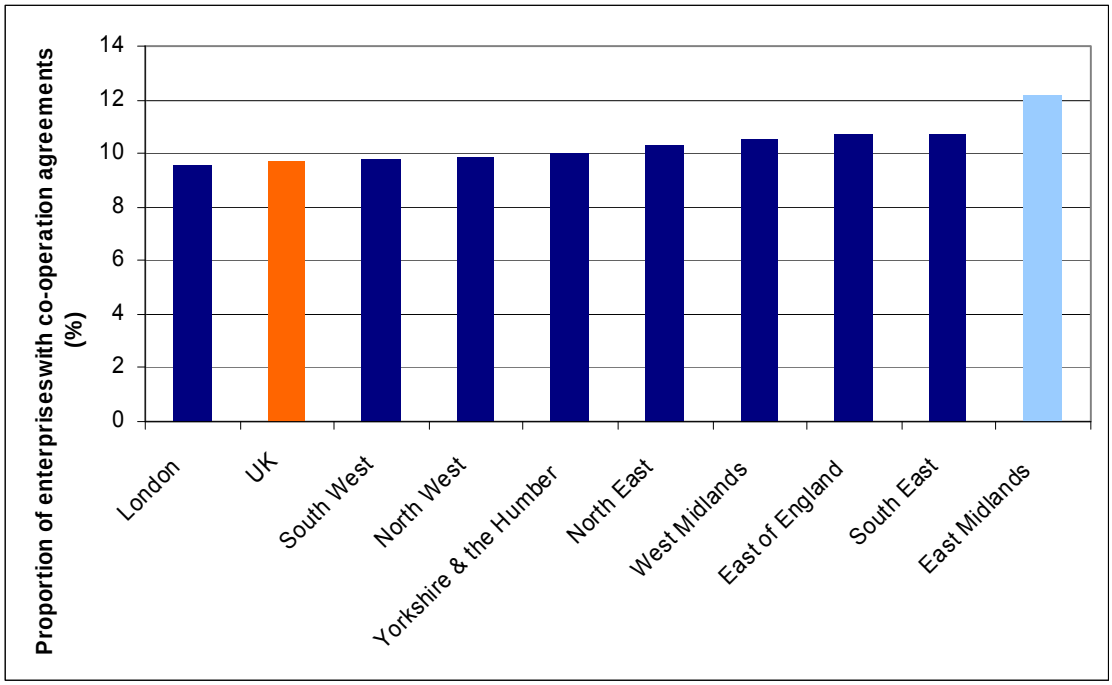
- Levels of Government R&D remain low in the East Midlands, currently equivalent to just 0.1% of GVA, half the national average of 0.2%. Government expenditure on R&D remains concentrated in the East of England, the South East and the South West.

- Gross domestic expenditure on R&D has decreased by 0.1 percentage points in the East Midlands between 1998 and 2007. This is in contrast to the increase experienced nationally, of 0.1 percentage points.

3.4.2.3 Proportion of enterprises with co-operation agreements on technological innovation

Co-operation agreements are a key part of the innovation process allowing information on innovative activities to be shared, developed and used by a wider audience. Co-operation agreements allow partners to share cost, risk and knowledge leading to substantial economic benefits.

Chart 16: Proportion of enterprises with co-operation agreements by region, 2004-2006



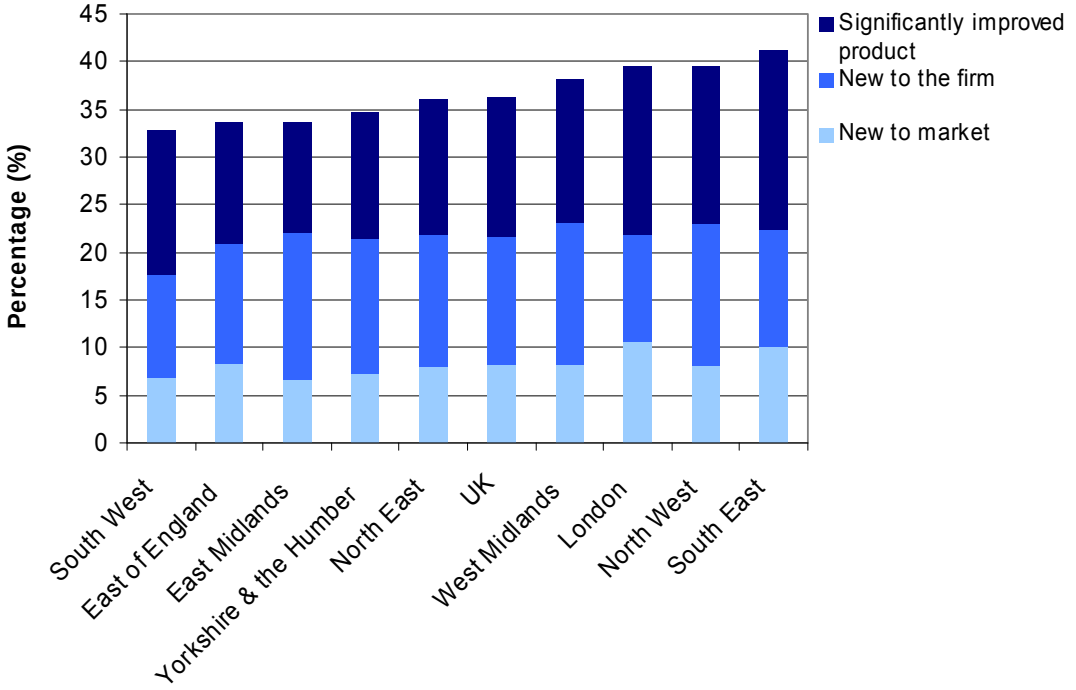
Source: Community Innovation Survey 5, Department for Trade and Industry, 2007.

Chart 16 shows that the East Midlands, at 12.2%, has the highest level of co-operation agreements of any region, placing the East Midlands above other regions such as the South East and East of England where R&D expenditure is concentrated. The UK average is relatively low (9.7%) due to the low levels of co-operation agreements in Wales (8.2%), Scotland (8.4%) and Northern Ireland (6.5%). This strength provides a solid foundation for benefitting from innovative activity in the East Midlands.

3.4.2.4 Proportion of turnover accounted for by new or improved products

The final output of the innovation process is a new or improved product or process. It is this stage of the process that creates the benefits both within the firm and the region as a whole, and enables the process of innovation to be sustained in the long-term. Data is available that shows the proportion of a businesses turnover that is attributable to new or improved products.

Chart 17: Average distribution of total turnover accounted for by product and novel innovation which is new to market, new to firm or significantly improved, 2004-2006



Source: Community Innovation Survey 5, Department for Trade and Industry, 2007.

Analysis of this data shows that the East Midlands has relatively low turnover generated from new or improved products despite the high levels of innovation activity. Chart 17 shows:

- In the East Midlands, 34% of turnover generated in firms who responded as being product or process innovators was from products or processes that were either new to market, new to the firm or significantly improved. This is 7 percentage points below the leading region of the South East;

- Of the turnover generated by product or novel innovation in the East Midlands, the highest proportion comes from innovation which is new to the firm; and

- It should be noted that although the East Midlands has one of the lowest average distributions of total turnover generated by innovation which is new to market (7%) there is very little regional variation, with most regions experiencing between 7% and 9% and London, the leading region, experiencing 11%.

The level of turnover generated by novel products or processes varies by sector. The Primary and Knowledge intensive sectors experience the highest level of turnover generated from innovative activities. Sectors such as construction and engineering-based manufacturing that are relatively more significant in the East Midlands than nationally tend to experience lower levels of turnover from innovative products or

processes. This could go some way to explaining why the region appears to lag the UK average on this indicator.

The ability to turn the research and innovative activities generated within universities into commercial success is key to fully exploiting the potential of their work. EMUA note the findings of the Higher Education-Business and Community Interaction Survey 2007-2008 which state that 610 companies are currently active, through graduate and staff start ups. Turning research excellence into commercial success will continue to be promoted through mechanisms such as the Lachesis Fund[35] and incubation units.

3.4.3 Enterprise

Enterprise enhances the business stock and increases competition. It creates an environment which stimulates creative destruction[36] leading to what is sometimes termed 'churn'. Churn is the process by which new entrants into the market force out those incumbent firms who are not able to compete. This process of creative destruction and subsequent churn allocates resources out of older/less efficient industries and into new/more efficient industries and is thus a key feature of high levels of economic performance.

Entrepreneurial activity not only describes the creation of new businesses, it can also include actions of individuals within businesses. This demonstrates that entrepreneurial activity can be affected as much by the culture within a country as by the prevailing economic conditions. Increased entrepreneurial activity can result in higher employment growth rates and the reduction of unemployment rates.[37]

The UK has performed well when looking at factors affecting the level of entrepreneurial activity. In 2008, the UK was ranked second amongst its European competitors and third globally on the measure relating to ease of doing business.[38] This report looked at the financial infrastructure and access to capital to support entrepreneurial activity of 122 countries. Although the UK has seen a slight drop from first place overall this has been due to improvements in the stability of its competitors and does not indicate a deterioration in UK performance overall.

Whilst the UK has made significant progress in recent years and is ahead of many European competitors, there is still a large entrepreneurial gap between the UK and the US. The US has higher levels of enterprises per head and a faster rate of small business growth. Embedded in the US is an enterprise culture, in which the fear of failure is not seen as a significant barrier to entry. Fear of failure comes high on the list of concerns of

[35] http://www.lboro.ac.uk/business/luel/Lachesis/pages/index.html
[36] 'Creative destruction' is a term used to describe the change in a market where a new technological development or process has been introduced creating a more efficient industry. This introduction 'shakes up' the market and forces incumbent firms to increase efficiency to survive.
[37] Linking Entrepreneurship to Growth, David B Audretsch and Roy Thurik, OECD, 2001.
[38] Milken Institute, Captial Access Index (CAI), 2008.

people in the UK when looking to start or grow a new business. In 2008, 38.9% of the adult population of the UK cited fear of failure as a reason not to start a new business, whilst the East Midlands has the lowest fear of failure rate of any English region, at 34.9%.[39]

A number of factors have been identified which characterise an entrepreneurial region:[40]

- Entrepreneurial regions have a culture that recognises, encourages and supports entrepreneurs and entrepreneurial ways of working;
- Entrepreneurial regions have a dynamic business population that is based on a healthy start-up rate, improving levels of firm survival, a large and rising proportion of growing entrepreneurial firms and agglomeration effects that speed up regional growth through clustering and the geographical concentration of businesses; and
- The institutions and infrastructure of a region support and enable entrepreneurial activity.

Complementing this regional research, the HM Treasury Enterprise Strategy[41] has identified what they have termed 'enterprise enablers'. These enablers are the underlying factors which, in their absence, have the potential to limit the level and quality of enterprise. These include:

- Cul ture;
- Knowledge and skills;
- Access to finance;
- Business innovation; and
- Regul atory framework.

These enablers have been drawn from the extensive literature on entrepreneurship that apply specifically to national development. They do however, cover many of the factors outlined in regional research on economic performance.

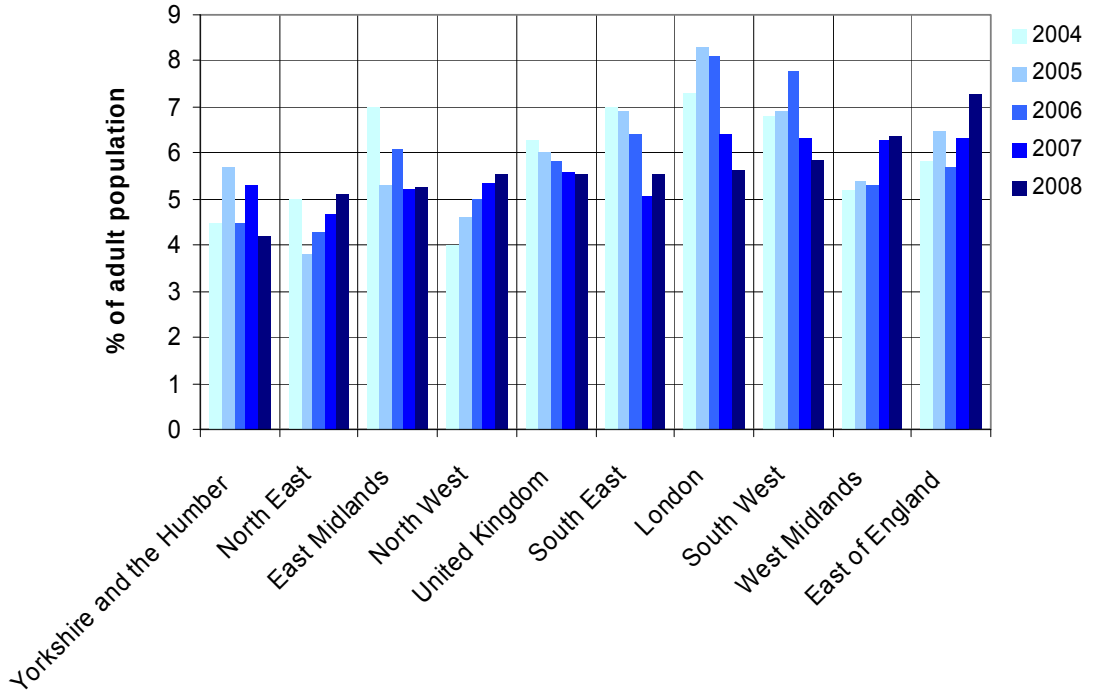
3.4.3.1 Total entrepreneurial activity

Total entrepreneurial activity (TEA) is measured by the Global Entrepreneurship Monitor (GEM), a survey of entrepreneurial activity among the adult population. TEA is calculated

[39] Global Entrepreneurship Monitor: United Kingdom 2008, Aston Business School.
[40] Entrepreneurial Regions, Exploring the Entrepreneurial Capacity of the East Midlands, Atherton, A, Frith, K, University of Lincoln, *emda* RES evidence commission, August 2005.
[41] Enterprise: Unlocking the UK's Talent, HMT, March 2008.

as the sum of nascent entrepreneurs (those who said that they were actively involved in creating a new business that they would own all or part of and have not paid any wages or salaries to anyone for more than three months) and baby businesses (more established owner-manager businesses that have been running for between four and 42 months). TEA is an important indicator of the relative strength and adaptive capacity[42] of an economy. Data from the Global GEM survey 2008 indicates that the UK, with a TEA of 5.5% is more entrepreneurial than Germany (3.8%), Italy (4.6%) and Japan (5.4%). Levels of TEA have, however, been increasing in many countries leading to the UK slipping down the rankings. The UK still trails the USA (10.8%) and has now fallen behind France (5.6%) and the G7 average (6.0%).[43] The remainder of this sub-section will focus on TEA at regional level.

Chart 18: Total entrepreneurial activity in the UK, 2004 to 2008 (% of adult population)



Source: Global Entrepreneurship Monitor UK, Aston Business School, 2008

- TEA in the East Midlands was 5.3% in 2008, 0.2 percentage points below the UK average, and 0.1 percentage points higher than in 2007. These differences are not statistically significant.

- The highest levels of TEA are to be found in the East of England (7.3%), the West Midlands (6.4%) and the South West (5.9%).

[42] The term 'adaptive capacity' describes a regions ability to respond to economic shocks. Levels of Education and TEA both enhance a regions capacity to respond to changing economic opportunities.
[43] Global Entrepreneurship Monitor: United Kingdom 2008, Aston Business School.

- The lowest levels of TEA are to be found in Yorkshire and the Humber and the North East, where 4.2% and 5.1% of the adult population were involved in entrepreneurial activity respectively.

- Levels of TEA in UK regions have changed markedly in recent years. Areas which have experienced a decline include London, the South East, the South West and the East Midlands whilst areas which have experienced growth include the North East, North West and West Midlands.

There remains a substantial gap between the levels of entrepreneurial activity of males and females. In 2008, 3.7% of females were classed as entrepreneurially active compared to 6.8% of males. Whilst this gap is significant it follows the national trend in entrepreneurial activity.

Data for 2008 does not suggest any decrease in the level of entrepreneurial activity due to the recession in either the East Midlands or the UK as a whole. This may be a product of entrepreneurs who were committed to their activity before the downturn took hold. It is likely that the level of entrepreneurial activity will be affected both positively and negatively by the current downturn. People may look to entrepreneurship as a source of income as conditions in the labour market deteriorate, but tight credit conditions may prevent much of this activity from occurring. The effects of the downturn will, therefore, be captured in future data releases.

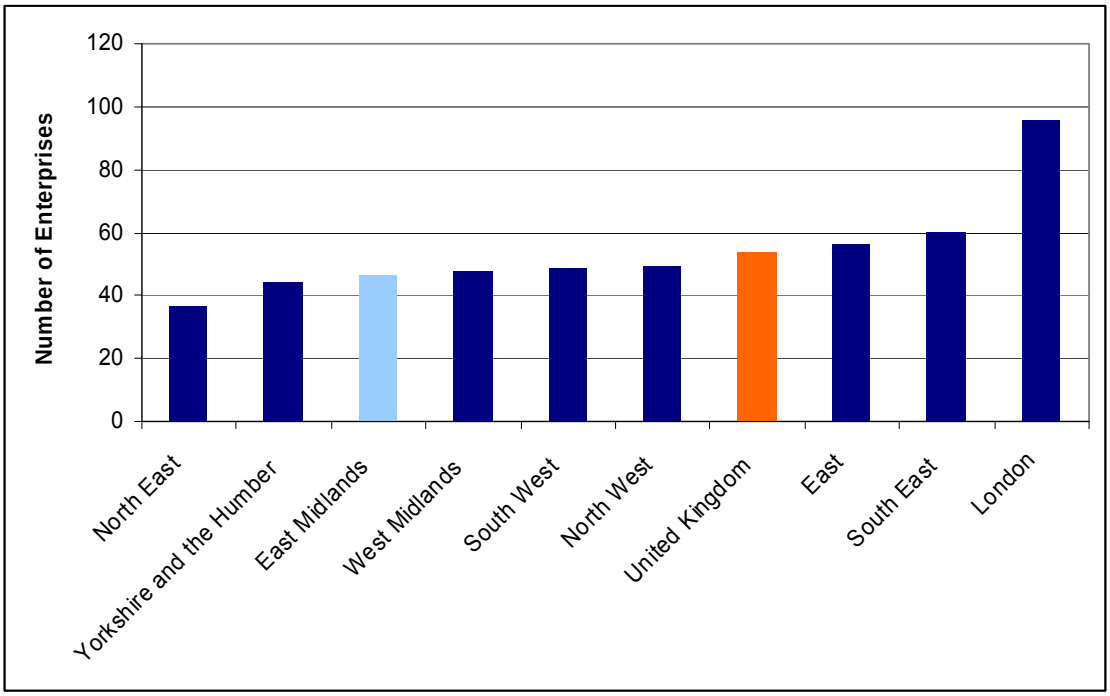
3.4.3.2 Business births

Chart 19 shows business births[44] as measured the Office for National Statistics[45] per 10,000 resident adults in the UK in 2008. Business births are a proxy for the level of entrepreneurial activity in the region, with the difference between births and deaths giving an indication of the strength of entrepreneurial activity in the region.

[44] A birth is identified as a business that was present in year t, but did not exist in year t-1 or t-2. Births are identified by making comparison of annual active population files and identifying those present in the latest file, but not the two previous ones.

[45] The starting point for demography is the concept of a population of active businesses in a reference year (t). These are defined as businesses that had either turnover or employment at any time during the reference period.

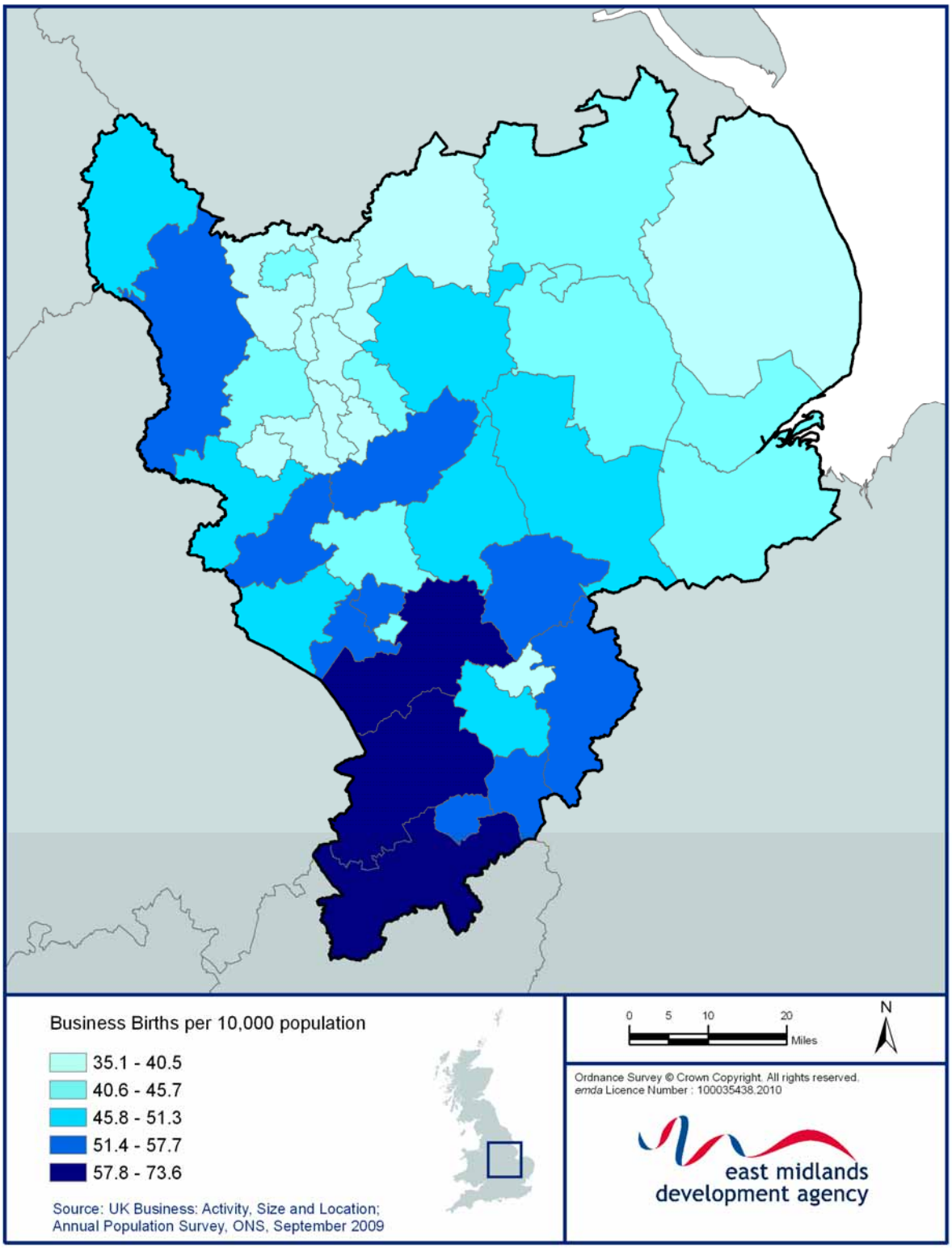
Chart 19: Businesses births per 10,000 resident adults by region, 2008



Source: ONS, Business Demography 2008, accessed January 2010 and ONS, Mid Year Population Estimates, broad age bands, numbers, August 09, accessed January 2010.

- In the East Midlands there were 47 business births per 10,000 resident adults in 2008, below the UK average, of 54.
- Business births are significantly lower in the East Midlands than in the leading region in the country, London, where there were 96 births per 10,000 resident adults in 2008.
- In the North East there were 37 births per 10,000 resident adults in 2008, 68% of the UK average.
- In the East Midlands there were 41 business deaths per 10,000 resident adults over the same period, below the UK average, of 44. This data indicates a below average level of churn in the East Midlands.

Map 1: Business births per 10,000 resident adults by district, 2008



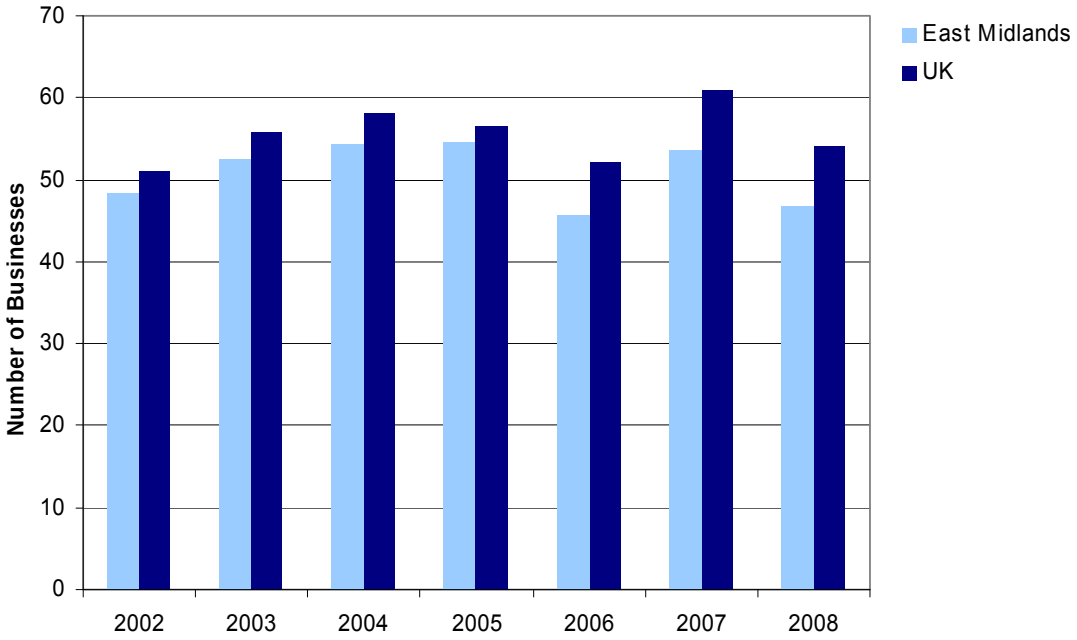
Map 1 shows that there are significant differences in the business start-up rate per 10,000 resident adults between districts of the East Midlands:

- The highest start-up rates are to be found towards the south of the region where Harborough and South Northamptonshire experience start-up rates of 73 and 71 businesses per 10,000 residents adults respectively;

- Districts to the north of the region such as Bolsover, Bassetlaw, Ashfield, Broxtowe, Chesterfield and Mansfield and east of the region, such as East Lindsey experience lower business start-up rates; and

- This analysis suggests there are relatively low business start-up rates in the regions urban centres e.g. Nottingham and Derby. This is a product of the high resident population in these districts rather than a lack of opportunities, or the overall number of start-up rates.

Chart 20: Change in business births per 10,000 resident adults 2002-2008



Source: Business Demography: Enterprise Births, Deaths and Survival, Office for National Statistics, 2009 and ONS, Mid Year Population Estimates, broad age bands, numbers, August 09, accessed January 2010.

- The number of business births in the East Midlands has fluctuated over time but has displayed no clear trend, as illustrated by Chart 20.

- The number of business births per 10,000 resident adults has fluctuated between a low of 46 in 2006 and a high of 54 in 2005.

- The same broad trend has occurred nationally where business start-ups have fluctuated between a low of 51 in 2002 and a high of 61 in 2007.

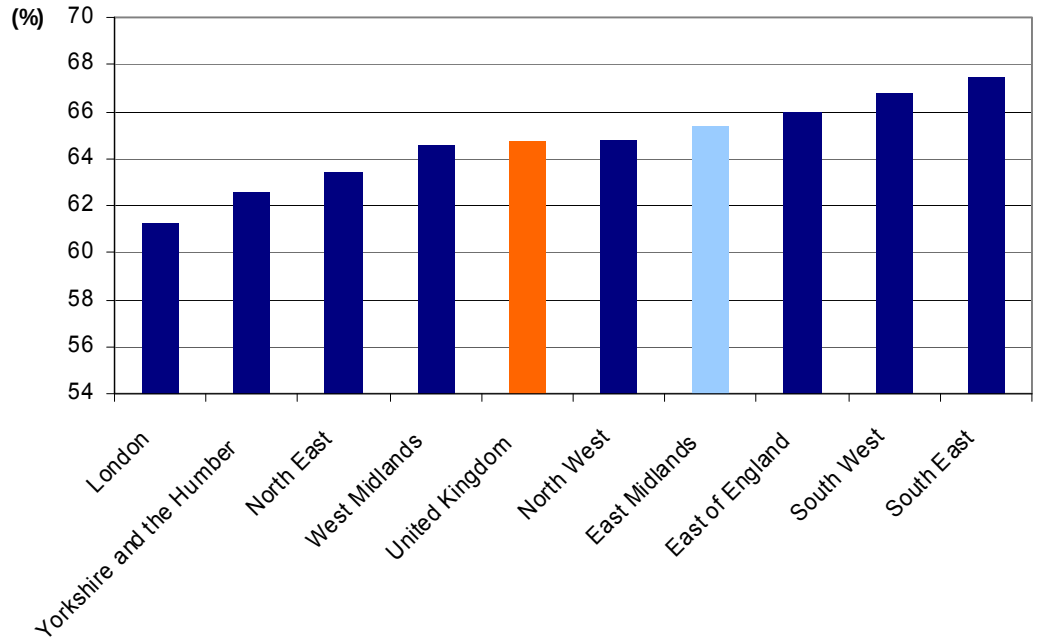
- No one region has experienced significant improvements in the number of business start-ups relative to the UK average.

- The Chart shows that business births fell in both the East Midlands and United Kingdom between 2007 and 2008. This may have been brought about by a worsening of economic conditions as the economy entered recession.

3.4.3.3 Business survival in the East Midlands

It is important that the economy of the East Midlands is not only able to cultivate new businesses but is also able to ensure that they survive, providing long-term benefits for the region. The first three years in the life cycle of a business are considered to hold the most risk, with the likelihood of continued survival increasing with time. Chart 21 shows that the East Midlands performs relatively well on this measure.

Chart 21: Three year survival rate for business first becoming active[46] in 2005 (%)



Source: Business Demography: Enterprise Births, Deaths and Survival, Office for National Statistics, 2009

- In the East Midlands 65.4% of businesses becoming active in 2005 were still active three years later, which is 0.7 percentage points above the UK average of 64.7%.

- As shown in Chart 21, among the English regions the business survival rate is highest in the South East, at 67.4%, and lowest in London at 61.2%.

[46] These are defined as businesses that had either turnover or employment at any time during the reference period.

- The three year business survival rates have decreased in all English regions between businesses born in 2003 and businesses born in 2005, with the exception of London and the South East which experienced growth of 2.1 percentage points and 0.8 percentage points respectively. Yorkshire and the Humber experienced the largest fall of any English region, at -3.7%, over the same time period.

3.4.3.4 Access to finance

Access to finance has been highlighted by HM Treasury as an enabler of enterprise. The availability and ease of obtaining finance can be crucial in the creation, survival and growth of a business.[47] Access to finance affects small businesses to a greater extent than larger businesses as they generally have less equity and capital, and are assessed as a higher risk to lenders. This both limits the finance available and increases the cost of finance for smaller firms. Key sources of finance (as well as expertise) include venture capital and business angels,[48] as well as banks. Survey evidence suggests that the current recession has had a large and negative impact on the ability of firms and individuals in the UK to access finance. Banks ability and willingness to lend has been significantly reduced and the cost of many types of new finance has increased.[49] It should, however, be noted that access to finance remains a far larger concern to businesses than the cost. This lack of confidence has, in turn, impacted on firms' investment and growth decisions. Much of this impact will not be captured by official statistics for another one to two years.

Recent reports[50] have highlighted a number of issues faced by small and medium enterprises (SMEs) in the UK with regards to their ability to access finance:

- In 2004, the proportion of SMEs using external finance was 81%. By 2007 this had fallen to 61%;
- The most common forms of external finance are credit cards and overdraft facilities. The size and number of these facilities has not changed markedly between 2004 and 2007;
- The proportion of businesses using any form of external finance rises with firm size. This is a reflection of the relative risks involved with lending to smaller firms;
- The manufacturing sector has experienced an increase in the percentage of firms seeking new finance in the years leading up to the recession, which is significantly greater than other sectors; and

[47] Growing pains: What is holding SMEs back, British Chamber of Commerce, March 2008.
[48] 'Business angels' are usually wealthy individuals looking for a medium to long-term investment in start-up or developing firms and are not necessarily put off by the high risk nature of the investment. They often have a history of success in industry and look to use this knowledge to develop the business into a successful enterprise.
[49] FSB National Snapshot Poll on Small Business Credit and Cash Flow: East Midlands comparison to UK average, Federation of Small Businesses, February 2009.
[50] Financing UK Small and Medium-sized Enterprises, The 2007 Survey, A Report from the Centre for Business Research, University of Cambridge, August 2008.

- Of all firms seeking new finance in the reference period, over two thirds (71%) were successful. The reverse is that 15% of SMEs did not receive any of the finance they required.

It should be noted that this report was completed in autumn 2007 and will not have picked up any of the effects associated with a tightening of credit conditions brought about by dramatic changes in the UK economy and banks' lending practices.

Whilst the UK has one of the strongest private equity markets in Europe, there has been a fall in the level of investment in early stage firms in recent years.[51] The recent trend towards business angel investment in larger, more established firms has exacerbated early stage firms' access to finance and increased their reliance on friends and family. The current economic climate has put further pressure on early stage firms' ability to access finance.

3.4.4 Competition

Competition, or more importantly, fair competition is the cornerstone of any successful economy. It is through fair competition that consumers are able to buy the goods and services they demand, and it is competition that provides incentives for firms to innovate (exploit new ideas and gain a competitive advantage) and become more efficient. For this reason governments worldwide develop policy and legislation to protect and enforce fair market competition. There is a substantial body of evidence that suggests market reform and regulatory policy have a significant impact on promoting multi-factor productivity.[52] Studies also show that aggregate productivity of an industry is significantly affected by dynamic competition within it, reallocating resources from less efficient firms and processes into more efficient ones.[53] Research suggests that more than half of productivity growth in the UK is related to competition and that low barriers to entry (freedom of entry and exit in markets) is a key factor driving this. It should be noted that whilst policy to reduce barriers to entry in markets and speed up reallocation through competition can benefit regional productivity, it also has a temporary destabilising effect[54] as markets respond to the competitive forces.

The Competition Act 1998 and subsequent Enterprise Act 2002 have both contributed to the strengthening of competition policy and the power of regulators to act. The combined enforcement power of the competition authorities is estimated to have saved UK consumers at least £870 million between 2000-2001 and 2006-2007.[55] The Office of Fair

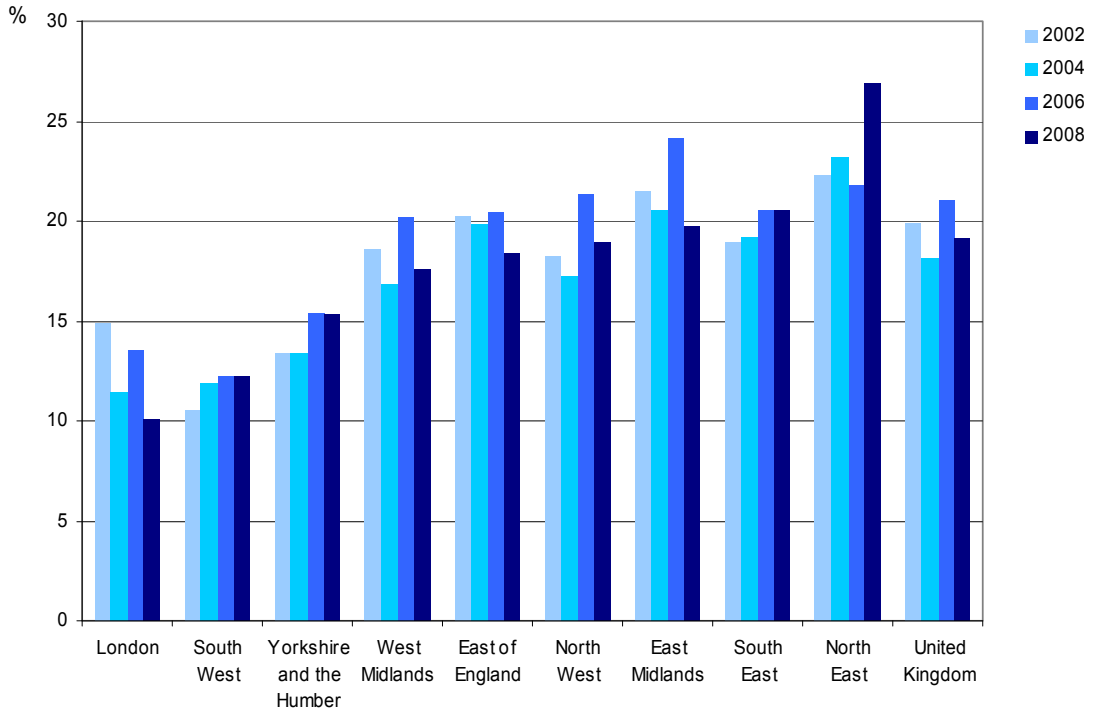
[51] 'Shifting sands – The changing nature of the early stage venture capital market in the UK', NESTA, 2008, referenced in, 'Stimulating venture capital', NESTA, 2008.
[52] Product market competition and economic performance in Canada, OECD Economics department working paper No.421, 2005.
[53] Competition, Innovation and Productivity Growth, OECD working paper, Ahn, S, 2002.
[54] Productivity, Competition and Downsizing, Barnes, M, Haskel, J, Queen Mary, University of London, 2007.
[55] Productivity in the UK 7, securing long-term prosperity, HMT, 2007.

Trading (OFT) and independent regulators are estimated to have provided further savings of at least £600 million per year through the deterrent effects of enforcement.[56]

It is difficult to accurately measure the level of competition in any given national economy. It can, however, be said that more efficient regulatory systems are indicative of efficient and competitive economies, such as the economic environment seen in both the US and UK. As the competition systems and policy apply equally to all regions within an economy, analysing them at a regional level would not provide an insightful picture of competition and its impacts on productivity at a regional level.

A measure of competition used at regional level in the UK is exports. Businesses that export are likely to be more efficient than those that do not. Chart 22 shows that on this measure the East Midlands has one of the most open economies of any region in the country with a high level of exports.

Chart 22: Exports of goods as % of GVA, 2002-2008



Source: Government BERR analysis of information provided by the Statistics and Analysis of Trade Unit, HM Revenue and Customs and Short Term Employment Survey, ONS. Available from 'Regional Economic Performance Indicators', BIS, May 2009.

Figures for 2008 show that exports in the East Midlands were equivalent to 19.7% of GVA, 0.6 percentage points above the national average. On this measure the levels of exports as a percentage of GVA are higher only in the South East (20.5%) and the North East (26.9%).

[56] The deterrent effects of competition enforcement, OFT discussion paper, 2007.

- Since 2002 the trends in the level of exports as a proportion of GVA have been very different in each English region. The North East has experienced a marked increase in the level of exports from 22.3% of GVA in 2002 to 26.9% in 2008. In contrast, exports in London have fallen over the same period, from 14.9% to 10.1%.

- Although the East Midlands experienced a spike in exports in 2006 (increasing to 24.2% of GVA) similar to other Northern and Midlands regions, the longer term trend is that of a moderate decline from 21.5% in 2002 to 19.7% in 2008.

- London is now the least open region where exports account for 10.1% of GVA. It should, however, be noted that this data only includes the exports of goods and not services.

The current recession has had a mixed impact on exporters in the UK. The UK has experienced a fall in the value of the exchange rate, which usually boosts exports as UK products become cheaper to purchase from abroad. However, it also increases the cost of imported raw materials and this has offset some of the benefits from this fall. Between 2008 and 2009 the level of trade in goods fell significantly. The value of exports from the UK fell by 9.8% (by 8.0% from the East Midlands), while the value of imports into the UK fell by 10.5% (and by 8.9% into the East Midlands).[57]

3.4.5 Public expenditure in the East Midlands

The Public Expenditure Statistics Analyses, published by HM Treasury, gives data on Government expenditure within the English Regions. In 2007-2008[58] total identifiable expenditure[59] in the East Midlands was £30bn (6.4% of the UK total). Total identifiable expenditure in the East Midlands consisted of £21.4bn from central government departments and £8.6bn through local government allocations. The proportion of total identifiable expenditure in the East Midlands has remained largely unchanged since 1999-2000. As expenditure in the UK is largely broken down by population those regions with the largest populations currently receive the largest amount of expenditure (London, the South East and the North West).

A more objective measure of expenditure, taking population into account, is that of total identifiable expenditure per head. In 2007-2008 spending per head was £6,827, which was 88.9% of the UK average. Regions with the highest level of expenditure per head included London (117%), the North East (106%) and the North West (106%).

[57] UK Regional Trade in Goods Statistics Q4 2009, HM Revenue and Customs, March 2010.
[58] Public Expenditure Services Analysis (PESA), HM Treasury, July 2009.
[59] Expenditure is split into two categories for this analysis based on a 'who benefits' basis. Identifiable expenditure is the part of government expenditure which directly benefits individuals, businesses or communities within particular regions. Non-identifiable expenditure is that which does not benefit one country or region within the UK more than others i.e. the impact is seen at a national level such as defence or overseas services.

To complement this analysis, data is also available offering a breakdown of expenditure by function e.g. health. In 2007-2008 expenditure on Health and Social Protection (e.g. welfare benefits) remained at just over two thirds of total regional expenditure. As this expenditure is allocated via central Government this is not an area of expenditure which *emda* and its partners can influence. *emda* and its regional partners can influence, to varying degrees, spend on education & training, agriculture, fisheries & forestry, transport, environmental protection, enterprise & economic development, employment policies, housing & community amenities and science & technology. In 2007-2008 these functions had identifiable expenditure amounting to £8.5bn in the region.

Key Points: Drivers of productivity in the East Midlands

- Investment in the UK increased in the years leading up to the recession due to a prolonged period of economic stability and stable interest rates, but the current recession will have an impact on investment that will not be captured by the data for two to three years.
- Business Enterprise Research and Development (BERD) has been consistently higher in the East Midlands than the UK average between 1997 and 2007. In 2007 levels of BERD in the East Midlands were equal to 1.4% of GVA, compared to 1.3% for the UK.
- At 12.2%, the East Midlands has the highest level of co-operation agreements of any region placing the East Midlands above other regions such as the South East and East of England, where R&D expenditure is concentrated.
- The East Midlands continues to lag the national average on the levels of turnover generated from new and improved products or processes.
- Total Entrepreneurial Activity in the East Midlands was 5.3% in 2008, 0.2 percentage points below the UK average. The difference is not statistically significant.
- In the East Midlands there were 47 business births per 10,000 resident adults in 2008, below the UK average, of 54. Business start-ups are highest towards the south of the region in districts such as South Northamptonshire and Harborough.
- Business survival rates are relatively high in the East Midlands. In the East Midlands 65.4% of businesses becoming active in 2005 were still active three years later, which is 0.7 percentage points above the UK average of 64.7%.
- The East Midlands continues to experience relatively high levels of exports as a percentage of GVA. However, with the exception of the North East, the level of exports fell in all English regions in 2008 due to the recession.

3.5 Industrial structure of the East Midlands economy

The five drivers of productivity developed by Government provide the basis for a general discussion of economic performance. They are, however, generic by nature and fail to provide a full picture of performance within regional economies. Looking at the industrial structure of the East Midlands and making comparisons with data for the UK provides additional insights that complement the analysis of the five drivers of productivity in the region.

The industrial structure of a region has a direct impact on its ability to respond in an efficient and productive manner to economic shocks. This responsiveness has been termed 'adaptive capability' and is the capacity of the regional economy to 'respond to exogenous forces on the one hand, and on the other, to create new paths of economic development from within'. Adaptive capability provides a way for a region to avoid getting 'locked in' to a path of long term economic decline.[60] Economic shocks can occur in any industry and can originate in regional, national or global economies. For this reason it is preferable that an economy should demonstrate resilience and the ability to recover quickly from any kind of shock.

This section will build a picture of the industrial structure of the East Midlands through an analysis of business demography. It examines the level of output and employment in industries in the region to determine relative importance. Throughout the analysis UK comparisons are used to highlight regional strengths and weaknesses.

3.5.1 Business demography

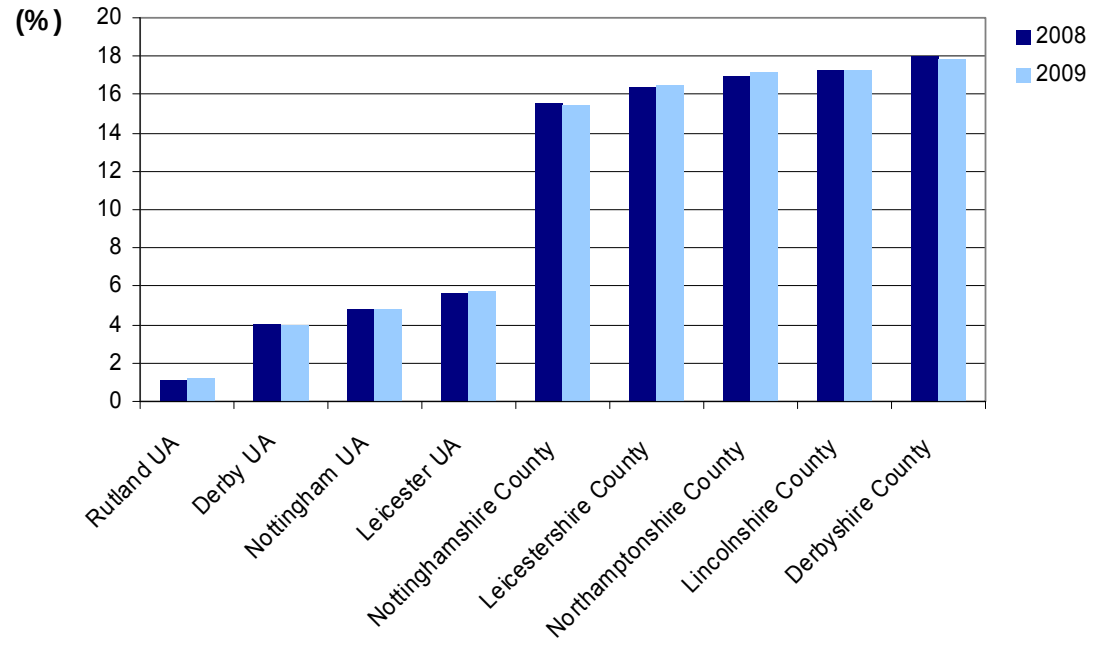
This sub-section will analyse the size and structure of businesses in the East Midlands region. Business births and survival rates have been assessed previously in this chapter in the section dealing with enterprise. The focus here is on the business stock by location and industry and change over time.

3.1.1.1 Business numbers

In 2009 there were 147,980 VAT and/or PAYE businesses in the East Midlands region, accounting for 6.9% of all businesses in the UK. The inclusion of PAYE registered businesses is a new addition to the data provided by the Office for National Statistics restricting comparability to the last two years.

[60] For further discussion see Thinking About Regional Competitiveness: Critical Issues, R Martin, University of Cambridge, RES Evidence Commission, August 2005.

Chart 23: Stock of VAT and/or PAYE registered businesses in the East Midlands, 2008-2009 (%)



Source: UK Business Activity, Size, and Location, Office for National Statistics, September 2008 and 2009.

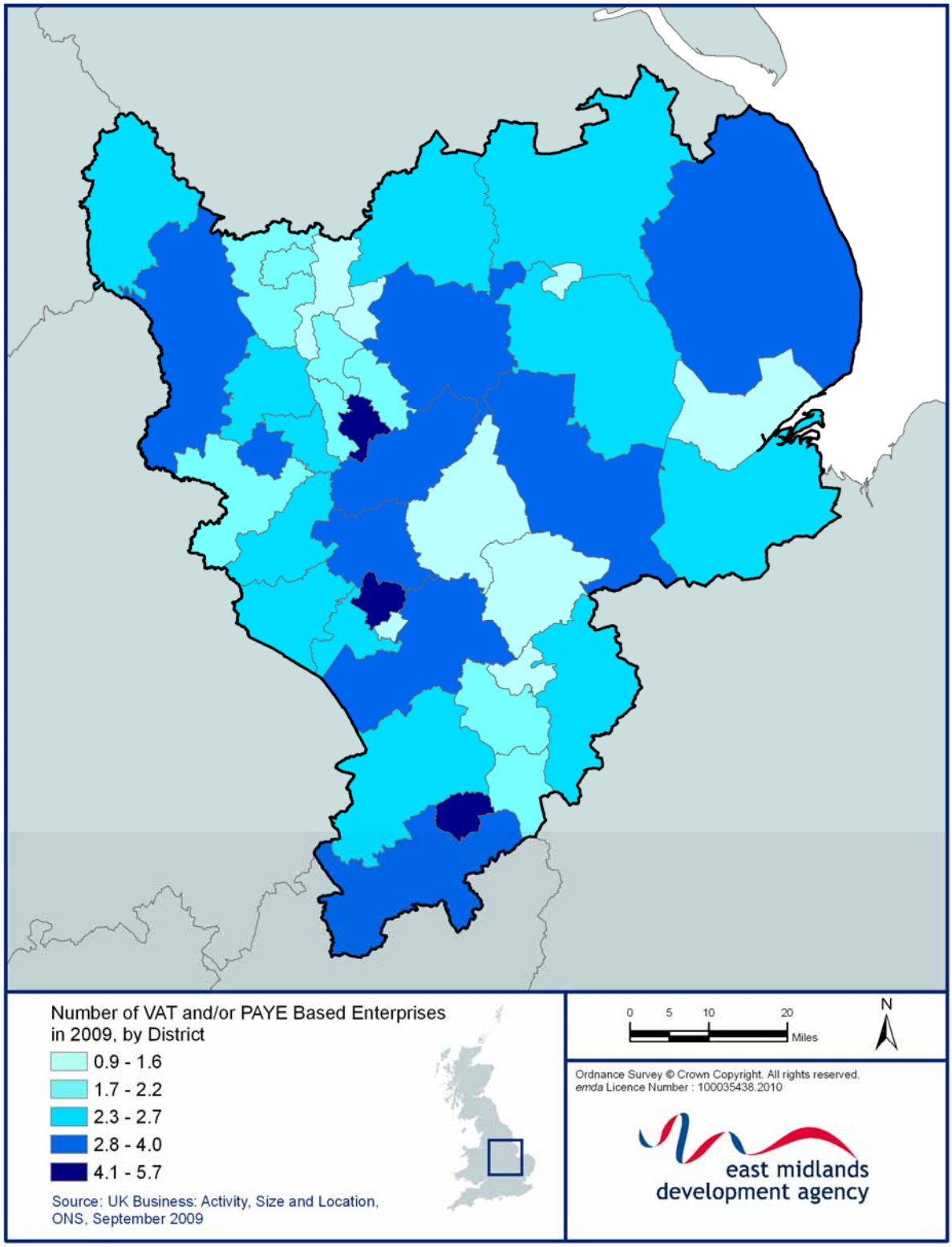
- The share of businesses in the three cities of Derby, Leicester and Nottingham has remained stable between 2008 and 2009 with the marginal fall in Derby being offset by an equivalent increase in Leicester. The three cities accounted for 14.5% (21,505) of businesses in the region in 2009.

- Leicester has 8,500 registered businesses (5.7% of the total), Nottingham has 7,100 (4.8% of the total), whilst Derby has 5,900 (4.0% of the total).

- Rutland accounts for the smallest proportion of VAT registered businesses of any sub-region of the East Midlands. There are currently 1,750 businesses in Rutland, which is 1.2% of the East Midlands total reflecting the size and relative rurality of the Unitary Authority.

- Each of the five counties has between 23,000 and 26,400 businesses or 15.5%-17.8% of the total. Nottinghamshire has the lowest number of businesses at 23,000 (15.5% of the total) whilst Derbyshire has the highest number, with 26,400 (17.8% of the total).

Map 2: VAT and PAYE registered business stock in the East Midlands by district, percentage of total stock, 2009

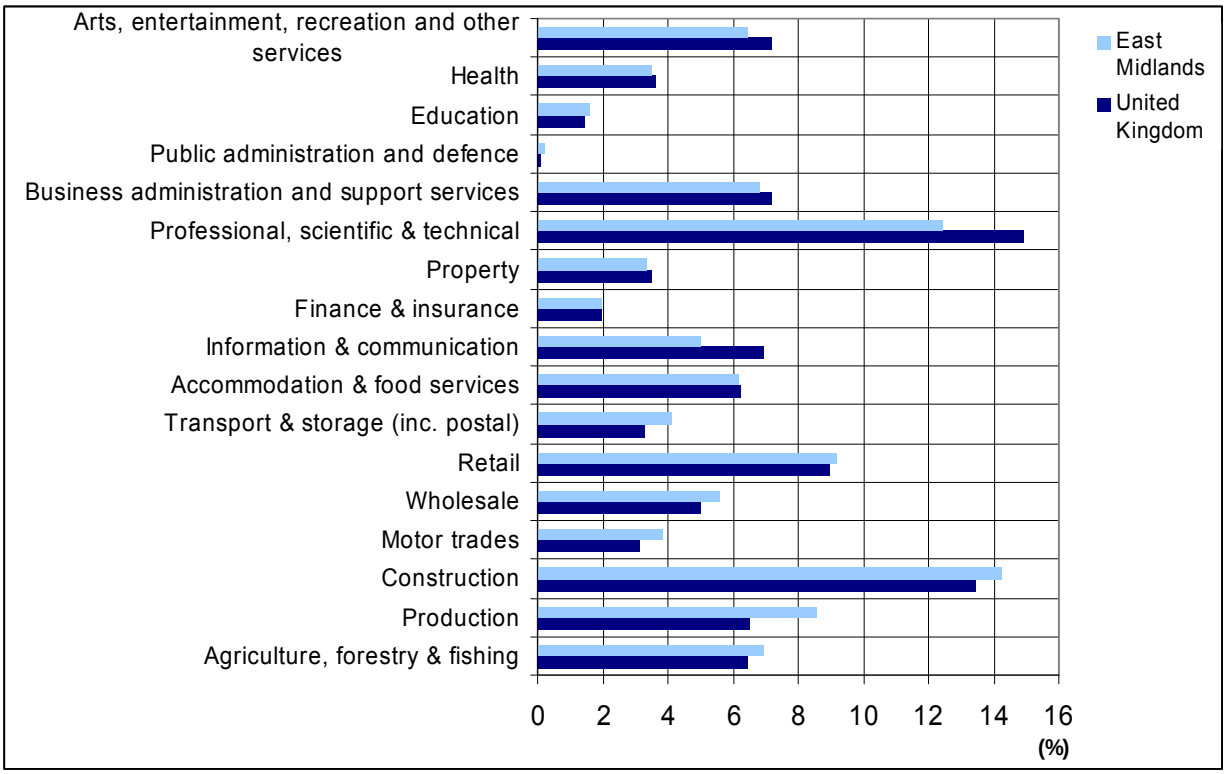


It is important to view these figures with the regional geography and infrastructure in mind. It is not only the number of businesses but also the type of businesses that determines the strength, resilience and output of the regional economy. There is a substantial body of research indicating that a high density of firms in similar industries can create many benefits, known as agglomeration economies. Agglomeration economies can give rise to larger and deeper markets for inputs (such as labour and intermediate goods) for the goods and services produced as well as positive spill-over effects from the close proximity of firms and labour. For more information on this please see the Spatial Economy chapter of The East Midlands in 2010.

3.5.1.2 Businesses by sector

This section analyses the industrial structure of the VAT and/or PAYE registered business stock in the East Midlands. Over the last two decades there has been a shift away from production activities towards the service sector both regionally and nationally. Despite this movement, the service sector has remained smaller in the East Midlands, accounting for 66% of all businesses, than nationally (74%). There are other significant differences between the economy of the UK and East Midlands, reflecting the region's relative strengths. Chart 24 shows the composition of businesses by industry in the East Midlands and nationally.

Chart 24: VAT and/or PAYE business stock by industry, 2009



Source: UK Business Activity, Size, and Location, Office for National Statistics, September 2009

Chart 24 shows that, in terms of business stock:

- Construction is the largest sector in the East Midlands, accounting for around 14.2% of all businesses in the region, slightly higher than the national average, of 13.4%;

- The professional, scientific and technical sector is the largest single sector in the UK, accounting for around 15% of business stock but is the second largest in the East Midlands, accounting for 12.5%. This sector groups activities that "require a high degree of training and make specialised knowledge and skills available to users"[61];

- The retail and wholesale sectors also account for a relatively larger proportion of East Midlands businesses than nationally, at 5.6% and 9.2% compared with 5.0% and 8.9% respectively; and

- The East Midlands also has relatively more businesses in the sectors of production, agriculture, forestry & fishing, education and motor trades.

The distribution of businesses by sector is not uniform across the region, with some areas demonstrating concentrations of businesses in certain sectors. These concentrations can be driven by a number of factors including the geography, available infrastructure and labour market as well as historical trends.

- Over 36% of the businesses in agriculture, forestry & fishing are located in Lincolnshire, reflecting the regions strength in the industry.

- Derbyshire has around one fifth of all production sector businesses in the East Midlands, and experiences a relative specialism in motor trades and transport & storage. These sectors are significant to the region and include large multinational businesses such as Toyota, Rolls-Royce and Bombardier.

- The construction sector experiences a relatively uniform distribution of businesses throughout the region. Each county has between 17% and 18% of all construction related businesses in the region.

- Leicestershire experiences the largest concentration of finance and insurance businesses in the region, at 22%.

- Northamptonshire has the largest number of business services and professional, scientific & technical businesses of any East Midlands county.

[61] UK Standard Industrial Classification of Economic Activities 2007 (SIC 2007), Structure and Explanatory Notes, Office for National Statistics, 2009.

- Northamptonshire also has the largest number of arts, entertainment, recreation and other services businesses at 19%, closely followed by the remaining counties who experience between 16% and 17% of the business stock.

3.5.2 Industrial structure

The industrial structure of a region has a direct impact on its economic competitiveness. The current industrial structure of the East Midlands, and indeed the UK, is a product of its economic history and is in a state of constant adjustment. This section of the chapter uses an econometric model of the East Midlands, the Scenario Impact Model (SIM)[62], to analyse key indicators (Output and Full Time Equivalent Employment (FTE)[63]) by industry and to determine the relative importance of each industry using location quotient analysis.[64]

[62] *emda*/Experian Scenario Impact Model (SIM), January 2010.
[63] Full Time Equivalent (FTE) employment is the sum of full-time employment, self-employment and 0.4* part-time employment.
[64] A location quotient is a measure of relative concentration and is calculated as: the proportion of a sector in the regional economy/the proportion of a sector in the national economy.

Table 2: Industrial structure of the East Midlands, 2008

Industrial structure of East Midlands	Output (%)		FTE employment (%)		East Midlands (EM) location quotients	
	EM	UK	EM	UK	Output	Employment
Agriculture, forestry & fishing	1.3	0.9	2.2	1.8	1.4	1.3
Oil & gas extraction	0.0	1.3	0.0	0.1	0.0	0.0
Other mining	0.4	0.2	0.3	0.1	2.1	2.0
Primary and extraction industries Total	**1.6**	**2.4**	**2.5**	**2.0**	**0.7**	**1.2**
Gas, electricity & water	**2.2**	**1.6**	**0.7**	**0.5**	**1.4**	**1.5**
Fuel refining	0.00	0.2	0.0	0.1	0.0	0.0
Chemicals 1.5		1.6	0.9	0.7	0.9	1.2
Minerals 1.4		0.5	0.8	0.4	2.6	1.9
Metals 2.1		1.4	2.0	1.6	1.5	1.3
Machinery & equipment	1.6	1.3	1.5	1.1	1.2	1.3
Electrical & optical equipment	1.3	1.5	1.1	1.2	0.9	0.9
Transport equipment	3.7	1.6	1.9	1.3	2.4	1.5
Food, drink & tobacco	4.0	1.9	2.7	1.6	2.1	1.7
Textiles & clothing	0.9	0.4	1.0	0.4	2.1	2.3
Wood & wood products	0.3	0.2	0.4	0.3	1.2	1.2
Paper, printing & publishing	1.8	1.8	1.7	1.5	1.0	1.2
Rubber & plastics	1.2	0.7	1.2	0.7	1.7	1.7
Other manufacturing NEC	0.8	0.6	0.9	0.7	1.4	1.3
Manufacturing Total	**20.5**	**13.7**	**16.1**	**11.6**	**1.5**	**1.4**
Construction	**6.0**	**6.0**	**9.3**	**8.6**	**1.0**	**1.1**
Retailing	6.9	6.2	8.2	8.5	1.1	1.0
Wholesaling	8.4	6.4	7.6	6.7	1.3	1.1
Hotels & catering	2.4	3.2	4.4	5.3	0.7	0.8
Transport	5.7	5.1	5.1	4.9	1.1	1.0
Communications	2.8	3.3	1.5	1.8	0.8	0.8
Banking & insurance	4.8	9.0	2.1	3.9	0.5	0.5
Business services	12.8	15.1	13.7	15.9	0.8	0.9
Other financial & business services	4.0	5.1	2.4	2.9	0.8	0.8
Public admin & defence	5.0	4.9	4.7	5.1	1.0	0.9
Education 5.5		5.6	6.8	7.4	1.0	0.9
Health 7.0		7.3	9.7	11.0	1.0	0.9
Other services	4.4	5.1	5.3	4.0	0.9	1.3
Services Total	**69.6**	**76.3**	**71.4**	**77.2**	**0.9**	**0.9**
Industry Total	**100.0**	**100.0**	**100.0**	**100.0**	**1.0**	**1.0**

Source: *emda*/Experian Scenario Impact Model, autumn 2009.

Table 2 highlights a number of important characteristics of the East Midlands economy including the relative significance of manufacturing:

- The manufacturing sector accounts for 20.5% of output and 16.1% of employment. With an output location quotient of 1.5 and an employment location quotient of 1.4, this sector is significantly more important to the East Midlands economy than the

UK as a whole. The size and relative importance of manufacturing to the region is of particular note in the recession as manufacturing and construction were severely affected by the fall in activity in 2009;

- Looking in more detail at the manufacturing sub-sectors reveals that the majority are larger in the East Midlands than in the UK in both output and employment terms. In terms of output, only fuel refining, chemicals and electrical and optical equipment are smaller in the East Midlands. Only fuel refining is smaller in terms of employment in the East Midlands than in the UK;

- The largest manufacturing sub-sectors in the East Midlands are food & drink, transport equipment, metals, and paper, printing & publishing. Together, these sectors account for a total of 11.7% of output and 8.3% of employment in the region;

- With output location quotients greater than 2, the manufacturing sub-sectors of minerals, transport equipment, food & drink and textiles & clothing are twice as large in the East Midlands than the UK. These sectors also have location quotients greater than 1.5 in terms of employment;

- The construction sector accounts for a larger proportion of the East Midlands employment than in the UK with a location quotient of 1.1 but the same proportion of output. This sector accounts for 6.0% of output and 9.3% of employment in the region;

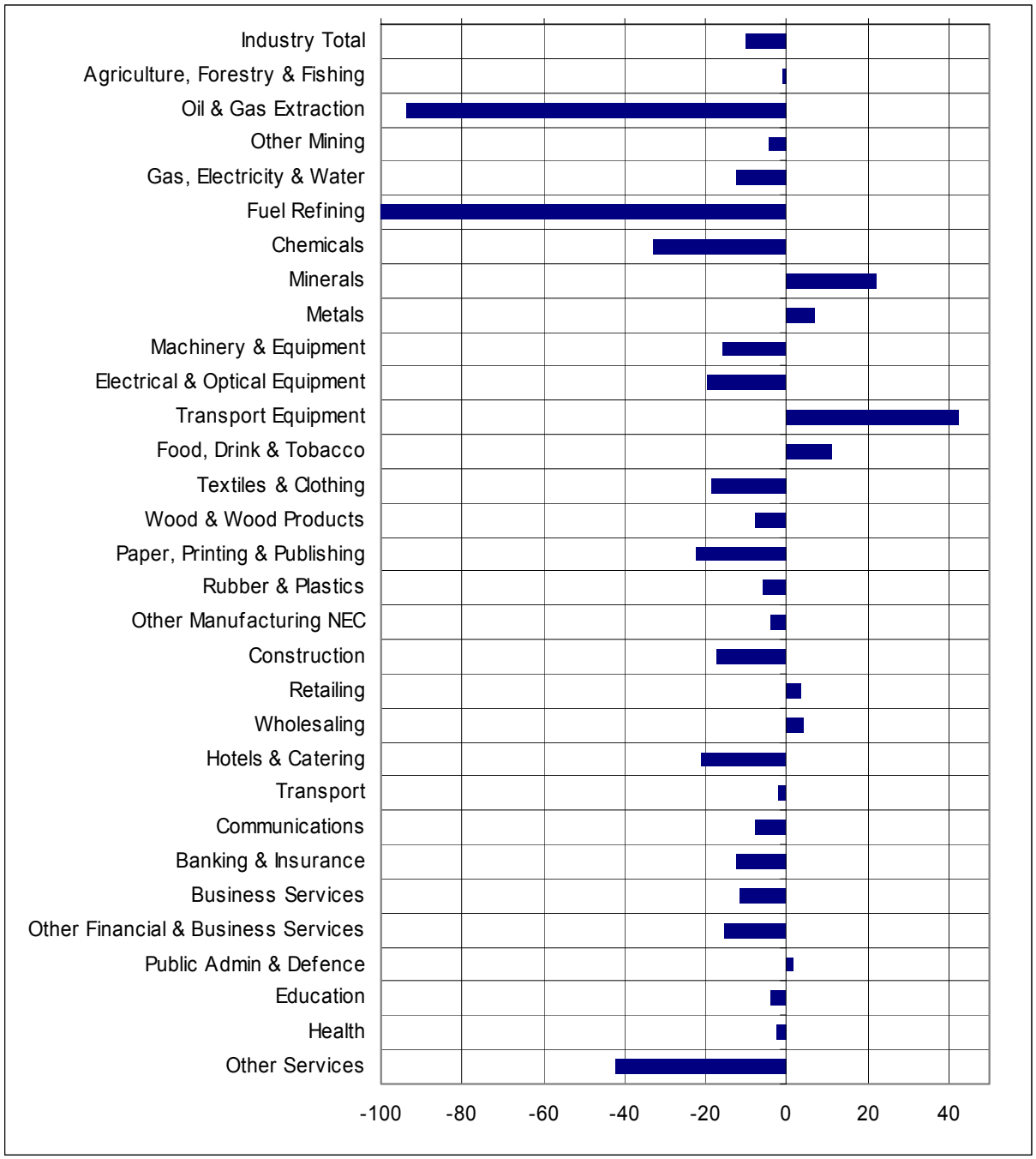
- In contrast to the manufacturing sector, the service sector is relatively smaller in the East Midlands than it is nationally. The service sector accounts for 69.6% of output and 71.4% of employment in the region, compared to 76.3% of output and 77.2% of employment nationally;

- The business services sector is the largest services sub-sector, accounting for 12.8% of output and 13.7% of employment in the region. The sub-sector has experienced significant growth in recent years, although it remains relatively smaller in the East Midlands than nationally; and

- Other significant services sub-sectors include retailing, wholesaling, transport services, education and health. It should however be noted that many of these sectors remain relatively less important to the East Midlands than they are nationally with location quotients less than 1.

Significant differences between output and employment location quotients suggest that there are differences in out per FTE employee between sub-sectors in the East Midlands and the UK. A further analysis of productivity by sub-sector provides a better understanding of the region's relative strengths and weaknesses. The SIM model has been used to provide estimates of productivity by sub-sector in the East Midlands and UK. The productivity differences are shown in Chart 25.

Chart 25: Productivity differences between the East Midlands and the UK (%) 2008



Source: *emda*/Experian Scenario Impact Model, Autumn 2009.

The most productive sub-sector in the East Midlands is that of transport equipment. Output per FTE worker in this sector is over 40% higher in the region than in the UK. This sector includes a number of the region's major companies such as Rolls-Royce, Toyota and Bombardier.

As well as transport equipment (42%) there are a further six sub-sectors in which the East Midlands is more productive than the UK. These are: minerals (22%), food & drink (11%), metals (7%), wholesaling (4%), retailing (3%) and public admin & defence (2%).

This analysis again highlights the East Midlands specialism in production activities, as the top four most productive sub-sectors are all in the production sector. Whilst this shows the region has a degree of comparative advantage in some production sub-sectors, it should be noted that productivity is below average in 23 sub-sectors of the East Midlands economy.

The top seven most productive sub-sectors account for around one quarter of regional employment and one fifth of regional output, greater than the UK average. Conversely, around three quarters of employment and four fifths of output are in sectors which are less productive in the East Midlands than in the UK. It should, however, be noted that this analysis is quite high level and whilst a sector may be less productive in the East Midlands than in the UK there will be both relatively high and low performing firms within each sector.

3.5.3 Key sectors in the East Midlands economy

In the creation of the last Regional Economic Strategy, 'A Flourishing Region', in 2006, a detailed analysis of key sectors in the East Midlands economy was conducted. This analysis took account of a wide range of indicators including output, employment and the number of large employers, as well as a range of forecast data to determine the four most economically significant sectors in the region. The analysis highlighted the four sectors of transport equipment, food & drink, construction and healthcare & bioscience. These sectors were collectively termed 'priority sectors'.

It should be noted that the recession is having a differential impact across these sectors. Construction and transport equipment have been particularly hard hit. Construction activity has been affected by falling confidence in the commercial property market and difficulties in the housing market as prices have dropped. Transport equipment has been hit by a fall in the demand for new cars although this has been ameliorated, in part, by the Government's used car scrappage scheme.[65] Unlike these two sectors, food & drink and healthcare & bioscience are less dependent upon discretionary consumer expenditure and, therefore, less sensitive to the economic cycle.

3.5.3.1 Transport equipment

The transport equipment sector comprises of the manufacture of transport equipment and motor vehicles, trailers & semi-trailers sub-sectors. This sector has a long and productive history in the East Midlands. This sector is supported by a number of large multinational

[65] More information is available at http://www.direct.gov.uk

companies which have a presence in the region including Toyota, Rolls-Royce and Bombardier, which in turn support a network of smaller companies supplying parts and labour to the industry creating internationally recognised clusters.

Scale: The transport equipment sector accounts for 3.8% of regional output and 1.9% of regional employment making it one of the largest manufacturing sub-sectors in the East Midlands. With an output location quotient of 2.4 and an employment location quotient of 1.5, this sub-sector is significantly more important in the East Midlands than nationally.

Productivity: Levels of productivity are estimated to be around 42% higher in the East Midlands than nationally. It is estimated that productivity in the manufacture of transport equipment is higher than in any other sub-sector of the East Midlands.

Growth prospects: Output and employment in this sector is expected to decrease slightly in the East Midlands between 2008 and 2018, in line with the national trend.

Employment quality: Average weekly pay[66] in this sector is 13% higher than the UK average. This sector also has weekly pay almost two thirds higher than the East Midlands economy wide average. This data indicates that this is a high value added sector requiring a highly skilled labour force.

Strategic significance: To measure the significance of a sub-sector we look at the number of large employers (+200 employees) in that sector in the region. There are around 30 large employers in this sector in the East Midlands indicating that the sector is strategically significant to the region.

3.5.3.2 Food & drink

The food & drink sector comprises of the manufacture of food and beverages, and is a sector which depends on the region's agricultural producers.

Scale: The sector accounts for 4.0% of output in the East Midlands and 2.7% of employment, significantly greater than the UK averages of 1.9% and 1.6% respectively. An output location quotient of 2.1 and an employment location quotient of 1.7 indicate that this sector is around twice as important in the East Midlands economy as it is nationally.

Productivity: Productivity estimates indicate that this sector is around 11% more productive in the East Midlands than it is nationally.

Growth prospects: Forecasts suggest that the food & drink sector will experience growth in output and employment between 2008 and 2018, in contrast to a modest decline forecast nationally.

[66] Office for National Statistics, 'The Annual Survey of Hours and Earnings (ASHE) 2008', from Table 5_1a, http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=15187

Employment quality: Average weekly pay in the food & drink sector in the East Midlands is around 3% higher than in the UK, and 15% higher than the average weekly pay in the East Midlands for all sectors.

Strategic significance: There are over 70 large employers in this sector indicating that it has a high degree of strategic significance.

3.5.3.3 Construction

The construction sector has historically played a significant role in the regional economy. This sector is highly cyclical and it is often amongst the first to be negatively affected by any economic downturn. The latest economic downturn has put pressure on the construction sector, with the majority of new work now being generated from public infrastructure projects. Despite this, the sector still has an important role to play and will support regional and national economic growth in the future.

Scale: The construction sector accounts for 6.0% of output and 9.3% of employment in the East Midlands region, similar to the levels experienced in the UK, of 6.0% and 8.6% respectively. The sector is slightly more important in the East Midlands than nationally, with an employment location quotient of 1.1.

Productivity: Although the construction sector is more significant in the East Midlands than in the UK there is a small productivity gap. Levels of productivity in the East Midlands are around 92% of the UK level.

Growth prospects: Future growth prospects in this sector have been made more difficult to construct due to the prevailing economic conditions. Based on latest available data, this sector is expected to experience a fall in employment in line with the UK average. The sector is, however, expected to experience an increase in output between 2008 and 2018. Infrastructure projects, such as the 2012 Olympics in London and road infrastructure projects (including the widening of the A46 and improvements to the M1 between junctions 21-25 and 28-30) in the East Midlands are helping to sustain the sector in the region.

Employment quality: The construction sector in the East Midlands has average weekly pay around 90% of the UK level. Despite this weekly pay in the sector remains 19% higher than the overall East Midlands average.

Strategic significance: There are over 30 large companies in the construction sector in the East Midlands indicating that it is strategically significant to the region. The region's businesses will continue to benefit from opportunities arising from the Milton Keynes South Midlands (MKSM)[67] development as well as the aforementioned infrastructure projects.

[67] Further details can be found at http://www.mksm.org.uk/index.php

3.5.3.4 Health & bioscience

The health sector has been defined as comprising both the provision of healthcare services and the manufacture of medical instruments and equipment and pharmaceuticals.[68]

Scale: In 2007, the health sector accounted for 7.0% of output and 9.7% of the total employment in the East Midlands. Location quotients of 1.0 and 0.9 for output and FTE employment indicate that the sector is broadly in line with the UK level.

Productivity: Levels of productivity in the health sector of the East Midlands are around 96% of the UK level. Although productivity remains lower in the East Midlands than in the UK, there has been an improvement of 4 percentage points in the region since 2004, meaning that the gap has closed.

Growth prospects: The health sector is expected to be amongst the fastest growing sectors in both the East Midlands and nationally. In the East Midlands output and employment in the sector are expected to grow significantly faster than nationally.

Employment quality: Average weekly earnings are around 90% of the UK average in this sector and are also around 10% lower than the overall average in the East Midlands, indicating that this is a relatively low employment quality sector. There are, however, some sub-sectors of health e.g. the manufacture of chemicals, which require highly skilled labour.

Strategic significance: There are over 70 large employers in the health sector in the East Midlands. The demographic changes taking place in the region (as well as nationally) e.g. the increases in the population of pensionable age, are increasing the demand for products and services from the Health sector.

3.5.4 Creative industries and tourism

The East Midlands is home to a significant and growing 'cultural infrastructure'[69] contributing to regional output and employment. However, there has been much debate around which sub-sectors specifically should be classed under the umbrella of creative industries.

Some analysis of the creative industries has been undertaken by the Regional Statisticians in the East Midlands. This analysis is based on the following definition of the

[68] This definition includes a degree of overlap with other sectors but offers the best estimate of the overall size of the sector and its components.
[69] Key cultural infrastructure includes the Broadway Media Centre in Nottingham, Phoenix Square in Leicester and QUAD in Derby.

creative industries, developed by Frontier Economics for the Department for Culture, Media and Sport. This definition includes the following SIC codes:

SIC code	Description
36509	Manufacture of other games and toys not elsewhere classified
7221 Pub	lishing of software
7222	Other software consultancy and supply
74201 Architectural	activities
74202	Urban planning and landscape architectural activities
74205	Engineering design activities for industrial process and production
74402	Planning creation and promotion of design activities
74813	Other specialist photography
74819	Other photographic activities not elsewhere classified
74872	Specialty design activities
9240 News	agency activities
92111	Motion picture production on film or video tape
92119	Other motion picture production and video production activities
92201 Radio	activities
92202 Television	activities
92331 Live	theatrical presentations
92319	Other artistic and literary creation and interpretation

Analysis of data from the Inter-departmental Business Register shows that in 2007:

- There were about 6,000 local units[70] designated as creative industries – about 3.4% of all local units in the region;
- Of these approximately 62% were in urban areas, a slightly lower percentage than the average for all businesses (63%). The creative industries form 3.3% of local units in urban areas, but 3.5% in rural areas;
- The total number of employees in the local units designated as creative industries was around 33,500, 1.8% of all employment in local units in the region; and
- Local units designated as creative industries are smaller than the average business with employment of 5.6 per local unit compared to 10.7 per local unit for businesses as a whole. This difference is larger in urban areas, 6.8 compared to 12.9.

In the East Midlands between 2005 and 2007 there was an increase of 10.4% in local units designated as creative industries, above the average of just under 8% for England.

As part of developing their understanding of creative industries the Department for Culture, Media and Sport are developing a framework that will allow for a consistent approach to defining and measuring creative Industries.

[70] The IDBR has two levels of data: enterprises and local units. Enterprises are the head offices and local units are branches of the same enterprise. For small businesses, the enterprise and local unit are the same.

Tourism shares many links with the creative industries in terms of the industries it encompasses. For this reason it is often difficult to separate the contribution made to the region from the two broad sectors. However, a recent report[71] has demonstrated that tourism plays a significant part in the regions economy:

- In 2008, overnight visitors spent £2.4 billion in the East Midlands with day visitors spending a further £3.6 billion;

- Approximately 77,000 full time equivalent jobs were supported by direct tourist expenditure in the East Midlands and a further 20,000 jobs were supported by indirect revenue from tourism; and

- Tourism is markedly affected by seasonality. In 2008, January experienced the lowest number of tourist days, at around 570,000, whilst August experienced the highest number of tourist days, at 1.1m.

Key Points: Industrial structure of the East Midlands economy

- In 2009 there were 147,980 VAT and/or PAYE businesses in the East Midlands region, accounting for 6.9% of all businesses in the UK.
- The three cities of Nottingham, Leicester and Derby accounted for 14.5% (21,505) of businesses in the region in 2009.
- Over the last two decades there has been a shift away from production activities towards the service sector both regionally and nationally. The service sector has remained smaller in the East Midlands, accounting for 66% of all businesses, than the level experienced nationally, of 74%.
- In terms of business stock, construction is the largest sector in the East Midlands, accounting for around 14.2% of all businesses in the region, slightly higher than the national average, of 13.4%.
- The manufacturing sector accounts for 21% of output and 16% of employment in the East Midlands (larger than the UK), whilst the service sector accounts for 70% of output and 71% of employment (smaller than the UK).
- The sectors of transport equipment, minerals, food & drink, metals, wholesaling, retailing, and public admin & defence are all more productive in the East Midlands than nationally.
- The creative industries contribute in a significant way to the East Midlands economy. The sector has around 6,000 local units and employs around 33,500 people.
- In 2008, overnight visitors spent £2.4 billion in the East Midlands with day visitors spending a further £3.6 billion.

[71] Global Tourism Solutions, STEAM (Scarborough Tourism Economic Activity Monitor) model, 2008 and East Midlands Region: Volume and Value of Tourism 2008, East Midlands Tourism, October 2009.

3.6 Future prospects for the East Midlands economy

The current recession, the early stages of which occurred towards the end of 2007 and accelerated through 2008, has had a sharp impact on the UK economy, and the East Midlands has not escaped unscathed.

The pace of change reported in many of the indicators used to construct economic forecasts means that there is currently even greater uncertainty around them than usual. This section focuses on the recent economic performance of the region and attempts to gauge the direction and general magnitude of the long term prospects for the East Midlands economy beyond the immediate business cycle.

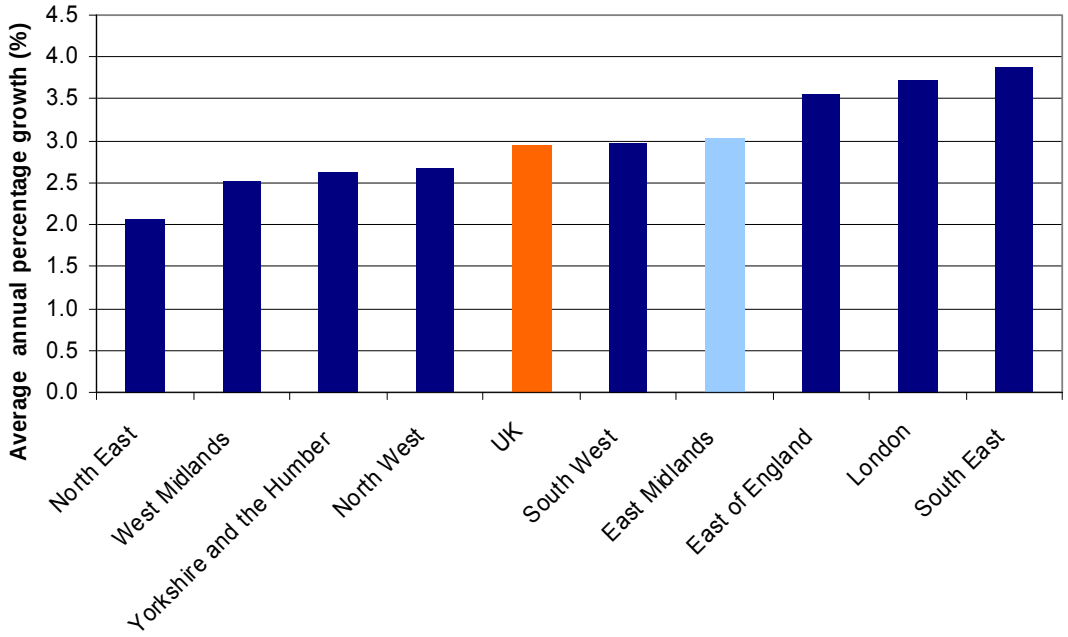
3.6.1 East Midlands economic performance

3.6.1.1 Recent economic performance 1997-2007

The decade prior to 2008 has provided a mixed picture in terms of global economic growth. Global economic growth has generally performed strongly in this period despite significant shocks, including the 'dot com' bubble and the economic impact of the 9/11 terrorist attacks in the United States. Whilst these shocks caused short term difficulties in the global economy they have done little to affect the long run growth trends, with countries such as Brazil, Russia, India and China (BRICs) in particular experiencing strong growth. UK growth has remained strong throughout this period, with growth consistently higher than in the Eurozone and Japan.

Chart 26 shows that the East Midlands economy has experienced relatively strong growth compared with other English regions, in particular other northern and midlands regions. Something of a north/south divide in economic growth has persisted between 1997 and 2007 with regions in the south of the country experiencing greater growth in output than regions in the north.

Chart 26: Average growth in output (per annum, %), 1997-2007



Source: Regional Planning Service, Experian, November 2009.

- The East Midlands experienced economic growth of 3.0% per annum between 1997 and 2007, 0.1 percentage points above the UK average.

- The East Midlands had the largest average annual growth rate of any northern or midlands region in the last decade, 0.3 percentage points greater than the next best performing region (North West) and 0.9 percentage points greater than the worst performing region (North East).

- The highest growth per annum has been experienced by the South East (3.9%) and London (3.7%).

These annualised figures hide some significant year-on-year changes:

- Between 2001 and 2002, London experienced negative growth brought on, in part, by the 9/11 terrorist attacks in the United States affecting the business & financial services and tourism industries. Apart from a slight contraction in the North East in 1997, this was the only period of negative growth in any of the English regions in the last decade; and

- The East Midlands growth rate has performed strongly since 2001 reaching a peak of 5.6% in 2003 before falling back to around 3% between 2004 and 2007. Prior to 2001 the region struggled to reach a growth rate of 2% per annum.

3.6.1.2 Forecast for the next decade

Detailed forecasts for the next decade have become increasingly difficult to create due to the current turbulent nature of economic conditions. Expectations about the future of output in the UK and East Midlands are largely based on the sentiment of businesses and measured by periodic sample surveys[72]. These surveys suggest that businesses are beginning to feel more confident, with many believing that the UK economy has stabilised and will experience modest growth through 2010. We can, however, make more general forecasts, indicating the direction and potential magnitude of change using average annual growth rates over the next decade.

Table 3: Average annual growth rate in output, 2007-2017

Gross Value Added (GVA)	Average annual growth rate (%)
East Midlands	1.2
UK 1.	3

Source: Regional Planning Service, Experian, November 2009.

Table 3 shows that GVA in the East Midlands is expected to grow at 1.2% per annum between 2007 and 2017. There is no significant difference between the forecast average annual growth rate in the East Midlands and the UK average. There is expected to be a slow economic recovery during 2010 following negative growth in 2009. The growth rate is expected to accelerate between 2010 and 2017. These low average figures reflect the depth of the recession in 2009.

3.6.2 East Midlands employment forecast

The economic downturn has also had a large and negative effect on employment in the UK and the East Midlands. Unemployment in the UK rose to almost 2.5 million in November 2009- January 2010. This section focuses on full-time equivalent employment (FTE) demonstrating the growth that has taken place in the English regions over the past decade. For more information on employment in the East Midlands see the Labour Market chapter of The East Midlands in 2010.

3.6.2.1 Recent employment performance 1997-2007

Although there has been a rise in unemployment in the 18 months, the decade prior to 2008 experienced positive growth in FTE employment in all English regions. That being said, there has been significant variations in FTE employment growth between regions:

- Regions in the south and east of the UK have experienced average growth in FTE employment significantly greater than midlands or northern regions between 1997 and 2007;

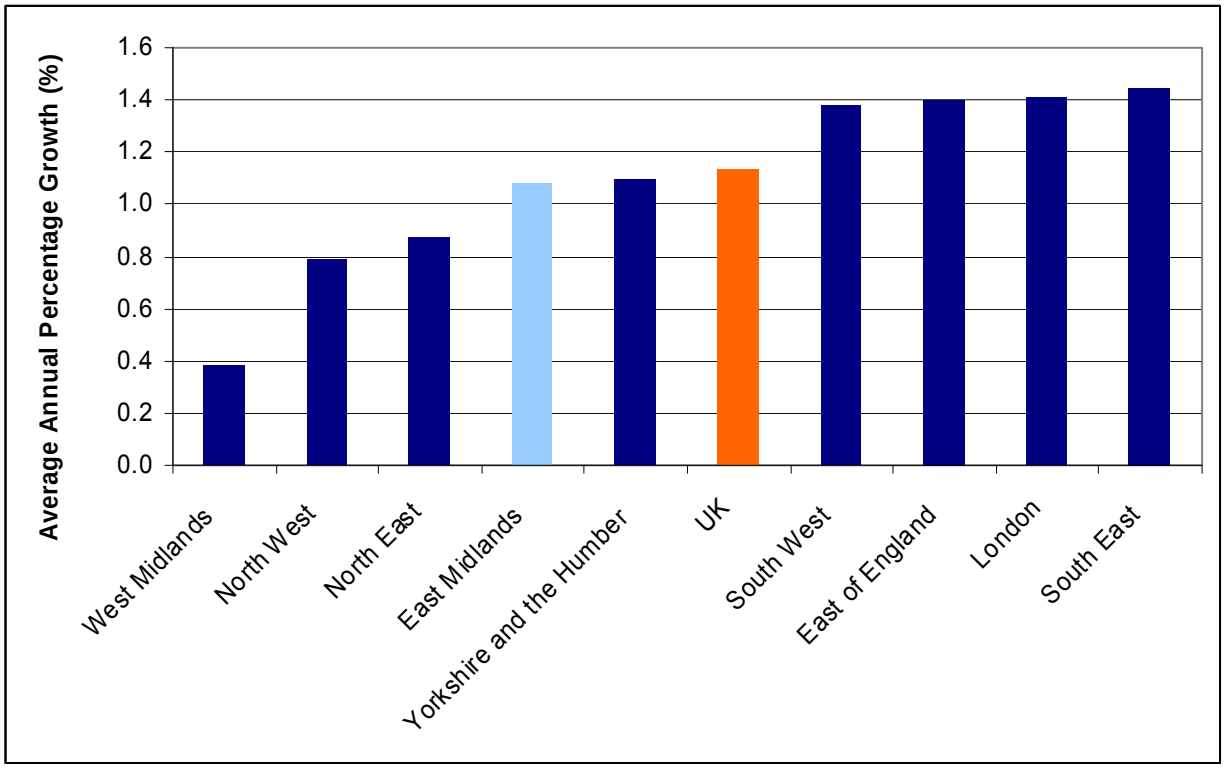
[72] Surveys include: Quarterly Economic Survey, British Chambers of Commerce.

- Regions in the south including the South East, London, East of England and the South West all experienced average annual growth rates in FTE employment of around 1.4%;

- Average growth in FTE employment was 1.1% per annum in the East Midlands in this period, comparable to the UK level; and

- The lowest growth in this period was in the West Midlands where FTE employment grew at 0.4% per annum.

Chart 27: Average growth in FTE employment, 1997-2007 (% per annum)



Source: Regional Planning Service, Experian, November 2009.

3.6.2.2 Employment forecast for the next decade

Similar to output forecasts, there is a great deal of uncertainty around employment forecasts over the next decade. Table 4 shows the broad forecasts that are currently possible to make. It shows that there is expected to be no growth in the level of FTE employment between 2007 and 2017. This reflects the minimal forecast growth in the UK as a whole, of 0.1%, in the same period. There is an expectation that employment will take a number of years to return to its pre-recession level, a pattern familiar in the aftermath of previous recessions. The East Midlands and UK are expected to experience a period of contraction in FTE employment in the early part of the decade, before a modest recovery between 2013 and 2016.

Table 4: Average annual growth rate in FTE employment, 2007-2017

FTE employment	Average annual growth rate (%)
East Midlands	0.0
UK	0.1

Source: Regional Planning Service, Experian, November 2009.

Key Points: Future prospects for the East Midlands economy

- The East Midlands economy has experienced relatively strong growth compared with other English regions, in particular other northern and midlands regions between 1997 and 2007.
- The East Midlands economy is expected to grow at 1.2% per annum between 2007 and 2017.
- Average growth in FTE employment was 1.1% per annum in the East Midlands between 1997 and 2007, comparable to the UK level.
- Forecasts suggest there will be zero growth in FTE employment between 2007 and 2017, as the economy recovers to pre-recession levels of employment. This is in line with the UK average.

3.7 Conclusion

The economic downturn that began in the USA, causing a collapse in business confidence worldwide, is continuing to put pressure on the UK and its regions. The UK is slowly recovering from the worst recession for more than 30 years. Many economic commentators suggest that the economy is stabilising and expect a shallow recovery through 2010, though there is a great deal of uncertainty over prospects for the next six months or so. Many of the published statistics are only just beginning to pick up the effects of the recent recession.

Productivity in the UK has improved in the years leading up to the recession and the gap closed on key competitors. Productivity in the UK is greater than in Japan but remains behind the USA, France and Germany.

Productivity in the East Midlands is below the UK average. Whether measured by output per filled job or output per hour worked, productivity in the region is around seven and a half percentage points below the UK average and has fluctuated around this level between 2005 and 2008.

The economic performance in the East Midlands, as measured by Purchasing Power Standards (an artificial currency allowing for international comparison at a regional level) has remained relatively stable in recent years. The East Midlands currently experiences output per head around a third of that in Inner London (the leading region in the EU) but over four times greater than the Romanian region of Macroregiunea doi (the poorest region in the EU). In EU terms, the East Midlands has an average level of productivity.

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

Levels of investment remain relatively high in the East Midlands. In 2006, the level of investment by UK owned companies was 0.3 percentage points higher than in 2002 but 0.3 percentage points below the UK average. There has been less volatility in the level of investment by foreign owned companies than by UK owned companies. In 2006, the level of investment by foreign owned companies was 2.2% of GVA, which is the highest level of investment recorded. The East Midlands is currently ranked second on this demonstrating that the region is able to offer a favourable business environment. In line with national trends the region has experienced an increase in investment in the service sector and a fall in investment in the manufacturing sector. As a result of the recession it might be expected that levels of investment will fall further.

In terms of innovation, the East Midlands performs relatively well. The region has high levels of innovative activity and co-operation agreements between economic agents but still struggles to turn this activity into commercial gain as measured by turnover. The East Midlands has a number of leading university research departments.

Innovation and enterprise are both facilitated by entrepreneurs who are able to create new products and processes, helping drive economic growth. Entrepreneurship, as measured by total entrepreneurial activity (TEA) in the East Midlands is approximately equal to the UK average. However, the East Midlands experiences a business start-up rate per 10,000 resident adults lower than the national average. Of the businesses that are created in the region over 65% survive for at least three years, higher than the UK average.

The East Midlands is home to around 147,980 VAT and/or PAYE registered businesses, 6.9% of all businesses in the UK. The East Midlands has a larger proportion of businesses in the production sector than the national average. The construction and manufacturing sectors account for a relatively large proportion of the East Midlands economy, with sub-sectors such as transport equipment and food & drink significantly more productive in the region than nationally. This regional specialism in production activities has been in decline over the past two decades and the service sector has generally grown more quickly. This is in line with national trends.

Whilst the East Midlands has experienced relatively strong economic growth in the decade prior to 2008, the recession has had a large negative effect on many industries that are more significant to the East Midlands economy than nationally e.g. construction and manufacturing. It is likely that when the economic recovery occurs the economic landscape will have changed markedly. The economic restructuring and diversification that has occurred in the East Midlands in recent decades has made the region more resilient. Whilst some commentators[73] believe that the manufacturing, in particular high tech manufacturing (in which the East Midlands performs well) will experience a relatively strong recovery, this is yet to materialise. The economic landscape will become clearer as published statistics begin to capture the effects of the recession.

[73] Deloitte, Economic Review – Leader or Laggard? First Quarter 2010.