

FEATURE

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National Statistician's article: measuring regional economic performance

SUMMARY

Improving the understanding of regional economic performance has become increasingly important in the UK. Gross Value Added (GVA) per head is one of the headline indicators used in UK regional policy. This article aims to inform the discussion about the limitations of GVA per head in measuring the productivity of a region and the income of its residents. It proposes a series of indicators which can help to measure regional productivity and income more robustly and inform regional policy more widely.

Improving the understanding of regional economic performance has become increasingly important in the UK. In *Meeting the economic challenges in every region* (HMT 2008), the Government says that it

is committed to narrowing the gap between the highest and lowest performing regional economies. The Government's understanding of regional economic performance is enriched by an appreciation of the underlying drivers of regional growth and the spatial levels at which they operate.

Indicators on the economic performance of regions and areas within regions are necessary for effective regional policymaking.

Gross Value Added (GVA) per head is one of the headline indicators used in UK regional policy. More specifically, it is used for measuring progress of the Government's Regional Economic Performance Public Service Agreement (REP PSA), which aims to improve the economic performance of all English regions and reduce the gaps in economic growth caused by differences in productivity across regions. This article aims to inform the discussion about the limitations of GVA per head in measuring the productivity of a region and the income of its residents. It proposes a series of indicators which can help to measure regional productivity and income more robustly and inform regional policy more widely.

At an international regional policy level, the European Union (EU) and the Organisation for Economic Co-operation and Development have started discussions on the future direction of regional policies. The need to use better and more wide-ranging indicators has been identified and future regional policy is likely to focus on enabling all regions to realise the full potential of their assets, as well as helping the poorest performing regions to close the gap with the better performing regions.

This article:

- states that GVA is a good measure of the economic output of a region
- proposes that GVA per head, which divides output of those working in a region by everybody living in the region, should not be used as an indicator of either regional productivity or income of residents
- promotes the use of GVA per hour worked and GVA per filled job as productivity measures and Gross Disposable Household Income (GDHI) per head as an indicator of the welfare of residents living in a region
- promotes the use of productivity, income and labour market indicators to give a more complete picture of regional and subregional economic performance
- describes – by using productivity, income and labour market indicators – the key differences in regional economic performance

- discusses the causes of regional disparities by investigating differences in some key drivers of productivity at the regional level

National Statistics and regional policy

National Statistics on the overall UK economy document a period of sustained economic growth, averaging 3 per cent per year, between 1992 Q3 and 2008 Q1. Over the past year, however, following major problems in financial markets and a sharp increase in energy prices, growth has fallen sharply. In 2008 Q2 the UK economy experienced zero Gross Domestic Product (GDP) growth compared with the previous quarter. Estimates for 2008 Q3 indicate negative GDP growth of 0.6 per cent. In terms of the labour market, the UK has seen a steady improvement from 1995 up to early 2008, with the working-age employment rate having increased and the working-age unemployment and economic inactivity rates having declined. Estimates for 2008 Q3 show a slight decline in the employment rate, an increase in the unemployment rate and a further decline in the economic inactivity rate compared with a year earlier.

The developments in the national economy reflect the average economic performance of UK regions. However, at the regional level, there are large divergences from the national picture. Productivity – the driving force behind economic growth – the income of residents of a region and the performance of regional labour markets varies substantially between regions and even more so between subregions.

To address the economic performance of regions, UK regional policy has been

focused on a more devolved approach since 1997. To achieve high and stable rates of economic growth and employment in each region, Public Service Agreements (PSAs) were introduced following the 1998 Comprehensive Spending Review. The REP PSA deals with the economic performance of all English regions. To promote growth in Wales, Scotland and Northern Ireland, the Government works in partnership with the Devolved Administrations. At the international regional policy level, EU Structural Funds, which are aimed at speeding up the economic convergence of less-developed regions within the EU, are allocated at the EU's Nomenclature of Units for Territorial Statistics (NUTS) level 2 (see **Box 1** and **Map 1**). The rest of this article uses 'regions' when referring to NUTS1 regions and 'subregions' when referring to NUTS2 and 3 areas.

Indicators used in regional policy and alternatives

To deliver the goals set out in the REP PSA (see **Box 2**), GVA is an important measure. For the allocation of EU Structural Funds at an international regional policy level, GDP per head is used as a headline measure, which shows the same relative differences between regions as those shown using GVA per head (see **Box 1**). The rest of this article only refers to regional GVA, but the issues apply equally to regional GDP.

Policymakers frequently use GVA per head as a headline indicator of regional productivity and of regional incomes and, therefore, the welfare of people living in a region, when comparing and benchmarking regions that differ in geographical size, economic output and population. However,

productivity and income are very different, as shown in **Table 1**.

GVA per head is calculated as the simple ratio of the economic activity in a region divided by the number of people living in a region. To measure productivity, however, GVA should be divided by the labour input (jobs or hours worked) used to create it. The difficulty with GVA per head is that it has a workplace-based numerator (GVA) and a residence-based denominator (population).¹ This means that GVA per head does not take account of:

- people commuting in and out of regions to work
- regional differences in the percentages of residents who are not directly contributing to GVA, such as young people or pensioners
- different labour market structures across regions, such as full- and part-time working arrangements

These factors lead to inconsistencies which make GVA per head unsuitable as a productivity measure. For example, areas with strong inward commuting have high GVA generated by incoming workers, divided by a much lower resident population.

For similar reasons, GVA per head is also a poor measure of income. For example, while GVA per head in a region might be low, residents might commute outside the region to work and therefore derive their incomes from economic activity in another region. They may also have sources of income which are unrelated to current work, such as pensions and investment incomes.

Box 1

Technical box

Regional geographies

For the purposes of European regional statistics, geographical distinctions are made according to the EU's Nomenclature of Units for Territorial Statistics (NUTS), allowing comparison of EU regions. There are three NUTS levels in the UK:

- NUTS level 1: 12 areas – Northern Ireland, Scotland, Wales and the nine Government Office Regions of England. There is a 13th 'region' known as Extra-regio which accounts for economic activity that cannot be assigned to any specific region. For the UK this consists mainly of offshore oil and gas extraction and the activities of UK embassies and forces overseas. When talking about NUTS level 1 areas, this article refers to regions
- NUTS level 2: 37 areas within the UK, generally groups of unitary authorities and counties

- NUTS level 3: 133 areas, generally individual counties and groups of unitary authorities or districts, also known as local areas

GVA and GDP

Gross Value Added (GVA) provides a measure of the value added to materials and other inputs in the production of goods and services by resident organisations before allowing for depreciation or capital consumption. It is equal to GDP plus subsidies less taxes on products. To estimate regional GDP, these taxes and subsidies are regionally allocated. On a UK regional level, GVA per head is used when comparing regional economic performance while, on a European level, GDP per head is used to compare EU countries and regions. This does not affect comparison of regions within a country, as relative differences between regions are the same on both bases.

Map 1
NUTS levels 1 and 2



Box 2

Policy box

Regional Economic Performance Public Service Agreement

The Regional Economic Performance Public Service Agreement aims to improve the economic performance of all English regions and reduce the gap in economic growth caused by differences in productivity across regions.

Four headline performance indicators are used to measure progress. Beneath these headline indicators a series of supporting indicators that measure regional performance in terms of the drivers of productivity are being used:

- indicator 1: regional GVA per head trend growth rate
- indicator 2: regional GDP per head levels indexed to EU15 average
- indicator 3: regional employment rate of working-age people
- indicator 4: regional productivity measured by GVA per hour worked indices

EU Structural Funds

The allocation of EU Structural Funds is guided by the economic and social cohesion policy that was introduced in the 1986 Single

European Act and adopted in the EC Treaty in 1992. Its aim is to achieve balanced development throughout the EU, reducing structural disparities between regions and promoting equal opportunities for all by redistributing funds. These funds are primarily allocated at NUTS level 2.

For the 2007 to 2013 budgetary cycle, Structural Funds have three main objectives:

- Convergence objective: speeding up the economic convergence of the less-developed regions. Every region whose GDP per head is below 75 per cent of the EU27 average is eligible. A phasing-out support will be granted to those regions whose GDP per head is above the 75 per cent figure due solely to the statistical effect of EU enlargement
- Regional Competitiveness and Employment objective: giving support to all regions that are not covered by the Convergence objective, and
- European Territorial Co-operation objective: giving support to all regions that lie along internal land borders and certain external land borders, as well as some regions lying on sea borders

Table 1
Productivity and income

Productivity	Income
Productivity describes the ability to produce outputs, taking into consideration the amount of inputs (labour, capital, materials and any other necessary inputs) used to produce them. High productivity means producing as much output as possible using as little input as possible. Productivity is defined as the ratio between output and input, with labour (jobs or hours worked) being the most common input measure.	Income is a key determinant of welfare, which can be described as the general wellbeing and prosperity of the residents living in a region. Unlike productivity, which is a workplace-based measure, welfare can be measured on a residence-basis and is estimated by household income.

To measure regional productivity and income, as the key determinant of welfare in a region, indicators other than GVA per head should be used.

Productivity

To compare regions in terms of productivity, GVA per hour worked is the preferred indicator. At lower levels of geography, 'hours worked' estimates are not yet available and GVA per filled job should be used. These two measures of productivity divide GVA by the labour input, namely hours worked in each job or the number of jobs, used to create it.

Figure 1 highlights the differences between productivity measures and GVA per head. On the basis of GVA per hour worked and GVA per filled job, regional disparities in productivity are smaller than those estimated by GVA per head.

Regional productivity (GVA per filled job

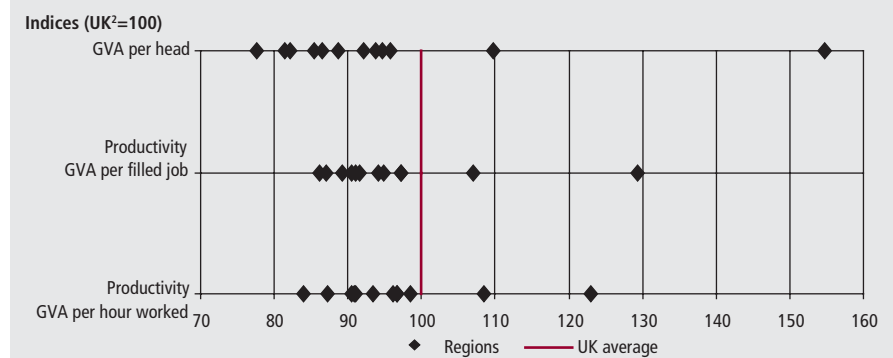
and GVA per hour worked) estimates for 2007 are being published in February 2009 and were not available at the time of writing this article. Therefore, the rest of this article

focuses on 2006 estimates for regions and 2005 estimates for subregions. To ensure consistency, Figure 2 and Figure 3 also make use of previously published 2006 GVA per head estimates.² The data for the latest year or any revisions to earlier years do not affect the conceptual issues discussed in this article.

Income of residents

While productivity is a workplace indicator, income is a residence-based indicator, serving as a key determinant of the welfare of residents living in a region. GDHI represents the amount of money available to

Figure 1
Comparing productivity and GVA per head: by region, 2006¹

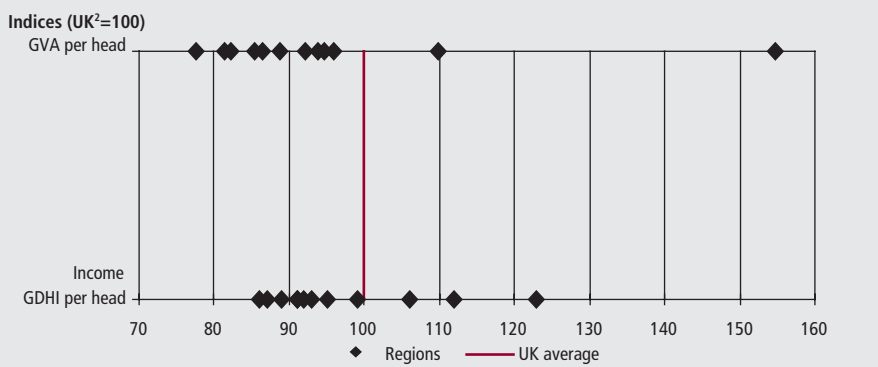


Notes:

- 1 Provisional.
- 2 UK less Extra-regio.

Source: Office for National Statistics

Figure 2
Comparing welfare and GVA per head: by region, 2006¹

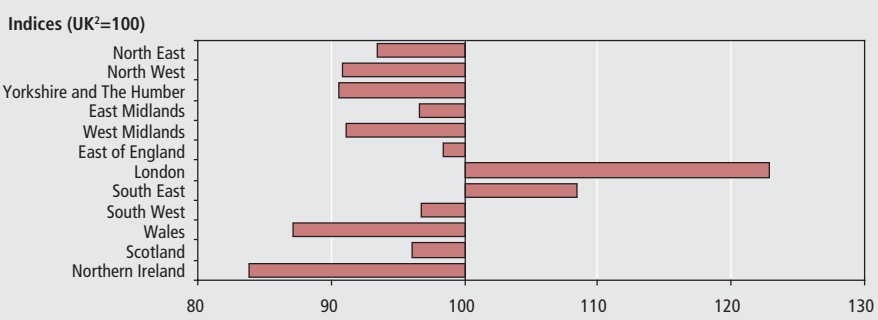


Notes:

- 1 Provisional.
- 2 UK less Extra-regio.

Source: Office for National Statistics

Figure 3
Productivity (GVA per hour worked): by region, 2006¹



Notes:

- 1 Provisional.
- 2 UK less Extra-regio.

Source: Office for National Statistics

households after taxes, National Insurance and pension contributions, property costs and other interest payments have been deducted. To make comparisons across regions, household income per head of the resident population is used.

Figure 2 shows that GDHI per head displays a more balanced picture of welfare compared with the catch-all indicator of GVA per head. In 2006, the income of residents in UK regions varied between 86 and 123 per cent of the UK total. Most UK regions had a household income per head below the UK average in 2006, which is mainly due to the relatively high levels of household income in London, the South East and the East of England, which dominate the UK average.

Assessing overall regional performance

No single indicator can provide a sufficient basis for assessing a region's economic performance. The productivity of those working in a region can be high, while household income of residents might be low due to relatively large numbers of people

who are either unemployed, or inactive due to other reasons. This can include young people in education, retired persons, or disabled individuals. These groups may have forms of income other than earnings, such as social security benefits and investment incomes. To get a more complete picture of regional economic performance, it is therefore also important to look at labour

market statistics, which are covered later in this article.

Productivity: differences between regions and changes over time

Differences between regions – a snapshot view

Figure 3, which shows a 2006 snapshot of productivity (GVA per hour worked) relative to the UK average, illustrates the dominance of London and the South East in terms of relative productivity. The East of England, the East Midlands, the South West and Scotland performed just below the UK average. Northern Ireland had the lowest relative productivity, at 84 per cent of the UK average, followed by Wales, at 87 per cent.

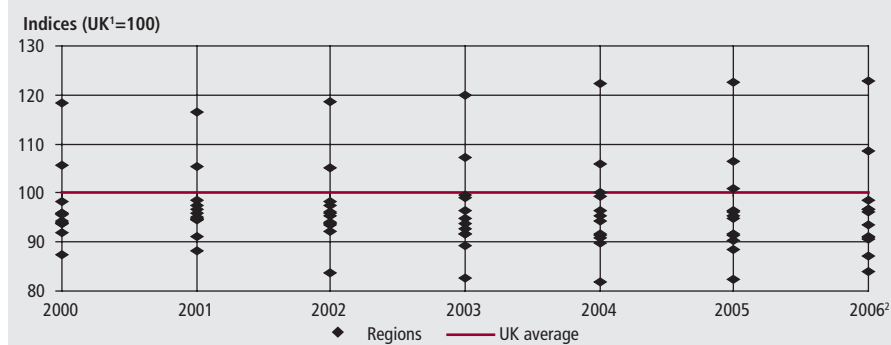
Differences between regions – changes over time

While the snapshot view indicates the position of regions at a certain point in time, productivity time trends are important in terms of regional policy to assess whether the objective of improving the performance of all English regions and reducing the gap in economic growth caused by differences in productivity across regions has been achieved.

It needs to be noted that the GVA estimates used in productivity figures are in nominal, not real, terms, as regional price deflators do not yet exist. By using nominal estimates, it is not possible to isolate volume changes from price changes.

Figure 4 shows productivity of all UK regions from 2000 to 2006 and demonstrates that there has been a widening of productivity differences between regions. In 2000, the spread between the lowest and the highest was 87 to 118 per cent of the UK

Figure 4
Productivity (GVA per hour worked): by region



Notes:

- 1 UK less Extra-regio.
- 2 Provisional.

Source: Office for National Statistics

Table 2

Ranking of regional productivity (GVA per hour worked) relative to the UK average

	2000	2006 ¹
1	London	London
2	South East	South East
3	East of England	East of England
4	South West	South West
5	North East	East Midlands (+)
6	Scotland	Scotland
7	North West	North East (-)
8	East Midlands	West Midlands (+)
9	Yorkshire and The Humber	North West (-)
10	West Midlands	Yorkshire and The Humber (-)
11	Wales	Wales
12	Northern Ireland	Northern Ireland

Note:

1 Provisional.

Source: Office for National Statistics

average. In 2006, this had widened to 84 to 123 per cent. This shows that the objective of reducing the gap in economic growth caused by differences in productivity across regions has not yet been achieved.

Table 2 shows the ranking of UK regions in 2006 and indicates the change in ranks over the period 2000 to 2006. While the East Midlands, the West Midlands and the South West improved their relative performance due to a stronger growth in productivity compared with other regions, the three Northern regions (the North East, the North West and Yorkshire and The Humber) grew slower in terms of productivity compared with other UK regions. The ranking of the top and bottom performing regions remained unchanged from 2000 to 2006.

Income of residents: differences between regions and changes over time

Differences between regions – a snapshot view

Figure 5 shows that, in 2006, the only regions with gross disposable household income (GDHI) per head above the UK average were London, the South East and the East of England. The North East was the only region that had a level of GDHI lower than £12,000 per head, which was 86 per cent of the UK average. Northern Ireland and Wales also had household incomes per head below 90 per cent of the UK average in 2006.

Differences between regions – changes over time

To see whether regions with low household incomes per head have grown faster than others and therefore converged towards the UK average, Table 3 shows the change between 2000 and 2006. The North East,

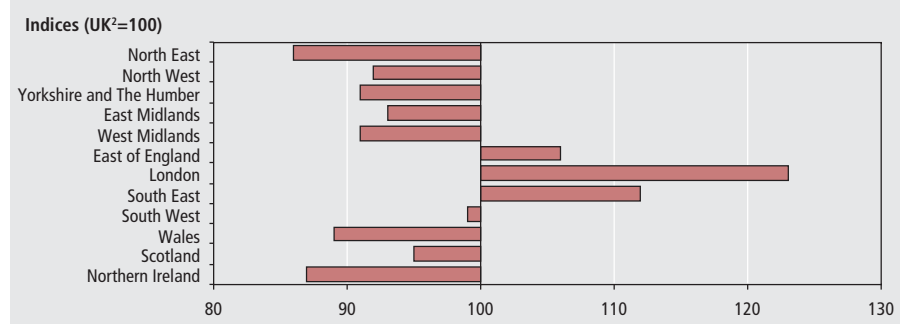
which had the lowest household income per head in 2006, had the second largest growth of all English regions. Northern Ireland and Wales also had low household incomes per head and experienced the strongest growth of all UK regions.

London, the South East and the East of England, the regions with the highest household incomes per head in 2006, had growth rates of income per head equal to or below the UK average growth. Therefore, the South East and the East of England have converged towards the UK average.

Ranking the UK's 12 regions in 2000 and 2006 reveals little change. The North East replaced Northern Ireland as the lowest performer on this indicator. Household income per head in the West Midlands grew faster than in Yorkshire and The Humber, therefore improving its ranking in 2006.

Figure 6 graphically shows the convergence of household income per head towards the UK average, particularly of regions below the UK average. This includes the impacts of tax and benefit changes, as well as changes in investment incomes, employment and self-employment incomes. The incomes of those living in London have remained far above the UK average.

Figure 5
Headline gross disposable household income per head: by region, 2006¹



Notes:

- 1 Provisional.
- 2 UK less Extra-regio.

Source: Office for National Statistics

Table 3

Headline gross disposable household income per head: by region

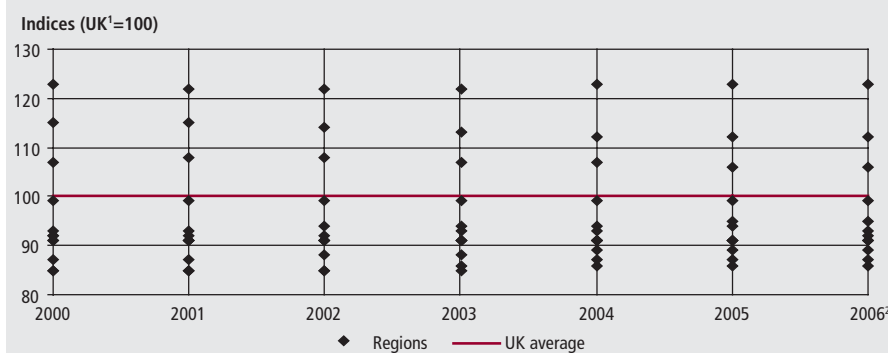
Ranking 2006		£ thousand per head		Average annual percentage growth 2000–2006 ¹	Ranking changes
		2000	2006 ¹		
1	London	13.4	16.9	4.0	
2	South East	12.5	15.4	3.5	
3	East of England	11.7	14.6	3.8	
	United Kingdom²	10.9	13.8	4.0	
4	South West	10.8	13.7	4.0	
5	Scotland	10.2	13.1	4.2	
6	East Midlands	10.0	12.9	4.3	
7	North West	10.0	12.7	4.0	
8	West Midlands	10.0	12.5	3.9	(+)
9	Yorkshire and The Humber	10.0	12.5	3.8	(-)
10	Wales	9.4	12.3	4.5	
11	Northern Ireland	9.3	12.0	4.4	(+)
12	North East	9.3	11.8	4.2	(-)

Notes:

- 1 Provisional.
- 2 UK less Extra-regio.

Source: Regional Accounts, Office for National Statistics

Figure 6
Headline gross disposable household income per head: by region

**Notes:**

- 1 UK less Extra-regio.
- 2 Provisional.

Source: Office for National Statistics

However, the other two regions that are above the UK average, the South East and the East of England, have grown less strongly than the UK average.

Labour market statistics – recent developments and changes over time

Regional labour markets also play a significant role in determining the economic performance of regions.

Recent developments

Table 4 shows the latest developments in working-age employment, unemployment and economic inactivity rates. In terms of employment rates in 2008 Q3, the South East and the South West had the highest employment rates, while Northern Ireland and the North East had the lowest rates. Northern Ireland's rate has remained the same compared with a year earlier, while

the North East has seen the strongest annual decline.

In terms of working-age unemployment rates, the North East and London had the highest rates in 2008 Q3. This was followed by the North West, Yorkshire and The Humber, the West Midlands and Wales. The South West and Northern Ireland had the lowest unemployment rates in 2008 Q3.

In terms of economic inactivity, Northern Ireland had the highest rate, far above the relatively high rates for Wales, the North East and London in 2008 Q3. This is related to the region's high proportion of sick and disabled people and a relatively high proportion of young adults. The South East, the South West and the East of England had the lowest economic inactivity rates in 2008 Q3. London experienced the largest fall in activity rates compared with a year earlier.

Changes over time

To facilitate comparisons with productivity and regional welfare indicators, such as household income, discussed earlier, Figure 7 shows the key developments in regional labour markets in terms of regional employment rates from 2000 to 2006. Northern Ireland, Scotland and the North East saw the strongest increases over this time period. The strongest declines in employment rates were seen in the South East and the East of England.

Regional economic performance

This section looks at the relationship between the different measures. It highlights that a series of indicators is necessary to gain a more complete picture of regional economic performance.

Differences between regions – a snapshot view

Table 5 shows a ranking of the productivity, income and employment rate for each region (1 being top, 12 being bottom). Regions differ to varying degrees in their performance compared with the UK average. Using a catch-all indicator cannot account for the varying regional performances on productivity, income and labour market issues. Table 5 shows that, in 2006, the North East, Yorkshire and The Humber and London displayed the largest ranking differences.

Differences between regions – changes over time

The following discusses changes over time in the North East and London – two regions with large differences in rankings – and the

Table 4
Employment rates, unemployment rates and economic inactivity rates: by region

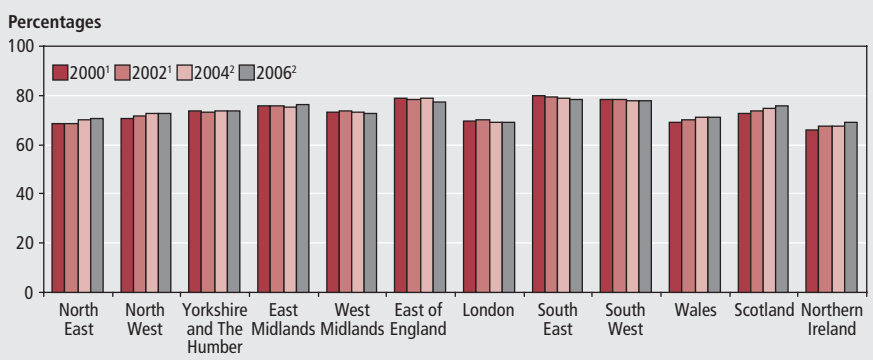
	Percentages, seasonally adjusted														
	Employment rates ^{1,2}					Unemployment rates ¹					Economic inactivity rates ¹				
	2007		2008			2007		2008			2007		2008		
	Jul– Sep	Oct– Dec	Jan– Mar	Apr– Jun	Jul– Sep	Jul– Sep	Oct– Dec	Jan– Mar	Apr– Jun	Jul– Sep	Jul– Sep	Oct– Dec	Jan– Mar	Apr– Jun	Jul– Sep
United Kingdom	75	75	75	75	74	6	5	5	6	6	21	21	21	21	21
North East	72	72	70	70	70	6	6	7	8	8	23	24	25	24	23
North West	72	73	72	72	72	6	6	6	7	7	23	23	23	23	23
Yorkshire and The Humber	73	74	74	73	73	6	5	5	6	7	22	22	22	22	21
East Midlands	76	76	76	76	76	6	5	6	6	6	20	20	19	20	19
West Midlands	73	73	73	73	72	7	6	7	7	7	22	22	22	22	23
East of England	77	78	78	78	77	5	5	5	5	5	19	18	19	19	19
London	71	70	71	72	71	6	7	7	7	8	25	24	24	23	23
South East	79	79	80	79	79	5	5	4	4	5	17	17	17	17	17
South West	79	79	79	79	79	4	4	4	4	4	18	18	18	18	18
Wales	71	72	72	73	71	6	5	6	5	7	25	25	24	24	24
Scotland	77	77	77	77	76	5	5	5	4	5	19	19	20	20	20
Northern Ireland	70	70	70	70	70	4	4	5	4	4	27	27	27	27	27

Notes:

- 1 Includes all people of working age, males aged 16 to 64 and females aged 16 to 59.
- 2 Includes employees, self-employed, participants on government-supported training schemes and unpaid family workers.

Source: Labour Force Survey, Office for National Statistics

Figure 7
Employment rates for people of working age: by region



Notes:

- 1 Data for 2000 and 2002 are measured from March to February.
- 2 Data for 2004 and 2006 are measured from January to December.

Source: Annual Labour Force Survey and Annual Population Survey, Office for National Statistics

Table 5
Ranking of all indicators: by region, 2006¹

	Productivity	Income	Employment rate ²
North East	7	12	10
North West	9	7	8
Yorkshire and The Humber	10	9	6
East Midlands	5	6	4
West Midlands	8	8	7
East of England	3	3	3
London	1	1	11
South East	2	2	1
South West	4	4	2
Wales	11	10	9
Scotland	6	5	5
Northern Ireland	12	11	12

Notes:

- 1 Data for productivity and income is provisional.
- 2 For persons of working age. Working age includes females aged 16 to 59 and males aged 16 to 64.

Source: Office for National Statistics

East of England, which is ranked the same on each indicator.

The North East

Figure 8 shows that the North East experienced a relative improvement on income and employment from 2000 to 2006, while productivity grew slower than the UK average and therefore relatively declined. The employment rate has relatively improved, which aligns with the region's household income per head having relatively increased from its low level. The relative decline in productivity from 2000 to 2006 alongside a relative improvement in employment rates could reflect people taking jobs which are less productive in terms of GVA per hour worked, reducing the productivity relative to the UK average.

London

London was ranked top in terms of productivity and income of its residents, with relative productivity increasing from 2000 to 2006. Figure 9 shows that the

income of residents in London grew at the UK average rate, therefore remaining roughly constant with respect to the UK average. In terms of the labour market, London ranked low on the employment rate and also experienced a relative decline on this indicator.

The East of England

The East of England was ranked third on each indicator. Figure 10 reveals that productivity has been close to the UK average, growing roughly at the same rate as UK average productivity. In terms of labour market indicators, the employment rate was above average, however, relatively declining and converging to the UK average. This coincides with a slight relative decline in household income per head.

Productivity differences within regions

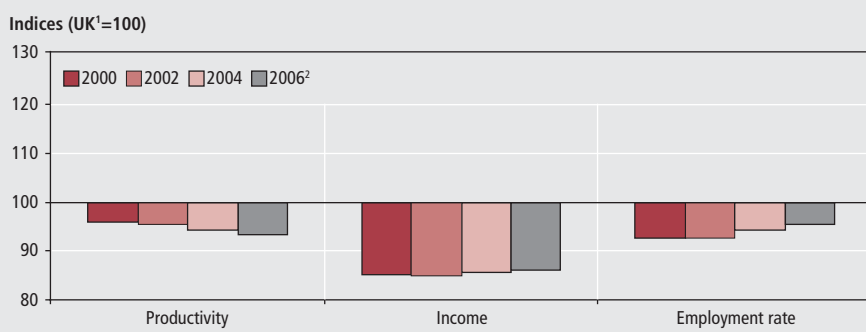
The above has shown that there can be great differences in regional economic performance. Variation is even stronger within regions – between smaller administrative areas, between the different types of rural and urban areas, or between city regions.

Figure 11 shows London and its five smaller NUTS3 areas. Overall, London had a far above average productivity index in 2005. However, within the region, there were large differences, with Inner London – West being much higher above the UK average and Outer London – East and North East being below the UK average.

Concerning urban-rural productivity differences, the study 'Experimental estimates of rural-urban productivity' by the Office for National Statistics (ONS) and the Department for Environment, Food and Rural Affairs found that productivity differences are significant between:

- major urban areas, which are defined as districts with either 100,000 people or 50 per cent of their population living in urban areas with a population of more than 750,000, and

Figure 8
The North East: comparison of productivity, income and employment rate

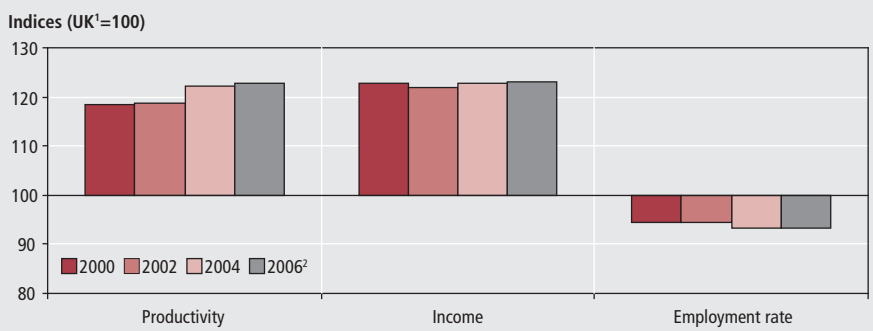


Notes:

- 1 UK less Extra-regio for productivity and welfare estimates.
- 2 Provisional data for productivity and income.

Source: Office for National Statistics

Figure 9
London: comparison of productivity, income and employment rate

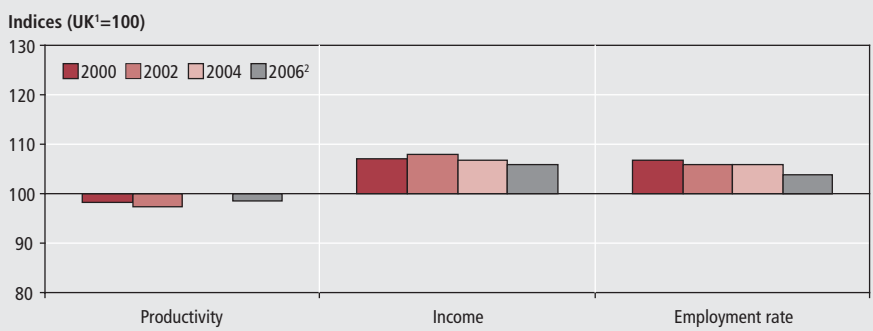


Notes:

- 1 UK less Extra-regio for productivity and welfare estimates.
- 2 Provisional data for productivity and income.

Source: Office for National Statistics

Figure 10
The East of England: comparison of productivity, income and employment rate

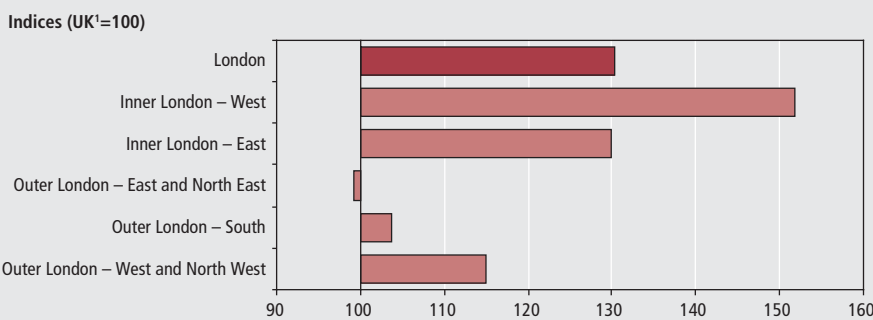


Notes:

- 1 UK less Extra-regio for productivity and income estimates.
- 2 Provisional data for productivity and income.

Source: Office for National Statistics

Figure 11
Productivity (GVA per filled job) in London and its subregions, 2005



Note:

- 1 UK less Extra-regio.

Source: Office for National Statistics

■ rural 80 areas, which are defined as districts with at least 80 per cent of their population in rural settlements and larger market towns.

The study also found that when London, which consists only of major urban areas, is separated from the other major areas, the only significant productivity gap exists between London and the rest.

The concept of the city region (CR)

allows regional policy to be implemented at a geography representing everyday life rather than administrative boundaries. They are 'enlarged territories from which the core urban areas draw people for work and services'. Eight core English cities and their wider city regions are targeted as key areas of economic growth.³

In 2005, Liverpool CR and Sheffield CR were significantly below the UK average productivity, while Bristol CR performed

significantly above the productivity average. From 2002 to 2005, Liverpool CR experienced a relative decline in its productivity, while the productivity of Sheffield CR and Bristol CR grew roughly at the same rate as the UK average and had an unchanged relative performance.

Regional drivers of productivity and growth

In addition to measures of productivity, income and labour market performance for regions, policymakers also need regional measures of policy levers, or drivers, which can be used to influence regional economic performance.

The five drivers of productivity highlighted in national policy – skills, innovation, enterprise, investment and competition – all have important regional and Devolved Administration aspects.

Skills

Skills are a key dimension of labour available in an economy, and an essential part of labour market measurement. They complement physical capital and are needed to take advantage of new technologies and organisational structures. Skills of workers strongly influence productivity. This section investigates the skills of the working-age population of each region.

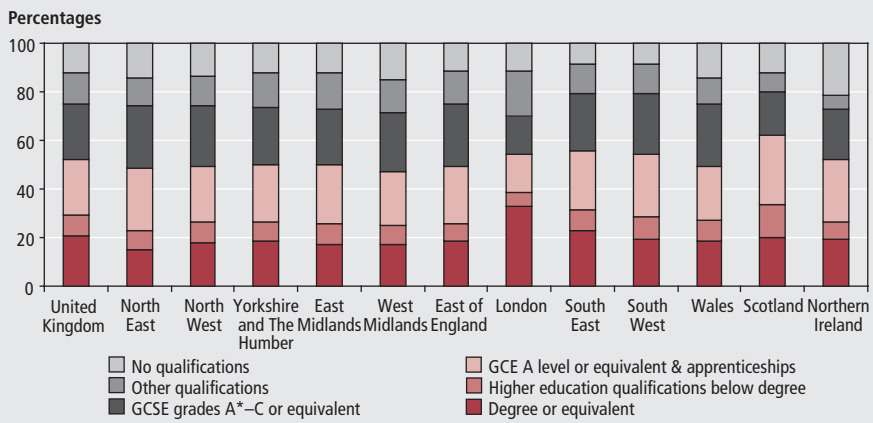
Measuring skills of resident populations as a driver of productivity has an important weakness in that it does not account for workers moving between regions, and so does not accurately capture the input of workers' skills to regional GVA and productivity. A residence-based measure is, however, relevant to policymakers seeking to raise skill levels in their regions.

Figure 12 presents the distribution of qualifications – a strong proxy for skills. In terms of working-age population with a degree or equivalent qualification, London is far ahead of other regions: 33 per cent of the working-age population has a degree or equivalent qualification, compared with a UK average of 21 per cent.

This is a key reason for the productivity and income gaps between London and other regions. The political, business and financial concentration in and around London draws in highly-skilled workers. This gap increased in absolute terms between 2000 Q3 and 2008 Q3. However, all UK regions have increased their proportion of workers with a degree or equivalent.

Another sign of a broad improvement in skill levels is the general fall in the percentage of regional working-age populations with no qualification since 2000 Q3. Between 2000

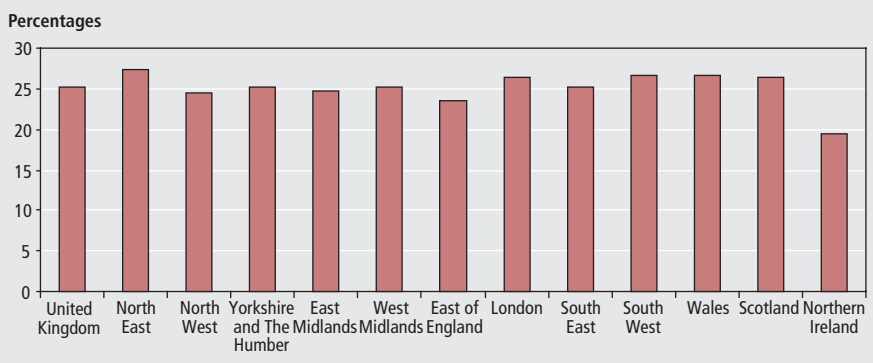
Figure 12
Working-age population:¹ by highest qualification² and region, 2008 Q3



Notes: Source: Labour Force Survey, Office for National Statistics

- 1 Males aged 16 to 64 and females aged 16 to 59.
- 2 For summary of qualifications and equivalents see www.statistics.gov.uk/statbase/product.asp?vlnk=836

Figure 13
Percentage of people in work who undertook job-related training, 2008 Q3



Source: Labour Force Survey, Office for National Statistics

Q3 and 2008 Q3, Scotland experienced the steepest fall of almost 15 percentage points, compared with a fall in the UK average of 6 percentage points.

A further indicator of investment in skills is shown by job-related training. Figure 13 shows the percentage of all people working in a region who undertook any job-related training in the 13 weeks prior to their Labour Force Survey interview in 2008 Q3. Measured on a workplace basis, this provides information on employee skills development. All regions, except Northern Ireland, perform close to the UK average of 25 per cent.

Innovation

Innovation is the successful exploitation of new ideas, in the form of new technologies, new products or new processes and ways of working. However, innovative activity undertaken in a particular region will not necessarily feed

through to increased productivity in that region – the knowledge may be developed and brought to market anywhere in the UK, or abroad.

Research and development (R&D) expenditure by firms provides one indicator for innovation. Figure 14 shows that, in 2006, the East of England, which includes the high technology cluster in Cambridge, spent a far greater proportion of GVA on R&D (3.6 per cent) than any other region. London and Yorkshire and The Humber had the lowest rates of R&D expenditure in 2006.

Low levels of R&D expenditure in London may reflect its industrial structure, dominated by services. The gap between London's R&D expenditure and high productivity may partly be explained by the fact that research done in other regions is often exploited in London.

HM Treasury, in conjunction with ONS and academics, has shown that innovation

depends on a wider set of inputs than R&D, including skills training, design, software and organisational investment by firms. HM Treasury Economics Working Paper No. 1 quantifies these broader knowledge economy inputs at UK level, and shows their contribution to productivity. More work is needed before these factors can be measured effectively at regional level.

Enterprise

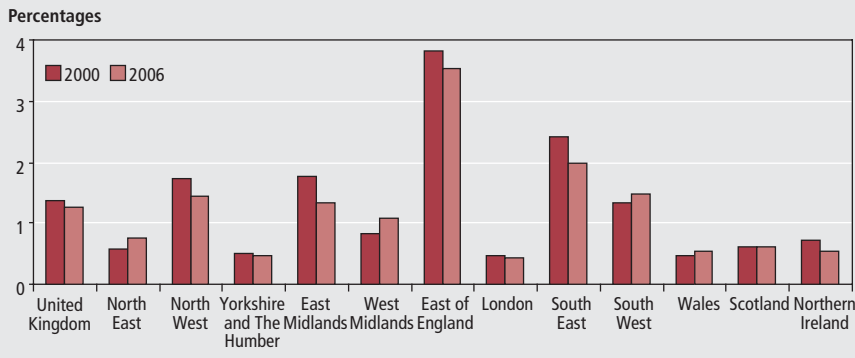
Enterprise is defined as the realisation of new business opportunities by both start-ups and existing firms. New enterprises compete with existing firms by exploiting new ideas and technologies to increase their comparative advantage, and therefore competition.

New VAT registrations provide an indicator of business start-ups. Figure 15 presents the number of VAT registrations per 10,000 resident adults in each region, for 2000 and 2007. The rate was highest in London, at 68 per 10,000 people in 2007, compared with a UK average of 42 per 10,000. The combination of a workplace-based numerator and residence-based denominator may inflate the figure for London and depress it for other regions, if entrepreneurs living elsewhere consider it advantageous to register businesses in London. Figure 15 shows that, since 2000, all regions experienced increases in VAT registrations.

Another indicator for enterprise is provided by the Global Entrepreneurship Monitor (GEM), an academic research program which measures total early-stage entrepreneurial activity (TEA). TEA includes nascent entrepreneurs, from the point at which they commit resources to starting a business until the point at which they have been paying wages for three months, and new business owner-managers who have been paying salaries for between three and 42 months. TEA measures activity before a business is launched, an 'early warning' of entrepreneurial activity. The GEM survey is relatively small, with limited coverage; Figure 16 presents annual average rates of TEA for the period 2002 (the year the survey began) to 2007.

London had the highest average annual rate between 2002 and 2007, with 7.6 per cent of the adult population engaged in entrepreneurial activity. Both VAT registrations per head and rates of entrepreneurial activity are above the UK average in the South West, the South East and the East of England, and lowest in the North East.

Figure 14
Expenditure on R&D as a percentage of workplace-based GVA: by region



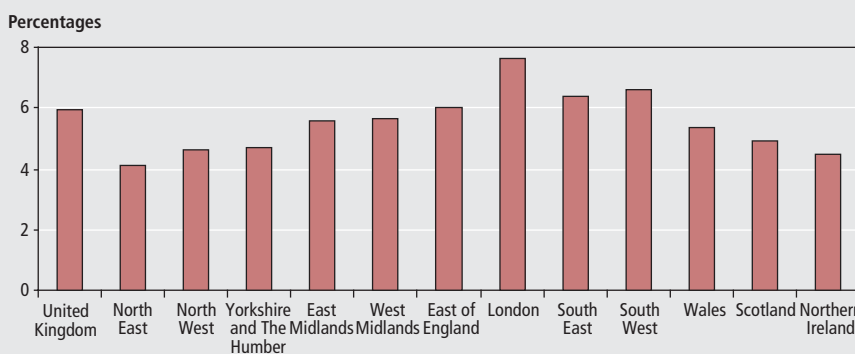
Source: Office for National Statistics

Figure 15
VAT registrations per 10,000 resident adults: by region



Source: Office for National Statistics and Department for Business, Enterprise & Regulatory Reform

Figure 16
Percentage of adult population engaged in early-stage entrepreneurial activity: by region, average 2002 to 2007



Source: Global Entrepreneurship Monitor

Investment

Investment in physical capital – machinery, equipment and buildings – enables workers to produce more and higher quality output, and so raises productivity. As data on investment are collected at the level of the enterprise, rather than at the local level, accurate apportionment to regions is difficult. However, UK Trade & Investment (UKTI) collects data on inflows of foreign

direct investment (FDI) projects and estimated numbers of associated jobs by region. FDI does not cover all investment in a region, and there is no requirement to notify UKTI when undertaking FDI. Therefore, the estimates must be interpreted with caution, but can provide an indicator of regional investment activities.

Figure 17 shows the number of FDI projects undertaken by region, per 100,000

workers. The region receiving most FDI projects relative to its workforce was London, with 6.2 per 100,000 workers, followed by the North East (at 5.3). The South West and Yorkshire and The Humber had the lowest rates (at 1.7 and 1.8, respectively).

On this indicator of attracting foreign investment, the North East, Northern Ireland and Wales, which have relatively low productivity and high unemployment rates, also have relatively high numbers of FDI projects. It is possible that foreign firms are choosing to locate in these regions to take advantage of the untapped labour force or regional assistance programmes.

Competition

Competition can improve productivity by creating incentives to innovate. Measuring competition in a region is, however, difficult.

One indicator is the proportion of VAT-registered businesses that export, derived from HM Revenue & Customs returns. Exports do not represent competition within a region and do not include services. However, the indicator does show how many firms are international in their outlook, and able to face global competition.

Figure 18 presents a count of firms exporting as a percentage of total VAT-registered businesses, by region, in 2000 and 2007. London had the highest rate of companies exporting, at 5 per cent, compared with a UK average of 4 per cent, suggesting a stronger competitive capability, as well as proximity to transport links with mainland Europe. All other regions increased the proportion of firms exporting between 2000 and 2007. The fall in the figure for London over the period reflects the exclusion of services from this measure. Wales had the lowest share of exporting companies in 2007. Those parts of the UK which score lowest on this indicator are furthest from the major South East links with mainland Europe.

Other regional drivers of productivity and growth

Additional factors influencing regional productivity have been identified in research and feature in regional economic strategies. These drivers include agglomeration, industrial structure and region-specific assets. Academic research on these topics often uses firm-level information accessed confidentially through ONS's secure Virtual Microdata Laboratory.

Agglomeration refers to a clustering of economic activity, usually around an

Figure 17

Foreign direct investment projects per 100,000 workers: by region, annual average 2000/01 to 2006/07



Source: UK Trade & Investment and Department for Business, Enterprise & Regulatory Reform

Figure 18

Exporting companies as a percentage of business stock: by region



Source: HMRC trade statistics and Office for National Statistics

urban core. Certain types of businesses benefit from being in close proximity to direct competitors. They can make use of a greater pool of suppliers, a larger customer base and access to local networks, which can facilitate knowledge and technology spillovers. Specialisation might occur, which further improves productivity.

Each region has its own specific strengths in terms of industrial structure, which is likely to influence productivity directly or through other productivity drivers discussed in this article. If a regional economy has a high representation of 'less productive' sectors such as agriculture and low grade services, overall, the region can appear to be below the UK productivity average even though the region's productivity in a particular sector may be relatively high.

Region-specific assets include the regional environment, culture, creativity, brand and identity. These assets take account of the impact of the unique physical environment of a region and account for intangible assets as drivers of productivity. Intangible assets include experience and associations attached to regions and the

impact of a cohesive regional brand that helps to unite a region and to create a sense of purpose while acting as an attractor of investment and thus as a driver of productivity.

Looking to the future

The aim of this article is to improve the understanding of regional economic performance and the indicators used to measure it. The article highlights the shortcomings of GVA per head in measuring the productivity of a region and the income of its residents. It proposes a series of indicators which more accurately measure relative differences in regional productivity and incomes.

The article suggests using GVA per hour worked and GVA per filled job as measures of productivity, and household income per head as an indicator of the welfare of residents living in a region. Using these productivity and income measures alongside labour market indicators creates a better evidence base for regional economic policy. The article also stresses the importance of understanding the drivers of productivity that cause regional disparities to emerge.

To improve regional productivity and income indicators, ONS is taking forward the recommendations given in the Allsopp report *Review of Statistics for Economic Policymaking*. More reliable data need to be made available at subregional level to be able to provide policymakers with a sound evidence base. Furthermore, the recommendation for ONS to develop a production-based measure of regional GVA in real terms is being taken forward.

ONS, including the Regional Statisticians based in the English regions, are playing a major role in working with the Regional Development Agencies and Devolved Administrations to improve the evidence base that supports regional strategies. To achieve improved quality of regional statistics and therefore effective regional policymaking, an in-depth knowledge of local and regional economic conditions is necessary. The increasing needs of regional and local areas for statistics to support regional strategies and local economic assessments have implications for the quality and range of information required. ONS will be meeting these challenges through better co-ordination of regional statistical activities carried out in headquarters, by statisticians in the regions, and also with members of the Government Statistical Service in other government departments.

Notes

- Historically, ONS has produced a 'residence'- and a 'workplace'-based measure of GVA at the NUTS1 regional level. The two measures differ only in respect of London, the South East and the East of England, to allow for the very significant amount of commuting that takes place between these regions. However, GVA is a workplace-based concept, measuring the economic activity that takes place in the region. Until 2007, the Government's policy for English regions made use of residence-based GVA in the GVA per head indicator used to support the REP PSA. In the 2007 Comprehensive Spending Review, it was decided to switch to a workplace-based measure of GVA.
- New estimates can be found at www.statistics.gov.uk/statbase/product.asp?vlnk=14650
- The city regions are: Liverpool, Sheffield, Newcastle, Leeds, Nottingham, Birmingham, Manchester and Bristol.

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