Regional Economic Indicators, March 2013

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Abstract

In order to gain an overview of the economic performance of UK regions and countries, this article discusses a selection of economic indicators. The article includes analysis of regional data on economic output, productivity, incomes and the labour market. The drivers of regional productivity are also discussed and regional data provided on innovation, enterprise, competition and skills. In this release a particular focus has been applied to how the regions/countries have fared through the economic downturn that began in 2008.

Key Points

Analysing data from prior to the onset of the 2008/09 recession to the latest available, a clear trend is apparent with London outperforming the rest of the UK economy. This story is outlined in this summary and also within this infographic.

Other key points emerging within the Regional Economic Indicators article are:

Economic Output

• In 2011, the Greater South East (London, the South East and East of England) contributed 45.2% of UK GVA, the remaining English regions 40.6% and Scotland, Wales and Northern Ireland a combined 14.2%.
• London increased its share of UK GVA from 20.7% to 21.9% between 2007 and 2011. All other regions/countries either had an unchanged share of UK GVA in 2011 compared with 2007 or a lower share in 2011. The share of the finance and insurance services sector within GVA increased in all regions/countries between 2000 and 2010 while the share of manufacturing in GVA declined in all regions/countries.

Labour Productivity

• In 2011, nominal GVA per hour worked in London was 29.4% higher than the UK average. The South East was the only other region with productivity above the UK average.
• Nominal GVA per hour worked is lowest in Northern Ireland and Wales (16% and 15.4% below the UK average respectively).

**The Labour market**

• During the period Q4 2007 to Q4 2012 there was a statistically significant increase in the unemployment rate in all regions/countries, with the largest increase in the North East region.
• Scotland and the English regions of South West, South East, East Midlands and Yorkshire and The Humber all had a statistically significant decline in employment rates over the same Q4 2007 to Q4 2012 period.
• Economic inactivity rates for London and the West Midlands are at record lows, with a number of other regions close to that mark.

**Income of Residents**

• In 2010, Gross Disposable Household Income (GDHI) was above the UK average in the ‘Greater South East’ regions (East of England, London and the South East), but below the UK average elsewhere.
• Between 2006 and 2010, growth in nominal GDHI per head was largest in London and Scotland and lowest in Northern Ireland, East Midlands and Yorkshire and The Humber.
• In 2012, London's residents had the highest gross median weekly pay, at £651 for males and £575 for females.
• Northern Ireland had the lowest gross median weekly pay for males (£479) while the North East had the lowest gross median weekly pay for females (£406).

**Innovation**

• In 2011, the East of England had the highest expenditure on Research and Development (R&D) relative to the size of its economy with spending equivalent to 3.2% of its regional GVA; London had the lowest expenditure relative to its GVA (0.4%).
• The South East, East of England and North West regions of England accounted for 60% of UK R&D expenditure.

**Enterprise**

• Business births exceeded business deaths in all regions/countries in 2011, apart from Northern Ireland and Wales.
• London and Scotland have seen larger increases in the number of active businesses over the 2007 to 2011 period relative to other regions/countries.
• Business survival rates were lower for businesses born in 2008 than they were for businesses born in 2005 in all regions/countries. Northern Ireland experienced the largest net decline from the highest rate of survival in 2005 (71.1%) to the lowest in 2008 (50.5%).

**International Competitiveness**

• The total value of exports increased in all regions between January-September 2009 to January-September 2012, with the West Midlands experiencing the largest increase (66%) and the North
West the smallest (6%). Across all regions/countries, exports to non-EU countries increased by more than exports to EU countries over this period.

- Over a longer time period, when compared to 2006, exports in 2011 had increased (relative to regional GVA) most in the North East, Wales and the East of England, but fallen as a share of regional GVA in East Midlands.

Skills

- In 2011, Northern Ireland had the highest proportion of the population with no qualifications whereas the South East had the lowest (21.7% and 7.9% respectively).
- London had the most 16-64 year olds educated to NVQ level 4 and above (equivalent to degree level) at 45.9% in 2011, Northern Ireland had the lowest share with 25.7%.
- During the academic year 2011/12, the highest rate of achievement amongst the English regions for 5 or more GCSE’s A* to C, including Mathematics and English was 62.3% in London; the lowest was in Yorkshire and The Humber with 57.3%.

Regional output (GVA)

Change over time

GVA\(^1\) measures the value of economic output in a particular area. As such, it is one of the most important indicators of regional economic performance.

GVA data for 2011 shows that the Greater South East (London, the South East and East of England regions) contributed 45.2% of UK GVA\(^2\) (up from 44.3% in 2007 and 43.1% in 2001). The remaining English regions contributed 40.6% (down from 41.5% in 2007 and 42.7% in 2001) and Scotland, Wales and Northern Ireland a combined 14.2% (virtually unchanged from 14.2% in 2007 and 14.1% in 2001).

Figure 1 shows the proportion of UK GVA contributed by each region/country in 2007 and 2011. London had the highest regional GVA in 2011 at £286.6 billion and was responsible for 21.9% of UK GVA; this share having increased by 1.2 percentage points from 2007. Aside from London, all other regions/countries either had an unchanged share of UK GVA in 2011 compared with 2007 or a lower share in 2011.
Over a longer time period (2001 to 2011), the North West and West Midlands have seen their share of total UK GVA decline the most (down from 10.1% to 9.4% in the North West and from 8.0% to 7.3% in the West Midlands). Aside from London, the South East and Scotland are the only regions/countries to increase their share of GVA over this period.

Interactive Chart 1: Share of UK GVA. (182 Kb Excel sheet)

Figure 2 shows year-on-year changes to regional GVA comparing London to the North West and West Midlands regions since 2004. It shows the divergence in economic output over this period. London’s growth was exceeding that of the other regions from 2004 to 2007. In 2008, London’s output remained strong whilst other regions witnessed a fall in their (nominal) growth rate. The depth of the recession was also less in London; although (nominal) growth fell to zero in London in 2009, in other regions it declined with the largest fall occurring in the West Midlands (-3.7%).
As figure 2 shows, the only year in which annual growth was higher in the North West and West Midlands than in London was in 2010, but even here it was probably a reaction to the extent of the slowdowns in previous years with the West Midlands and North West having more unused capacity to bring back on stream as the economy partially recovered. However, in 2011 London once again had stronger GVA growth than other regions.

To see how other regions/countries GVA compared, please use the interactive chart below.

Interactive Chart 2: Year-on-Year change in GVA. (181 Kb Excel sheet)

The net effect was that in London, nominal GVA increased by 12.4% over the 2007 to 2011 period, as shown in figure 3. Elsewhere the highest nominal growth amongst the other region/countries of the UK occurred in the South West region at 6.8%. The lowest growth occurred in the East Midlands which grew by just 2.3% in nominal terms.
It should be noted that the data discussed so far is nominal GVA. In other words, the data has not been adjusted for inflation (i.e. it is not shown in real terms). This is because it is not possible to accurately deflate the regional GVA data at present. For the moment, therefore, deflation can only be applied at the national level. Between 2007 and 2011, nominal GVA in the UK (the equivalent of that measured above for the regions) increased by 6.5%. However, after accounting for the effects of inflation, in real terms the GVA of the UK economy declined by 2.2% over this period. (The implied UK GVA deflator for the 2007 to 2011 period is equal to 8.9%).

GVA by Industry

Industrial structure varies considerably across the regions/countries of the UK with a particular difference existing between London and the rest of the UK. This can be seen in more detail in the ONS report 'Industrial Specialisation in Local Areas' which, based on data on the number of employee jobs by area and industry, also provides an excel tool (1.96 Mb Excel sheet) allowing users to examine the industrial specialisation of each GB region and local authority.
In figures 4 and 5, some of the differences in industrial structure are revealed based on data showing GVA by industry. Figure 4 examines the share of GVA in each region due to the manufacturing sector and figure 5 the share due to the finance and insurance sector. Data for other sectors can be examined using the interactive charts listed below.

Interactive Chart 3a: GVA by region/country by chosen industry sector. (268 Kb Excel sheet)
Interactive Chart 3b: GVA by industry by chosen region/country. (341 Kb Excel sheet)

Overall, the story across all regions/countries was of the share of manufacturing declining whilst the share of finance and insurance increased. For the UK as a whole, nominal GVA growth of manufacturing between 2000 and 2010 was just 5% whilst for the finance and insurance sector the equivalent nominal growth was 164% (total UK nominal GVA growth across all sectors was 52%).

As a result, across all regions/countries there was a general decline in manufacturing’s share of regional GVA from 2000 to 2010. However, figure 4 shows that the pace of relative decline did slow during the latter part of the decade.

Figure 4: Manufacturing share of GVA: by selected regions/countries

Source: Office for National Statistics

Download chart

XLS XLS format
(35.5 Kb)

In contrast, the finance industry grew its market share as shown in figure 5. In spite of the problems experienced by the finance industry in 2008/2009, the share of regional GVA from the finance and insurance sector remained higher in 2010 than in 2000 and 2005 in all regions/countries.

The difference between London and the rest of the UK can be seen clearly across Figures 4&5. In 2010, London earned 21% of its GVA in the finance and insurance services sectors, whilst in other
regions/countries the share was only between 4% and 8%. Meanwhile, only 3% of London’s GVA was derived from the manufacturing industry in 2010 whilst in other UK regions/countries between 9% and 16% of output was earned in the manufacturing sector. These different industrial structures and the different relative performance of the sectors was one of the reasons for the different overall growth rates experienced by London compared with other areas of the UK over the decade covered by this data.

**Figure 5: Finance and Insurance sector share of GVA: by selected regions/countries**

Source: Office for National Statistics

**Download chart**

[XLS format](https://example.com) (29.5 Kb)

**Further Information:**

- [Regional GVA Statistical Bulletins](https://example.com)
- [Regional GVA podcast and interactive motion charts](https://example.com)
Notes

1. GVA is the value generated by any unit engaged in a production activity. It is measured at current basic prices, excluding taxes (less subsidies) on products. GVA plus taxes (less subsidies) on products is equivalent to Gross Domestic Product (GDP).

2. The regional shares of GVA have been calculated as the share of Total UK less extra regio. In other words, the small amount of GVA that cannot be allocated to regions (approximately 2% of total UK GVA) is excluded from the calculation.

3. The approach that is currently used to compile regional GVA in the UK is the income approach, or GVA(I). Using this method, the effects of price inflation and regional price variation are not removed as conceptually there is no satisfactory method of deflating gross operating surplus. ONS is currently working on developing official estimates of regional GVA via the production approach, and this will enable future publication of estimates of real regional GVA. The first results using this new experimental method are scheduled for release in December 2013.

4. The equivalent real 2007-2011 change in UK GDP at market prices was -2.4%. GDP at market prices = GVA at basic prices plus taxes on products minus subsidies on products.

Labour productivity

Productivity is a measure of the efficiency of production. It provides a ratio of output produced to the inputs required in the production process. In the case of labour productivity, it gives a measure of output per labour input, where the labour input can be either per filled job or per hour worked. Growth in productivity is crucial to enable an economy to experience economic growth, as it means an economy is producing higher levels of output for the same level of input. There are a number of productivity drivers that are considered to lead to productivity growth in an economy such as innovation, skills, competition, investment and enterprise. Regional data on these productivity drivers are provided later in this article. This section examines the relative productivity performance of the UK regions/countries.

Figure 6 shows nominal GVA per filled job and nominal GVA per hour worked for 2011\(^1\).
In terms of GVA per hour worked, which is the recommended productivity measure, the 2011 data showed London to have an average productivity level 29.4% above the UK average. The South East was the only other region/country to have average productivity above the UK average although productivity in Scotland was the same as the UK average. Productivity was lowest in Northern Ireland and Wales (16% and 15.4% below the UK average respectively).

A large part of the differences in productivity between the regions and countries of the UK are due to different worker characteristics. For example, London has a higher share of graduate workers than other regions/countries and this helps to raise its relative productivity level. Other aspects of a local economy such as the levels of innovation and business start ups can also influence productivity levels. In the case of London, agglomeration economies also help raise productivity. These are the benefits to economic efficiency that arise from working in a dense city environment.
Figure 7 shows the nominal productivity data over the decade to 2011 for selected regions/countries. (Data for other regions/countries can be seen in the interactive charts). It shows London's productivity relative to the UK average was higher in 2011 than 2001, although there was a slight decline in London's relative productivity performance in 2010 and 2011.

Figure 7 also shows that Scotland has improved its productivity levels relative to the rest of the UK over the 2001 to 2011 period. In 2001, Scotland's productivity was 6% below the UK average. By 2011, its productivity levels were equal to the UK average.

By contrast, most English regions in the north and midlands have seen relative productivity performance worsen over the 2001 to 2011 period. The North East region shown in Figure 7 is one of the regions/countries with the steepest relative decline in productivity (compared with the UK average). The largest decline has occurred in Yorkshire and The Humber, where productivity has fallen from 6% below the UK average in 2001 to 12% below the UK average in 2011.

Figure 7: GVA per hour worked for selected regions/countries, 2001 to 2011

Source: Office for National Statistics

Download chart

XLS  XLS format
(36.5 Kb)

Interactive Chart 4a: GVA per hour worked. (188 Kb Excel sheet)
Interactive Chart 4b: GVA per filled job. (179 Kb Excel sheet)
It should be noted that as explained in a previous national statistician’s article (Dunnell 2009)\(^2\), these productivity indicators are considered a more appropriate set of indicators to assess regional economic performance than the use of GVA per head.

This is because, the input measure used in GVA per head (residential population) is not a good measure of the actual labour input involved in the production of a region's output (GVA). There are a number of reasons for this. Firstly, by including all the residential population and not just those who are in employment, the denominator includes residents who are not directly contributing to GVA. A second key problem with GVA per head is that it is dividing a workplace-based numerator (workplace based GVA) by a residence-based denominator (residential population). This means it does not account for people commuting in and out of a region. Furthermore, these commuting effects can have a very large impact on GVA per head data in some regions.

For these reasons, GVA per hour worked or GVA per filled job are the most appropriate measures of regional productivity. These measures only count the input of those who are directly employed in the production process (rather than the population as a whole) and additionally they provide a workplace based labour input denominator to match the workplace based GVA numerator, thus fully accounting for the impacts of commuting.

Notes

1. At present, regional productivity data is only available in nominal terms, not in real terms. In other words, the effects of inflation cannot be removed. This is because regional GVA is calculated via the income method and conceptually there is no satisfactory method of deflating gross operating surplus.


The labour market

Employment

The employment rate gives the share of people aged from 16 to 64 in employment. Employment rates in the UK in Q4 2012 varied from 67.0% in Northern Ireland to 75.0% in the South East region of England.

Figure 8 shows how employment rates have changed since prior to the 2008/09 recession. The chart shows the only region with a higher employment rate in Q4 2012 than Q4 2007 is London. It should be noted, however, that this increase is not statistically significant\(^1\).

By contrast some of the declines in the employment rate between Q4 2007 and Q4 2012 shown in Figure 8 are statistically significant. This is the case for Scotland, and the English regions of South West, South East, East Midlands and Yorkshire and The Humber. In other words, in these regions/countries, the decrease in the employment rate shown is not considered likely to be due to sampling
variability but rather is considered to show an actual reduction in the employment rate as having occurred over the period.

**Figure 8: Change in employment rates, Q4 2007-Q4 2012**

Most of the declines in the employment rates that occurred since 2007 took place during 2008 and 2009. For most regions/countries, the data suggests employment rates have been rising more recently, although the increase is not always statistically significant. However, in the case of Yorkshire and The Humber and West Midlands, there has been a statistically significant increase in the employment rate between Q4 2010 and Q4 2012.

**Unemployment**

The unemployment rate is calculated in line with the internationally–consistent International Labour Organisation definition. It divides the number of unemployed by the number of economically active for persons aged 16 and over. In Q4 2012, unemployment rates varied from 5.5% in the South West to 9.7% in the North East.
Figure 9 shows how unemployment rates have changed over the five years from Q4 2007 to Q4 2012. It can be seen that they have increased in all regions/countries of the UK. Furthermore, these increases are all statistically significant. The lowest rises are in London and the South West of England both with a 1.8 percentage point increase. The unemployment rates in the North East, Yorkshire and The Humber, Wales and Northern Ireland have all increased by more than 3.5 percentage points with the largest increase occurring in the North East of England which increased from 5.7% to 9.7% from Q4 2007 to Q4 2012.

Figure 9: Change in unemployment rates, Q4 2007-Q4 2012

In almost all regions/countries, however, the most recent data has shown a downward trend in unemployment rates, with the rate lower in Q4 2012 than in Q4 2011 in all regions/countries except the South East of England and Northern Ireland. However it should be noted that only in London was this year-on-year decline in the unemployment rate statistically significant.

Interactive Chart 6: Unemployment Rates. (189 Kb Excel sheet)

Underemployment

The number of underemployed workers, i.e. those who want to work more hours, has risen by an estimated 1 million (or 47.3%) since the start of the economic downturn in 2008, to stand at 3.05
million in 2012. Nearly two thirds of the 1 million increase took place in the 12 months between 2008 and 2009, when the economy was in recession.

The average underemployment rate for the period April-June 2009 to April-June 2012 ranged from 9.2% in the South East region to 10.7% in the East Midlands. Further details on this and the full regional data on underemployment can be found in the following report.

Underemployed workers in the UK, 2012 release.

Inactivity

Economic inactivity refers to people who are neither in employment nor unemployed, for example people who are looking after a home or family, or have retired or are long-term sick. In Q4 2012, the lowest inactivity rate amongst 16-64 year olds was 19.6% in the East of England region while the highest rate was in Northern Ireland at 27.2%.

Figure 10 shows the change in economic inactivity rates for persons aged from 16 to 64 between Q4 2007 and Q4 2012. It shows increases in the inactivity rate in Scotland, the South West and the South East although these increases are not statistically significant.

Figure 10: Change in economic inactivity rates, Q4 2007-Q4 2012

Source: Office for National Statistics

Download chart

XLS XLS format
(35.5 Kb)
The declines in the inactivity rate seen in London and the West Midlands are, however, statistically significant. Furthermore, the economic inactivity rates for London and the West Midlands are at record lows, with a number of other regions close to that mark.

Interactive Chart 7: Inactivity Rates. (209 Kb Excel sheet)

Jobs

Figure 11 shows the percentage change in the number of workforce jobs from September 2007 to September 2012.

**Figure 11: Change in workforce jobs, Sept 2007 – Sept 2012**

[Bar chart showing percentage change in workforce jobs]

Source: Office for National Statistics

**Notes:**
1. Data used is seasonally adjusted

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[XLS format](27.5 Kb)

Most of the regions/countries of the UK experienced a decrease in the number of workforce jobs from September 2007 to September 2012; with the largest percentage decline occurring in Northern Ireland with a decrease of 4.7%. London, the South East of England and Wales were the only regions/countries to increase the number of workforce job over the same period. The highest
increase was in London; with 5.6% more workforce jobs in September 2012 than in September 2007.

In terms of numbers of jobs, the increase in workforce jobs in London over the September 2007 to September 2012 period was 267,000. The largest decrease was in Scotland with an 84,000 decline. Over the whole of the UK, the level of workforce jobs was virtually unchanged over this period, showing a decline of 17,000.

**Interactive Chart 8: Workforce Jobs. (152 Kb Excel sheet)**

**Claimant Count**

Figure 12 shows the claimant count rate (referring to people claiming Jobseeker’s Allowance benefits as a percentage of the population aged 16-64 resident in that area) over the period January 2007 to January 2013 for selected regions.

The chart illustrates that whilst claimant count rates across all regions have followed a similar pattern over this period, there has nevertheless been some divergence over time. For example, in early 2007, the claimant count rate was 0.5 percentage points lower in Yorkshire and the Humber compared with London. By mid-2011, the rate in Yorkshire and the Humber had increased well above that of London, a position that has been maintained into 2013.

**Figure 12: Claimant count rates for selected regions: Jan 2007 - Jan 2013**

Source: Office for National Statistics

**Notes:**
1. Data used is seasonally adjusted
The North East has had the highest claimant count rate since January 2007 compared with most other regions. Meanwhile the South East of England has one of the lowest claimant count rates of all regions over the same time period, the highest point from mid-2009 to early 2010 at 2.9%. All regions largely followed the same trend; with a steep increase through 2008 and 2009. In the case of the North East, the more recent data points (late-2012) were also the highest rates (over the period of figure 12), but this is not the case in London or the South East region. Data for other regions/countries can be examined in the interactive chart.

Interactive Chart 9: Claimant Count. (253 Kb Excel sheet)

Further Information

Labour Market Theme Page
Regional Labour Market Statistics

Notes

1. The estimates are subject to some margin of error. 95% confidence intervals are calculated for these results. Statistically significant differences are reported when the difference between estimates (in this case whether or not the change over time is either larger or smaller than zero) is bigger than the 95% confidence interval of the difference.

Income and Earnings

GDHI

Gross Disposable Household Income (GDHI) per head is recommended as a measure of the regional welfare of individuals\(^1\). GDHI represents the amount of money available within the household sector for spending or saving\(^2\).

Figure 13 presents indices of GDHI per head for 2006 and 2010, showing movements in regional household income relative to the UK average over time. It is evident that the GDHI per head is above the UK average only in the regions of the ‘Greater South East’. Of these regions, London has consistently had the highest GDHI per head since 2006 and continues to diverge from the national average. The South East and East of England, on the other hand, are getting closer to the national average as they experienced relatively lower growth in household income compared with the national average between 2006 and 2010.

Most of the regions/countries with relatively lower household income diverged further from the national average during the 2006 to 2010 period, although an improvement against the national average is evident in Scotland over this period.
Figure 13: Gross disposable household income (GDHI) per head

Source: Office for National Statistics

Notes:
1. Provisional

Download chart

XLS format (29 Kb)

The data for regional GDHI is available as a time series from 1997. The interactive chart allows users to investigate different time periods to those presented in figure 13.

Interactive Chart 10: Regional GDHI. (185.5 Kb Excel sheet)

Earnings

A key aspect of household income is earnings from employment. Analysing earnings data can show how pay differs regionally and by job type and by gender. Regional estimates of weekly pay for male and female full time employees taken from the Annual Survey of Hours and Earnings (ASHE) are shown in Figure 14.
London’s residents had the highest gross median weekly pay in 2012, at £651 for males and £575 for females, followed by the South East, at £613 for males and £479 for females. Male residents of Northern Ireland recorded the lowest median weekly earnings in 2012 at £479, while the North East recorded the lowest median weekly earnings for females at £406.

Figure 14: Gross median weekly pay of full-time employees: 2012

Source: Office for National Statistics

Download chart
[XLS XLS format (32.5 Kb)]

Figure 14 also shows the gender pay differential across the UK regions/countries in 2012. The highest difference was in the South East, with males having a median weekly pay 28% more than females. The lowest pay differential was in Northern Ireland, with the median weekly pay for males only 9% higher than females. It is important to note that these figures are for all full time jobs and do not take the type of industry or occupation into account. Therefore it is not possible to differentiate, without further analysis, the extent to which the difference between male and female pay is due to different pay for similar jobs as opposed to different pay reflecting different job types.

Further Information
Notes

1. GVA per head is not recommended as a measure of welfare. There are a number of reasons. For example, due to commuting, residents might derive their incomes from economic activity in another region, which is not captured by GVA per head of their region. They may also have sources of income which are unrelated to current work, such as pensions and investments. These are included in the GDHI measure.

2. This is money left after expenditure associated with income, e.g. taxes and social contributions, property ownership and provision for future pension income. It is calculated gross of any deductions for capital consumption.

Innovation

Innovation is a necessary, although not sufficient, condition for economic success and is therefore recognised as an important driver of productivity. Innovation comprises, among others, the development of new technologies that increase efficiency and the introduction of new, more valuable goods and services. It also includes intangibles such as new methods of working and improvements to services.

Innovation takes place through a wide variety of business practices and a range of indicators can be used to measure its level within the enterprise or in the economy as a whole. These include the levels of effort employed (measured through resources allocated to innovation) and of achievement (the introduction of new or improved products and processes). The UK Innovation Survey 2011 reported on the types and levels of innovation activity over the three year period, 2008 to 2010.

Figure 15 shows the shares of innovation active businesses across the countries and regions of the UK for 2008 to 2010. A business is defined as innovation active if it has engaged in any of the following:

1. Introduction of a new or significantly improved product (good or service) or process;
2. Engagement in innovation projects not yet complete or abandoned;
3. New and significantly improved forms of organisation, business structures or practices and marketing concepts or strategies.
Figure 15 shows relatively small differences across regions/countries. The South East and East of England regions and Wales each had slightly over 40% of innovation active enterprises. In Northern Ireland, Scotland, London and the North West, the share was closer to 30%.

Figure 15: Innovation active enterprises, 2008 - 2010

Source: Business, Innovation and Skills

Download chart

XLS XLS format
(30.5 Kb)

Data is also available specifically on expenditure on research and development (R&D). The activities that are classified as R&D differ from company to company, but there are two basic models. In one model, the primary function of R&D is to develop new products; in the second model, the primary function of R&D is to discover and create new knowledge about scientific and technological topics with the purpose of uncovering and enabling development of new products, processes, and services.

For the purposes of National Statistics, R&D and related concepts follow internationally agreed standards defined by the Organisation for Economic Cooperation and Development (OECD), as published in the ‘Frascati’ Manual. R&D, in the Frascati Manual, is defined as “creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications”. The OECD definition of R&D covers the following:

- basic research: experimental and theoretical work to obtain new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view,
• applied research: work undertaken to acquire new knowledge, which is directed primarily towards a specific practical aim, and,
• experimental development: systematic work, drawing on existing knowledge, which is directed at producing new materials, products or devices, installing new processes, systems and services, or at improving substantially those already produced or installed.

The OECD definition excludes education, training and any other related scientific, technological, industrial, administrative or supporting activities. However, whilst the data presented below focuses on R&D, it should be noted that innovation depends on a wider set of inputs than R&D, including skills training, design, software and organisational investment by firms.

Figure 16 presents statistics on Research and Development amongst UK businesses which are consistent with internationally agreed standards. It shows business expenditure on R&D as a percentage of workplace-based GVA. This is a measure commonly used in regional comparisons as it takes account of the size of regional economies.

**Figure 16 - Business expenditure on R&D as a percentage of workplace-based GVA, 2011**

The data shows that the East of England has been the region with by far the highest percentage of R&D expenditure, with spending equivalent to 3.2% of its regional GVA in 2011. The South East region had the second highest percentage (2.4%) followed by the North West (1.8%). These three regions combined accounted for 60% of the total expenditure on R&D in the UK in 2011.
London had the lowest R&D expenditure as a share of its regional GVA in 2011 (0.4%) followed by Wales, Yorkshire and The Humber, Scotland and the North East. London's very low share of expenditure on R&D is due to it having a large concentration of service industries, which are usually less R&D intensive (within the OECD definition) as they rely heavily on human capital. It may also reflect the location choices businesses make regarding their R&D activities. Some firms may spend on assets to improve the efficiency of the firm (software/training) but this is not included in the OECD definition. Also, as the benefits of R&D may take years to be realised there is a need for initial security in the industry, so a region where there are larger and more stable firms would be expected to spend more on R&D.

Further Information

Community Innovation Survey


Enterprise

Enterprise is considered another driver of productivity. It is defined as the seizing of new business opportunities by both start–ups and existing firms. The rationale for its impact on productivity\(^1\) is that new enterprises can bring innovative processes and technologies to the market, forcing existing ones to improve their productivity in order to remain competitive.

Figure 17 shows the number of births and deaths of businesses in 2011 as a proportion of the stock of active businesses\(^2\). The difference between the birth rate and the death rate represents the net change. The data includes all enterprises registered for VAT or pay–as–you–earn (PAYE). It needs to be noted that enterprise statistics relate to the place of registration of the enterprise, even though the enterprise may consist of more than one local unit (workplace), possibly in different regions.

Interactive Chart 11a – Business Births (182.5 Kb Excel sheet)
Interactive Chart 11b – Business Deaths (176 Kb Excel sheet)
Interactive Chart 11c – Net change in business births and deaths. (184.5 Kb Excel sheet)

In 2011, the number of births of businesses exceeded the number of deaths in all English regions and in Scotland. This contrasts with 2010 when the business births exceeded deaths only in London and Scotland.

Prior to this, in 2009, when the UK was in recession, the number of business deaths exceeded the number of births in all regions and countries of the UK. Before the recession, however, business births had typically exceeded deaths in all regions and countries of the UK. For each year from 2005 to 2008 business births exceeded deaths in all countries and regions of the UK.
Figure 17 illustrates that in 2011 the difference between businesses births and deaths was larger in London than in other regions and countries of the UK. This continues a trend seen since 2008. Comparing the number of active businesses in 2011 with the number in 2007, the data shows that London increased its active business stock by 11.5% over this period. Scotland also witnessed a large increase (7.9%) in its active business stock over this period. Elsewhere, as shown in Figure 18, the active business stock in the remaining countries and regions of the UK either decreased or increased by less than 3%.
As well as analysing births and deaths of enterprises, it is useful to look at how long these enterprises survive. Figure 19 shows three year survival rates for enterprises born in the years 2005 and 2008.

Care should be taken in interpreting business survival statistics. At first sight it may be considered that a higher survival rate in region A compared to region B is always a good result for region A. However, this need not always be the case. A relatively high level of business churn can sometimes be seen as desirable, as new firms entering the market are considered to bring innovative processes and technologies that drive up productivity and force unproductive enterprises to leave the market. Where this occurs it can lead to an improved productivity performance in the region. The business survival rate data therefore needs to be considered in respect of the wider business conditions and data of each individual region or country, in particular the level of business start ups.

London, for example, tends to have a low business survival rate, but it also has a very high birth rate for new businesses and, as seen in Figure 18, the net effect of this has been strong growth in the overall level of business stock in recent years, despite its relatively low business survival rate. In regions with lower start ups competition may be lower and although firms may have a greater chance of survival there may not be such a positive influence on productivity. It should also be noted
that low survival rates do not necessarily mean that all the business that closed had failed; some may have been taken over by a larger firm or merged, creating a new enterprise.

**Figure 19: Percentage of units surviving three years: by year of birth**

![Chart showing business survival rates by year of birth](image)

Source: Office for National Statistics

**Download chart**

[**XLS**](XLS format) (28 Kb)

As well as comparing one region with another, business survival data can also be analysed over time. Figure 19 shows three year business survival rates for businesses born in 2005 compared to businesses born in 2008. In all the regions and countries, three year business survival rates were higher for businesses born in 2005 than they were for businesses born in 2008, suggesting that the 2008/2009 recession had a negative impact on business survival rates across the country. Northern Ireland in particular witnessed a large decrease in business survival rates (from 71.1% for firms born in 2005 to 50.5% for firms born in 2008). The impact was lowest in Scotland, where business survival rates only fell from 64.0% for firms born in 2005 to 61.2% for firms born in 2008.

**Further Information:**


[Guide to the business population and demographics statistics publications](Guide to the business population and demographics statistics publications)
Notes

1. The data included in this section helps illustrate the different types of business environment existing in different regions, for example in respect of how much or how little churn exists in the business stock as well as recent changes to the number of businesses. The commentary on how different types of business environment are typically considered to influence productivity is included as a guide to users in interpreting the data. However, it should be noted that this data alone does not prove or disprove any of the productivity effects discussed.

2. The data in this section relates to the number of businesses as reported in the ONS Business Demography publication. This provides a count of all businesses registered for either VAT or PAYE that were active at some point in the calendar year. See the ‘Guide to the Business Population and Demographics Statistics Publications’ linked to at the end of this section for more details of this and alternative measures of the total business stock.

International Competitiveness

UK firms operate within the context of the global economy. Competition from companies based overseas enhances the productivity of UK firms by creating incentives to innovate and ensuring that resources are allocated to the most efficient firms. Although firms in a region may be competitive without exporting overseas, exports provide an indication of how international regions are in their outlook, and how able they are to face global competition.

HM Revenue & Customs (HMRC) publishes statistics on regional trade in goods to the EU and non–EU destinations by statistical value. Trade in goods by definition excludes trade in intangibles and services. The statistical value of export trade is calculated as the value of the goods plus the cost of movement to the country's border.

Figure 20 presents the percentage change in the value of exports from January-September 2009 to January-September 2012 separated into exports to EU and non–EU destinations. The total value of UK goods exports to all destinations increased by 34.6% over this period. The largest increase occurred from the West Midlands (65.9%) and the smallest from the North West (6.1%).

For the UK as a whole, the value of goods exports to the EU was up by 22.2%, whilst goods exports to non–EU regions rose by 50.1%. Export growth was higher to non-EU countries, than to EU countries, from all regions/countries, illustrating that as the UK exports have recovered from the depths of the 2008/09 recession, it has largely been driven by exports to markets outside of the EU.
Figure 20: UK regional trade in goods – statistical value of exports.

Source: HM Revenue and Customs

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Interactive Chart 12: Exports (180.5 Kb Excel sheet)

Figure 21 shows the value of exports of goods expressed as a percentage of workplace–based regional GVA. This measure is used to provide a means of showing for which areas exports are a relatively important aspect of the local economy as it takes into account the differing sizes of each region or countries economy. By showing data for 2006 and 2011, it also allows a comparison of export performance relative to a point in time before the economic slowdown.

In 2011, the value of goods exports relative to the size of the local economy was greatest in the North East and Wales and lowest in London and the South West. In terms of this indicators change over time, exports relative to GVA were higher in most regions/countries in 2011 compared to 2006, with a decrease only occurring in the East Midlands. There was a particularly noticeable increase in this indicator for the North East of England.

It needs to be noted that these figures show exports of goods only and therefore are likely to underestimate the export performance of some regions with a large share of services industries such as London.
Skills

This section considers qualifications as an indicator of skill. By examining the qualifications of the current workforce as well as those of young people, who represent the future capabilities of the labour market, a view of how skills are changing over time and their potential impact on productivity can be analysed.
Figure 22 shows the proportion of 16-64 year olds in 2011 that had no qualifications in each region and country of the UK. Compared to the UK average of 11%, Northern Ireland had the highest proportion of the population with no qualifications (10.7 percentage points above the UK average); whereas the South East and the South West had the lowest proportions, 3.1 and 2.9 percentage points below the UK average, respectively.

**Figure 22: Share of 16-64 year olds with no qualifications, 2011**

Source: Office for National Statistics

**Download chart**

XLS format
(32 Kb)

Interactive Chart 14: No qualifications (180 Kb Excel sheet)

Figure 23 shows the percentage of 16 to 64 year olds with NVQ level 1, level 2, level 3 and level 4 and above qualifications in 2011. With 45.9% London had the most 16-64 year olds educated to NVQ level 4 and above, Northern Ireland had the lowest share with 25.7%. Partly because London had the most residents educated at NVQ level 4 and above, it had relatively few residents with level 2 or 3 qualifications as their highest level. The East of England had the highest proportion with highest qualification of level 1 (15.3%) and the North East had the biggest share of residents with the highest qualification of level 2 (19.9%), while the East Midlands had the most residents with the highest qualification of level 3 (18%).
It should be noted that characteristics of local economies differ and these can dictate which labour skills are required. Due to differing regional skill requirements, people with recognised qualifications might migrate into other regions, where demand for their qualifications is high. It is this type of migration that is largely responsible for the relatively high level of residents with level 4 qualifications in London and the South East region. Meanwhile, if employers have a strong demand for lower skills and a good supply of appropriate workers, low skill equilibrium can also be created in a region or local area.

To assess the future capabilities of the labour force, data on current school performance is shown. Two indicators that have been used in recent years are the percentage of pupils achieving five or more grades A* to C at GCSE level or equivalent and the percentage of pupils achieving five or more GCSEs grade A* to C in subjects including English and Mathematics. Figure 24 shows these results for 2011/12 for the English regions (different educational systems in Wales, Scotland and Northern Ireland means it is not possible to provide comparable data across the countries of the UK with this indicator).

The North East had the highest share of pupils achieving five or more A* to C grades across all subjects in 2011/12 at 88%. Meanwhile, the South West of England had the lowest percentage of
pupils achieving A* to C grades with 79.8%. In addition, the South West is one of the regions with the lowest achievement rates of five or more GCSEs grade A* to C in subjects including English and Mathematics with 57.5%; second only to Yorkshire and The Humber at 57.3%. The highest rate of achievement of five or more GCSEs grade A* to C in subjects including English and Mathematics occurred in London (62.3%) followed by the South East (60.2%).

Figure 24: Pupils achieving five or more grades A* to C at GCSE level or equivalent in all subjects and subjects including English and Mathematics: 2011/12

Source: Education

Download chart

XLS format (34.5 Kb)

Interactive Chart 16: GCSE level qualifications (147.5 Kb Excel sheet)

Further Information:

Earnings by Qualification in the UK, 2011, NVQ Qualification Levels Explained.
Department for Education, Statistical Releases
Notes

1. NVQ level 1 is equivalent to GCSE grades D-F. Level 2 is equivalent to GCSE grades A-C. Level 3 is equivalent to AS/A levels. Level 4 and above is equivalent to higher education. It is also possible to have a ‘trade apprenticeship’ qualification or ‘other’ qualifications. The latter usually relate to qualifications earned abroad.

Background notes

1. Details of the policy governing the release of new data are available by visiting [www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html](http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html) or from the Media Relations Office email: media.relations@ons.gsi.gov.uk

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