A2 : The Key Interviews

Policy Makers and Acedemics

Prof. G.Duranton: London School of Economics
Prof. J. Simmie: Oxford Brookes University
Prof. R. Hudson: Durham University
Nigel Bourne: CBI, South-East
Nigel Horton Baker: Director Surrey Economic Partnership
Anthony Dunnett: SEEDA
Ed Metcalfe: SEEDA

Case Studies

Aylesbury/Oxford
Tracey Aldworth: Aylesbury Vale District Council
Steven Daniels: Oxford City Council
Jean Mitchell: Oxford Economic Partnership
Tony Edwards: Buckinghamshire Economic Partnership
Liz McSheehy: SEEDA Regional Manager

Ashford/Thanet
Tom McGukin: Thanet District Council
Mark Bradbury: Ashford Borough Council
Bryan Raine: Kent County Council
Colin Brentwood: Kent and Medway LSC
Mandy Burns: Locate in Kent
Susan Priest: SEEDA Regional Manager

Slough/Crawley
Rafiq Chohan: Slough Borough Council
Alan Webber: Crawley Borough Council
Paul Britton: Thames Valley Economic Partnership
Michael Cogswell: West Sussex Economic Partnership
John Peel: Varian
Paul Lovejoy: SEEDA Regional Manager

Winchester/Hampshire
Graham Love: Winchester City Council
John Rees-Evans: Hampshire County Council
John Gregory: Director Hampshire Economic Partnership
Kathy Slack: SEEDA Regional Manager

A3 : RHA Regional Growth Model

1. Developing a Regional Growth Model for the South East of England

RHA devised a regional growth model that analyses how changes in various socio-economic factors have affected overall economic growth within the South East region. In order to ensure that the model encompassed issues relevant to the various geographic elements of the South East of England we have analysed changes within the NUTS 3 sub-regions of the South East. These regions have been chosen for a number of reasons. Firstly, the data is robust and readily available. Secondly the size of unit of study means that we are less likely to encounter anomalies of data, which can often occur with very small study areas. The time period of study of analysis is between 1994 and 2000 – the purpose again being to enable a robust, yet recent, analysis of movements within the South East economy.

Whilst the South East as a whole performs above average in the UK context of output per capita there remains considerable variation in performance within the region itself. Table 1 below highlights the relatively wide dispersion of output per capita within the South East's economy. Apart from London, where the figures are distorted by the exceptional performance of Inner London West, South East England has the largest variation in sub-regional output per capita. By reducing the output gap within South East England we can significantly increase output for the region.

Table 1: Variation in Sub-Regional GDP 2000

	Standard Deviation of Sub-Regional GDP
North East	3,014
North West	6,510
Yorkshire and the Humber	3,194
East Midlands	2,541
West Midlands	4,040
East	6,442
London	23,715
South East	**7,651**
South West	2,387
Wales	1,662
Scotland	3,360
Northern Ireland	1,250

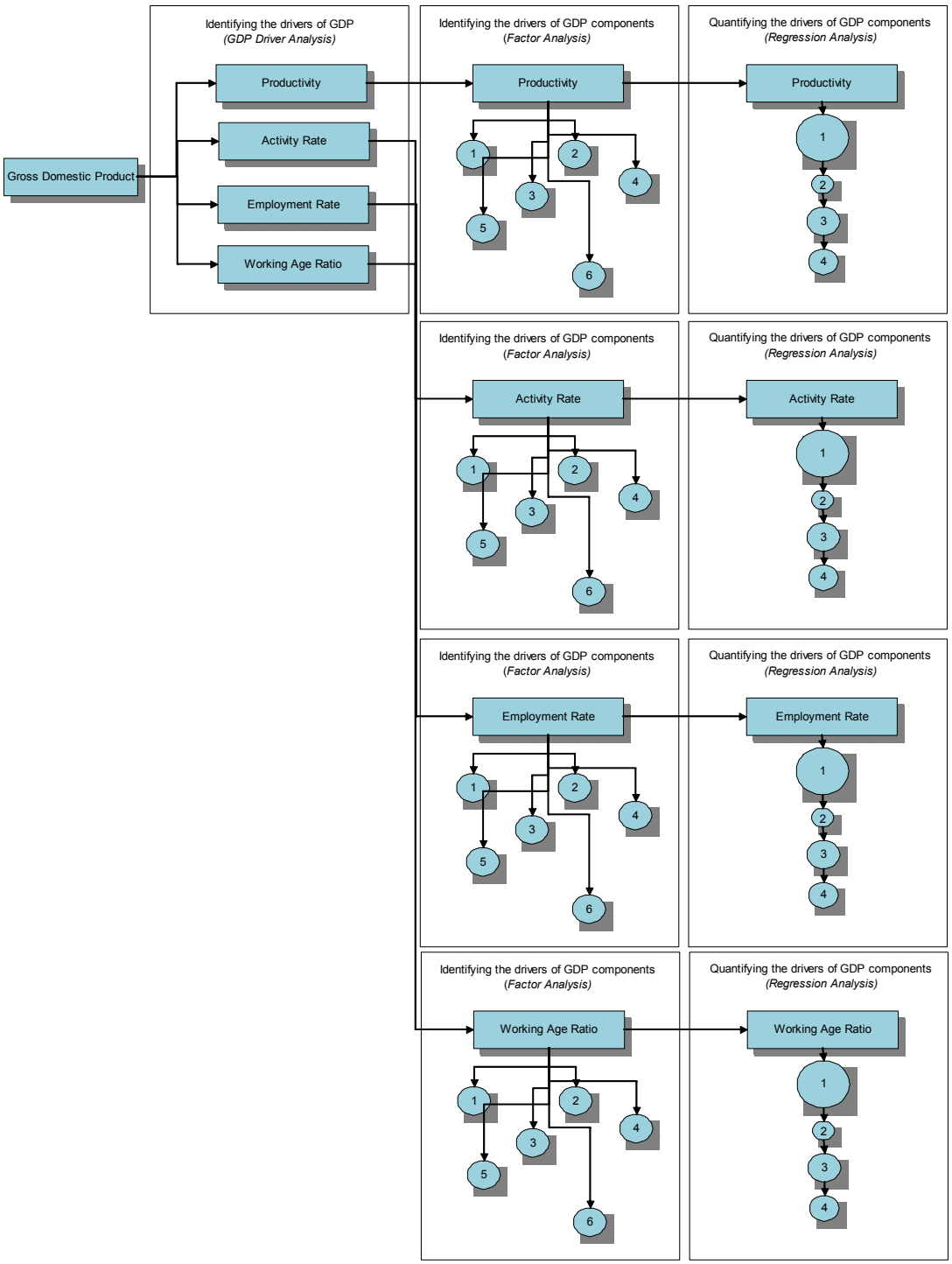
Source: Eurostat

The regional growth model is split into a number of separate, distinct processes. Initially we look at the drivers of GDP growth within an area. GDP growth in a region can be derived from a number of specific factors, namely:

- Labour Productivity
- Employment Rate
- Economic Activity Rate
- Working Age Ratio

The first element of the model looks at understanding the main contributors to the GDP differentials between the South East and the rest of Great Britain. The model also looks at the differentials that exist within the South East of England as well as adjacent areas. Once the main contributors to growth are analysed, the second stage of the model is operationalised. This involves identifying the specific drivers disparities amongst the sub-regions of South East England, via the use of Factor Analysis. Once these drivers have been identified a growth model for each driver is developed using regression analysis. Figure 1 below represents diagrammatically the processes used in formulating the model.

Figure 1. -Diagrammatic Representation of the Regional Growth Model



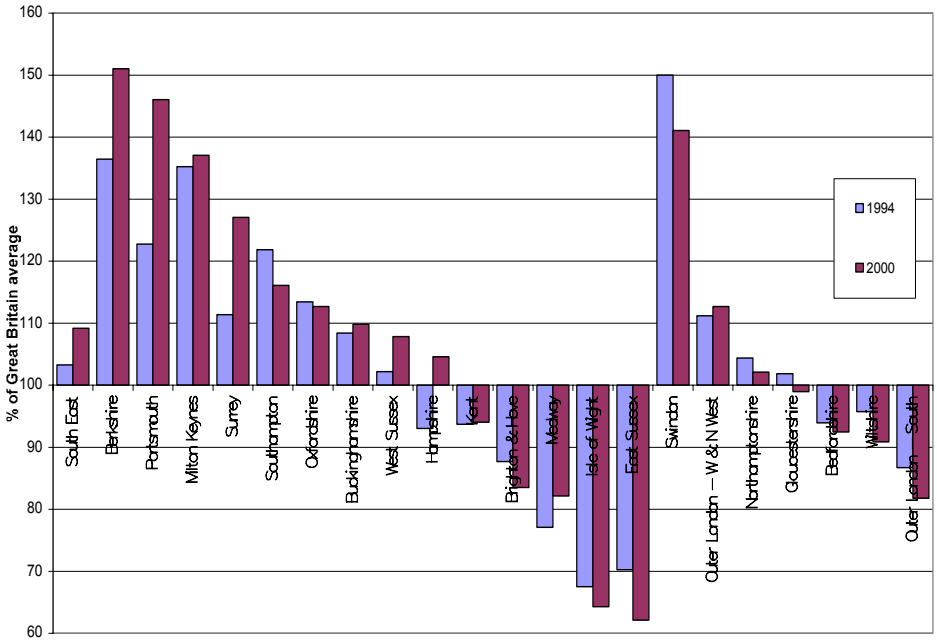
2. Analysis of GDP Drivers in South East England and surrounding NUTS 3 Regions

GDP per capita in the South East as a whole has improved from 103.3% of the Great Britain average in 1994 to 109.2% in 2000 as shown in figure 2 below. However, large disparities exist within the region which can be seen by analysing GDP at NUTS 3 level. For the purposes of this analysis we have also studied the NUTS 3 regions surrounding South East England, due to the level of interaction that exists between these regions.

In 2000, 9 of the 14 NUTS 3 areas in the South East had a GDP greater than the Great Britain average - the highest being Berkshire with 151% - and 5 were below it - the lowest being East Sussex with 62.1%. Comparing these two regions directly shows the degree of variation that exists within the South East. In 2000, East Sussex had a GDP per capita approximately 60% lower than that of Berkshire. In terms of improved performance, only Hampshire grew from having a GDP below the Great Britain average in 1994 (93.0%) to having a higher value in 2000 (104.6%). In order to understand these variations, we analyse the underlying drivers of economic growth.

Figure 2 - Relative GDP per capita – South East Regions & Surrounding NUTS 3 Areas 1994 & 2000.

GB average = 100



Source: Eurostat, National Statistics

Decomposition of GDP gap by component 1994-2000

GDP per capita can be expressed as the product of four contributing factors:

- Labour productivity, or the ratio between real GDP and total employment (average output per person employed).

- The employment rate, or the percentage of the labour force which is actually employed. The ratio is the exact complement of the unemployment rate (i.e. the percentage which wants a job, but does not have one). For example, if the employment rate is 91%, the unemployment rate is 9%.
- The economic activity rate, or the percentage of the population aged 16 –59/64 which is part of the labour force (i.e. the sum of the employed, the unemployed and those on training schemes).
- The working-age ratio, or the percentage of the total population that is of working age (aged 16-59/64).

GDP per capita can be expressed by the following equation:

GDP per capita = employment rate x economic activity rate x productivity rate x working age ratio

Table 2 below shows that, in 2000, the South East outperformed the Great Britain average in terms of productivity, employment and participation (activity), but had a slightly below average working age ratio. The main change since 1994 is that productivity in the South East has outgrown the national figure, going from 96.8% to 101.8% of the Great Britain average by 2000. Therefore, from this broad overview we can deduce that productivity was an important driver of growth in the South East between 1994 and 2000.

To analyse this further and quantify the contribution made by each of the components to the GDP gap, it is possible to equalise each of the components in turn to the Great Britain average and measure the impact of each on the revised GDP gap. The accompanying tables showing the effect of equalising each of the four GDP drivers in turn for each of the South East's NUTS 3 regions and the surrounding NUTS 3 comparator areas can be found within the appendix.

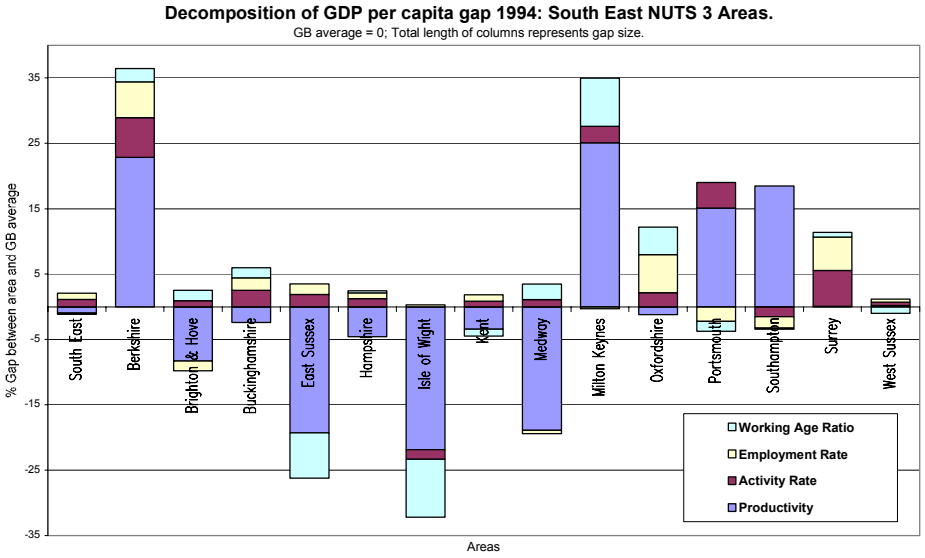
Table 2– GDP Drivers in the South East 1994, 2000.

Area	Working age Ratio	Activity Rate	Employment Rate	Productivity	GDP per capita	% of GB GDP per capita
Great Britain 2000	0.624	0.79	0.95	35138	16303	100.0
South East 2000	0.620	0.83	0.97	35762	17797	109.2
Great Britain 1994	0.612	0.79	0.93	26104	11716	100.0
South East 1994	0.608	0.82	0.96	25272	12097	103.3

2Figures 4 and 5 show more clearly the proportional contribution made by each of the components to the GDP gap in 1994 and 2000. Negative values indicate that the component is lower than the national average in the area, thus contributing negatively to the GDP gap, while positive values show that the area outperforms the Great Britain average. The total length of columns shows the total GDP gap compared with the GB average. For example, for the South East in 1994

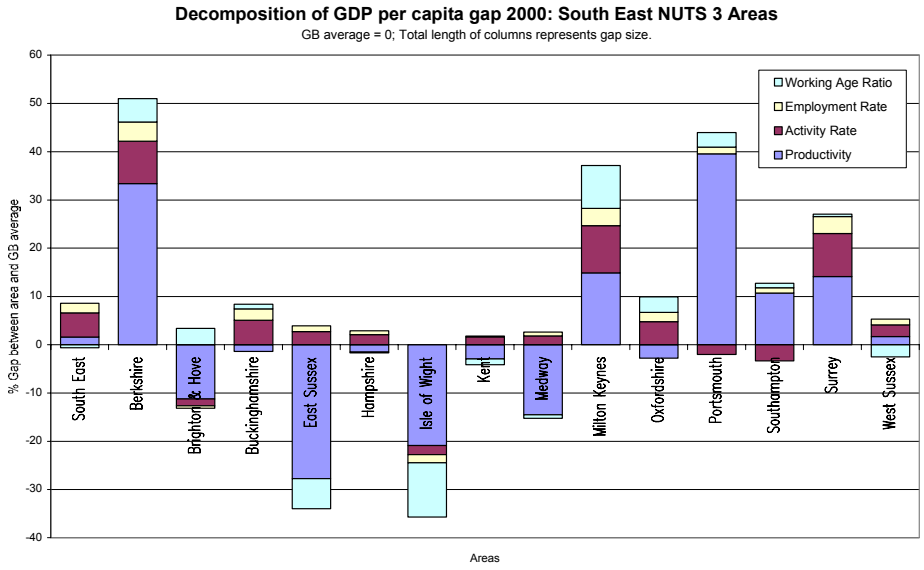
employment and activity contribute positively to the GDP gap, whilst productivity contributes negatively. The negative contribution made by the working age ratio is negligible and therefore barely visible in the chart.

Figure 4: Decomposition of GDP gap 1994



Source: Labour Force Survey, National Statistics, Eurostat.

Figure 5 - Decomposition of GDP gap 2000



Source: Labour Force Survey, National Statistics, Eurostat.

It is clear that differences in productivity levels are the largest contributors to the GDP gap between the South East sub-regions and the Great Britain average. This analysis reveals that they account for around 52% of the GDP differentials across the regions studied in 1994 and 2000. This is particularly apparent in those areas where growth lags behind the GB average.

In each of the five NUTS 3 areas in South East that have a GDP per capita lower than the GB average in 2000, closing the productivity gap would subsequently close the GDP gap by a minimum of 51%. In three of those – Medway, Kent and Brighton & Hove - equalising productivity would bring the areas above the Great Britain average GDP, and in East Sussex it would close the GDP gap by 90%. In Hampshire - the only area in the South East to go from below to above the Great Britain average GDP – closing the gap in productivity was the largest contributing factor to outperforming average national GDP growth between 1994 and 2000.

The analysis shows that activity rates are the next largest contributing component to the GDP gap across the regions studied, on average accounting for around 24% of the GDP gap in 2000. This is higher than the equivalent figure for 1994 (18%) and seems to indicate an increase in the importance of activity rates to the GDP gap compared to the other labour market indicators. Meanwhile, the contribution made by employment rates has fallen from 13% to 8%. The fact that employment and participation rates and working age ratios account for almost half of the GDP gap shows the importance of labour market components as contributors to GDP differentials.

Productivity differentials

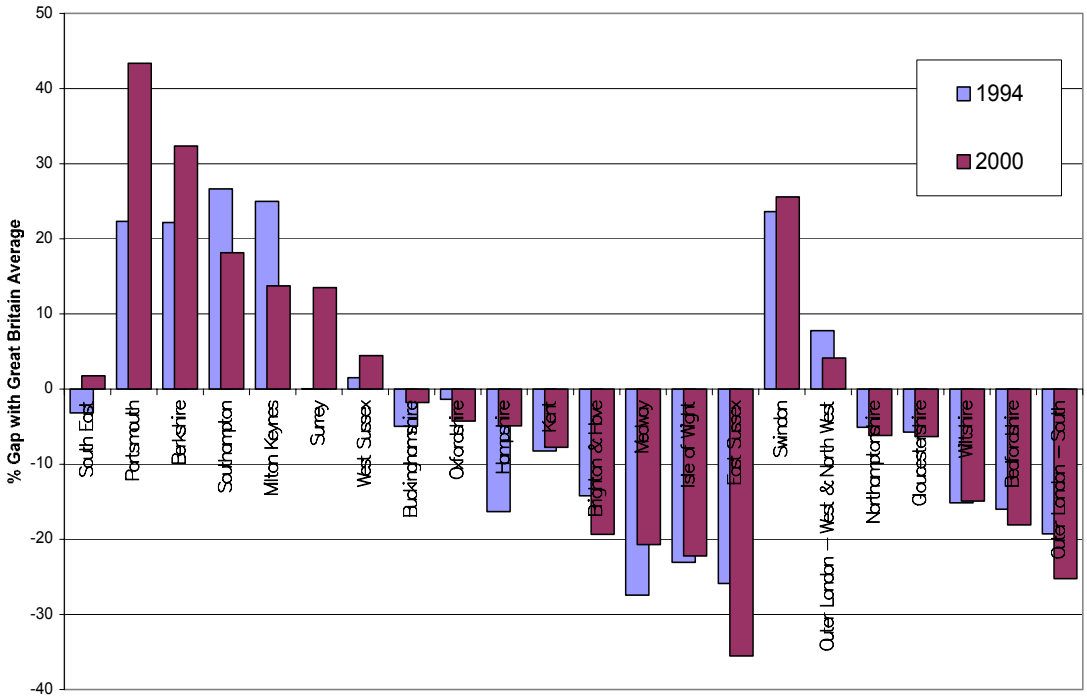
As with GDP per capita, significant intra-regional disparities exist in productivity levels within the South East. As has been illustrated, lowering these variations in productivity has the potential to impact significantly on the GDP gap in the region. The low levels of productivity seen in some of the NUTS 3 areas indicate that they are not achieving their potential. Figure 6 below shows the intra-regional disparities that exist in productivity rates.

As can be clearly seen, more of the NUTS 3 regions in the South East fall below the Great Britain average in terms of productivity than GDP per capita. Eight out of fourteen of the NUTS 3 areas under-performed the GB productivity average in 2000. A significant rise in output for the regions could be achieved if productivity in the sub-regions that perform below the GB average could be raised to the national level. There is also a great disparity between areas, with productivity in East Sussex (the lowest) at just 45% of the level in Portsmouth (the highest). The variance of productivity within the South East is amongst the highest of all UK regions. Understanding the reasons for this disparity and minimising it are of paramount importance to those lagging parts of the South East in closing the GDP gap as outlined earlier.

Figure 6 also highlights the changes in productivity within the South East between 1994 and 2000. What is immediately apparent is that there has been a significant improvement in productivity levels of the sub-regions of the South East in comparison with Great Britain as a whole between the years 1994 and 2000.

Figure 6 – Change in Intra-regional productivity gap 1994 & 2000

Great Britain = 0



Source: Eurostat, National Statistics.

Summary

GDP in the South East grew by 47.1% over the period 1994 to 2000 (an average of 6.6% per year), significantly outpacing national average GDP growth (Great Britain) which grew 39.1% over the same period (an average of 5.6%). GDP per capita in the South East has improved from being 3.3% above the Great Britain average in 1994, to 9.2% above this average by 2000. What factors are behind this growth?

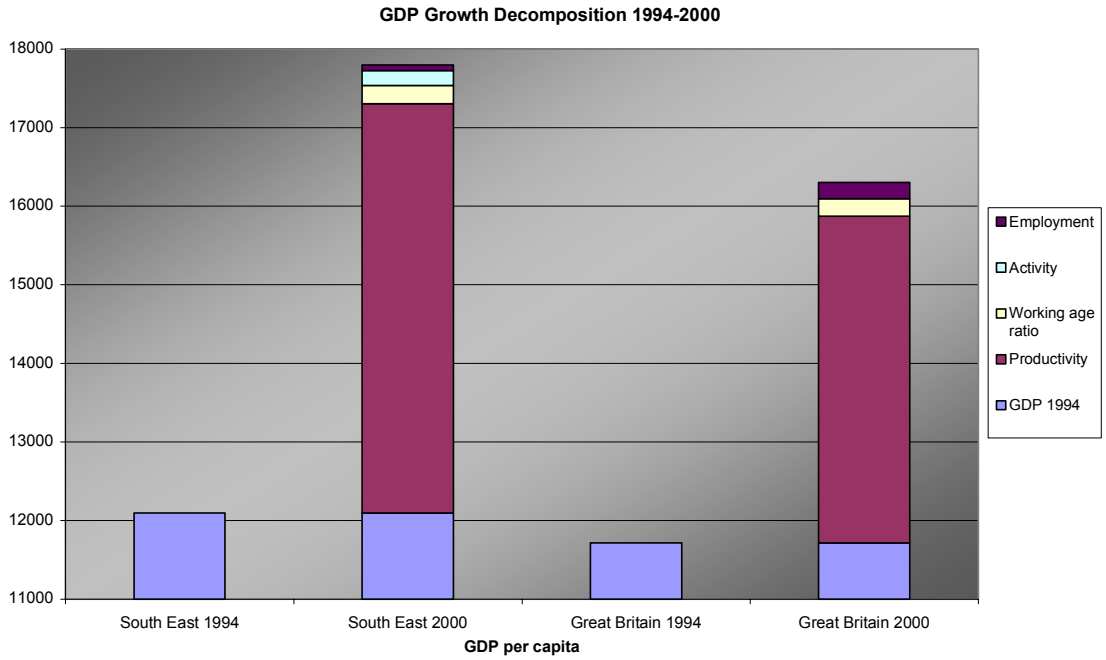
In order to break down this growth to its component parts we analysed the individual effect of the following four GDP 'components' over this time period.

- Productivity
- Activity Rate
- Employment Rate
- Working Age Ratio

By taking the value of each component in 1994, changing each individually to its 2000 value and analysing the resulting effect on GDP per capita, it is possible to isolate the contribution made by the individual component to GDP growth. By comparing the proportional effect of each isolated component on the total change in GDP over the time period it is possible to 'decompose' total GDP growth.

Figure 7 – GDP Growth 1994-2000 Decomposed

2000 values are broken down to its growth components plus 1994 value. Values Expressed in £



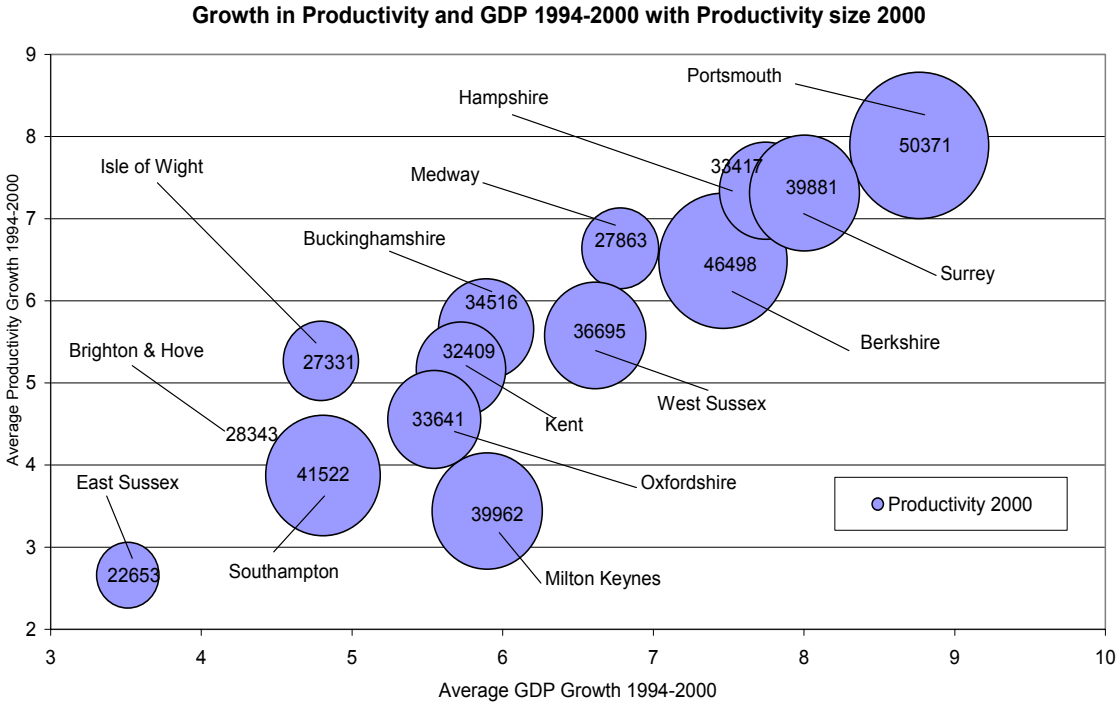
Source: Eurostat/National Statistics

The chart above shows clearly that **productivity** played by far the largest role in GDP growth in both the South East and Great Britain between 1994 and 2000. For both it accounted for around 91% of the overall GDP growth, with labour market components contributing the remaining 9%.

In terms of the labour market components, the working age ratio was the largest contributor to GDP growth in the South East accounting for 4.1% of total growth, followed by the activity rate (3.3%) and the employment rate 1.2%. In Great Britain as a whole, the working age ratio accounted for 4.8% of growth while the employment rate accounted for 4.5%. Activity rates fell and therefore had a negative effect on GDP at the national level over this time period and therefore did not contribute to growth.

The relationship between average productivity and GDP growth from 1994 to 2000 is shown clearly above and below. It is also notable, from the chart below, that areas with high productivity per head tend to have grown at a faster rate in terms of GDP and productivity growth over the period. For example, four of the six most productive sectors in the South East are in the top six when average productivity and GDP growth are combined i.e. in the top right of the graph below. This suggests a widening gap between areas with high GDP and productivity and areas with lower output.

Figure 8 - Relationship between Productivity 2000 and average GDP/Productivity Growth 1994-2000.



Source: Labour Force Survey, National Statistics, Eurostat.

3. Sub-Regional GDP Driver Profiles

Whilst productivity is clearly the main driver behind output growth in South East England not all sub-regions can attribute the same proportion of their growth to productivity. Our analysis also encompasses sub-regional profiles to describe more fully the performance of South East England's sub-regions. The sub-regions of study within South East England are:

- Berkshire
- Brighton and Hove
- Buckinghamshire
- East Sussex
- Hampshire
- Isle of Wight
- Kent
- Medway
- Milton Keynes
- Oxfordshire
- Portsmouth
- Southampton
- Surrey
- West Sussex

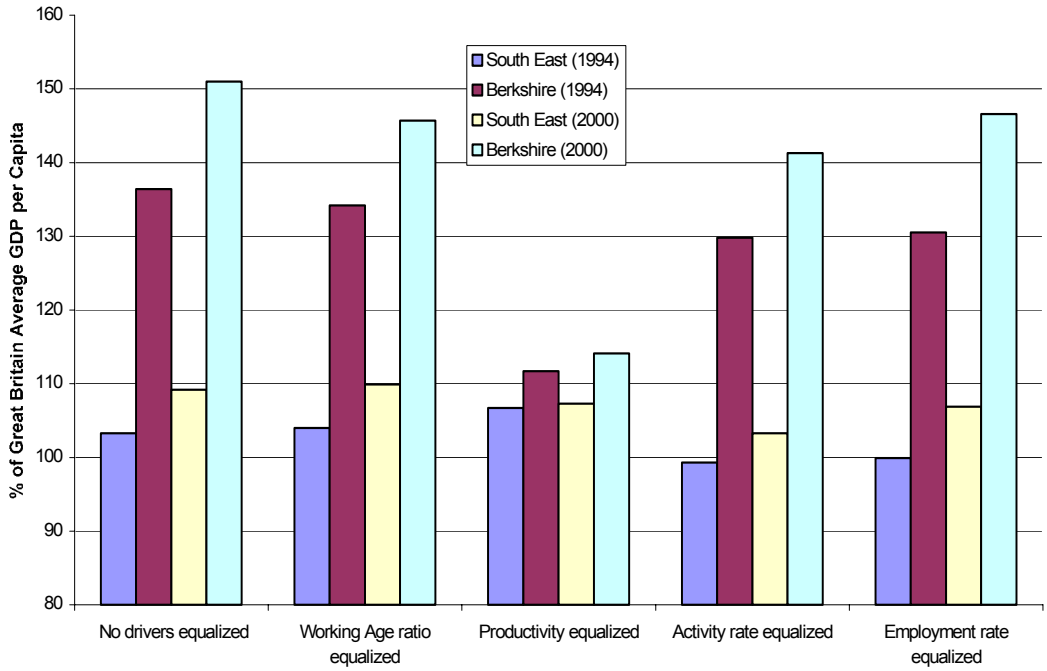
Berkshire

In 1994 and 2000 GDP per capita in Berkshire was well above the level of both South East England and Great Britain as a whole. In both years, Berkshire had the highest GDP per capita within the South East, fuelled by outperforming the Great Britain average in terms of each of the components that made up GDP per capita – productivity, working age ratio, economic activity and employment.

The largest driver of growth within Berkshire over this period was productivity growth. This high productivity rate combined with the fact that the region also had a high working age ratio, activity rate and employment rate combined to give Berkshire the largest positive GDP gap over Great Britain in the South East region. The smallest of these GDP growth drivers in Berkshire was the working age ratio.

The period between 1994 and 2000 saw Berkshire increase its GDP growth at a higher rate than the South East region and saw GDP per capita rise to over 150 percent of Great Britain's. Berkshire's productivity grew over the period to become the second largest in the region (from fourth) and each of the drivers continued to perform at a higher than national average rate. By 2000 the employment rate was the driver with the smallest affect on growth in the region. The positive GDP gap between 1994 and 2000 over the Great Britain average increased from 34.6% to 51%.

Figure 9. Effect on GDP of equalising growth drivers to Great Britain average for Berkshire Sub Region



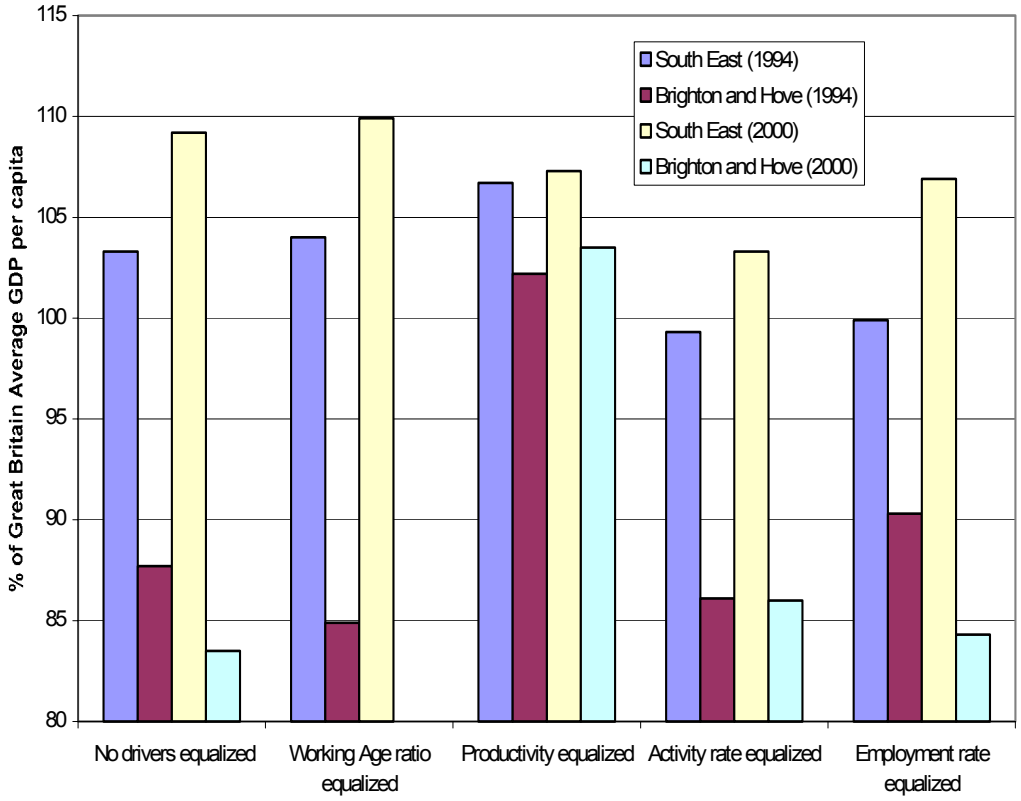
Brighton and Hove

Brighton and Hove in 1994 under performed the Great Britain average with respect to GDP per capita. Both the productivity and employment rates were lower than the Great Britain average, while the working age ratio and activity rate were above the Great Britain average. The largest contributor to the negative GDP gap between Brighton and Great Britain was productivity, which was significantly below the national average (almost 15%).

By the year 2000 Brighton and Hove had fallen further below the Great Britain average for GDP per Capita, mainly as a result of lagging further behind the Great Britain average in terms of productivity. Productivity, employment rate and activity rate drivers each fell below the Great Britain mean with only the working age ratio being above it.

In terms of GDP per capita ranking in 1994 Brighton and Hove lay in eleventh position in the South East region and this is a position in which it remained by the year 2000.

Figure 10. Effect on GDP of equalising growth drivers to Great Britain average for Brighton & Hove Sub Region



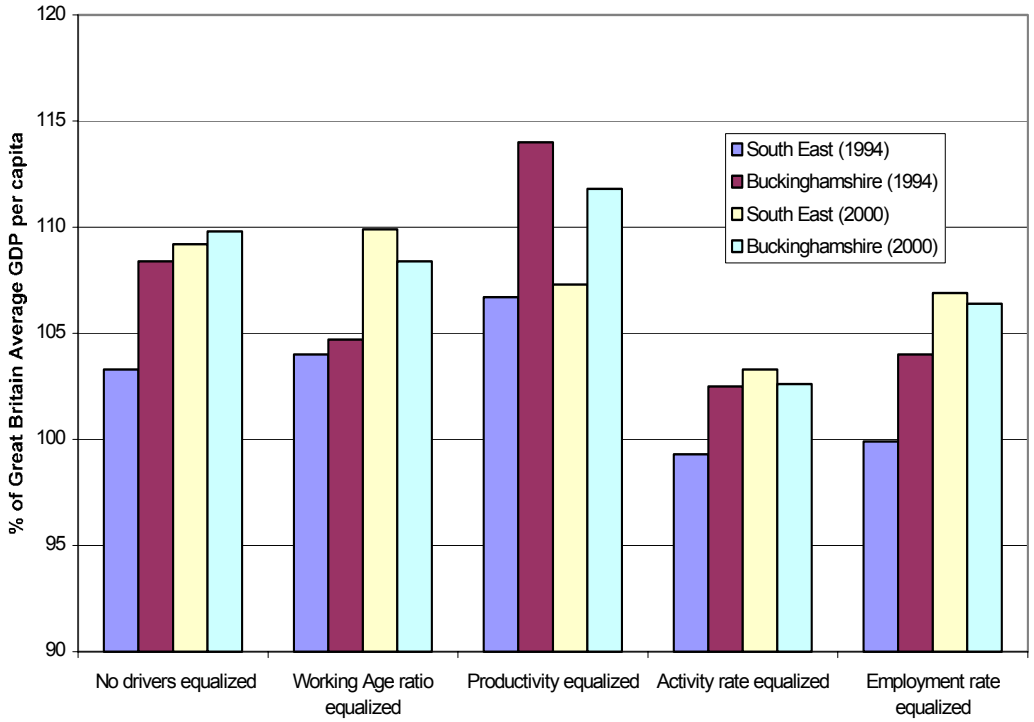
Buckinghamshire

In 1994 Buckinghamshire was performing above the above the GDP per capita average for Great Britain. At this time productivity was the only one of its drivers that was below the Great Britain average. The activity rate of the region was the largest contributor to its positive GDP gap in 1994 with the working age driver being the lowest.

In 2000 Buckinghamshire continued to outperform the Great Britain average for GDP per capita. The region was the seventh best performing area within the South East and continued to perform above the South east as a whole. Buckinghamshire continued to outperform the Great Britain average in each of the labour market drivers by 2000 although it remained below the national average productivity rate.

Between 1994 and 2000 Buckinghamshire increased the positive GDP gap over the Great Britain average from 8.4% to 9.8%. This was mainly due to the Sub-region significantly closing its negative productivity gap with the Great Britain average. Even so, the GDP gap between Buckinghamshire and the South East has fallen in these years, reflecting faster growth within other Sub-regions of the South East.

Figure 11. Effect on GDP of equalising growth drivers to Great Britain average for Buckinghamshire Sub Region



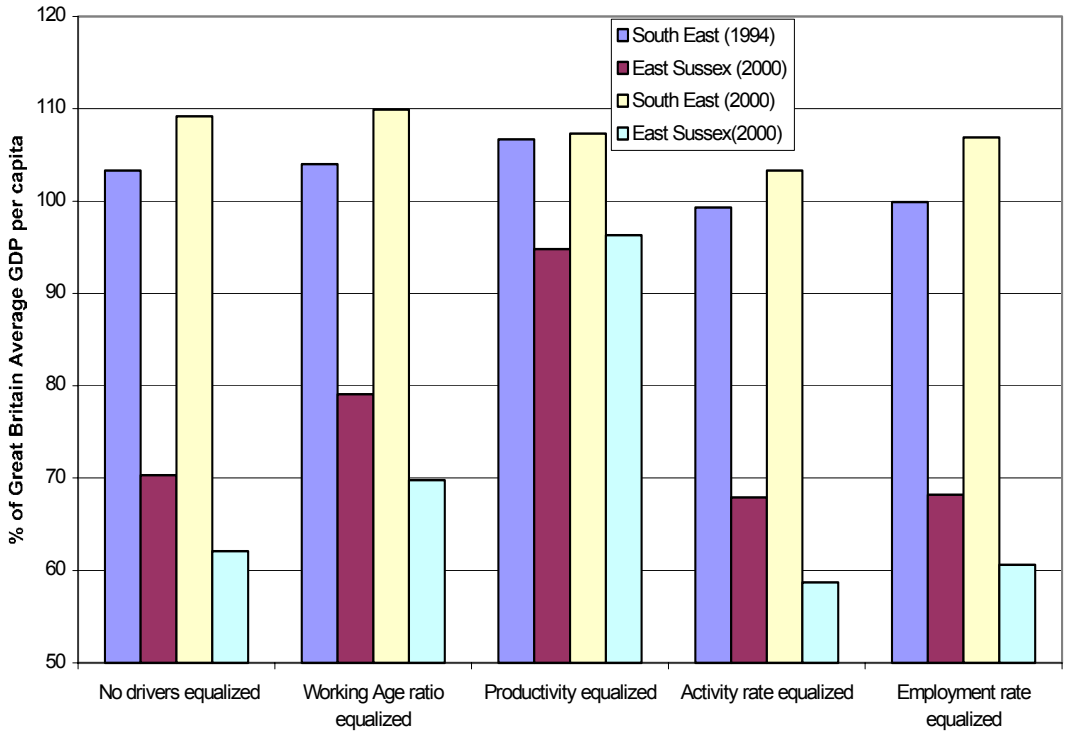
East Sussex

In 1994 East Sussex was performing well below both the Great Britain and the South East average GDP per capita. In fact out of the 14 regions in the South East, East Sussex ranked 13th in relative GDP per capita with only the Isle of Wight being ranked below it. Low productivity was the main contributor to this negative gap in 1994, whilst the activity rate and employment rate were above the Great Britain average.

In 2000 the region remained significantly below the Great Britain and South East average GDP per capita. Since 1994 the region has dropped in ranking to having the lowest relative GDP per capita in the whole of the South East. Productivity has remained the largest reason for this and, significantly, the productivity rate fell sharply relative to the Great Britain average over this period.

Between 1994 and 2000 the percentage gap between GDP in East Sussex and Great Britain increased from –29.7% to –37.9%. The negative productivity gap of over 35% in 2000 was the largest contributing factor to this decline

Figure 12. Effect on GDP of equalising growth drivers to Great Britain average for East Sussex Sub Region.



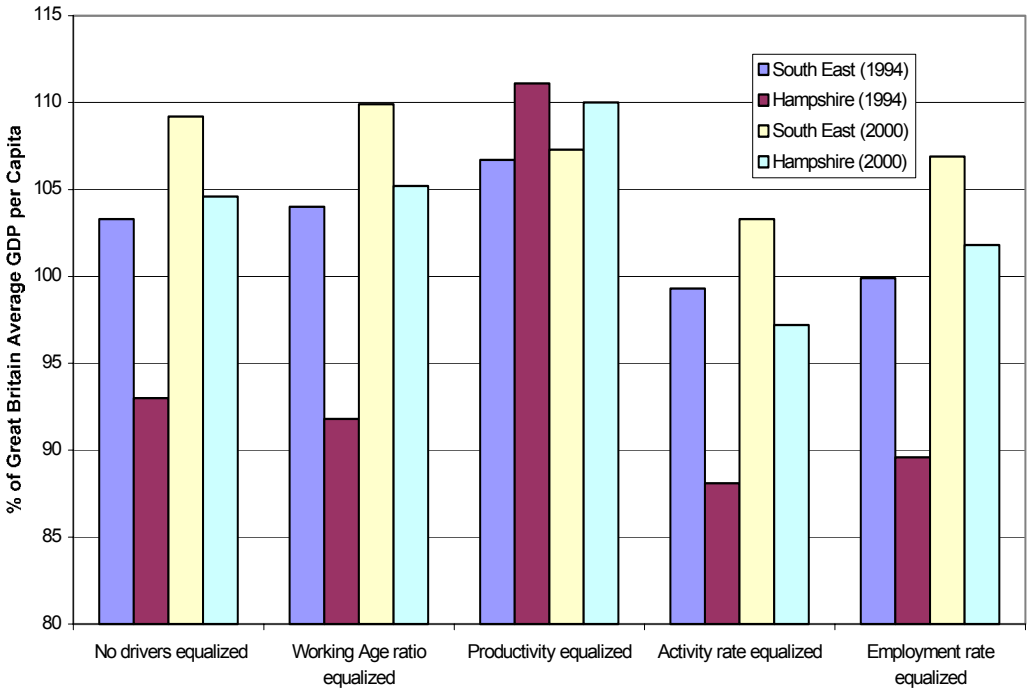
Hampshire

In 1994 Hampshire's relative GDP per capita was below the Great Britain and the South East average In 1994 the main contributor to the negative GDP gap between the Sub region and Great Britain was productivity whilst the working age ratio, activity rate and employment contributed positively to relative GDP by being above the national average.

By 2000 Hampshire had managed to outperform the Great Britain average in terms of relative GDP per capita, however it was still below the average for the South East region as a whole. The main driver of growth over this period was the fact that the negative productivity gap between Hampshire and Great Britain had closed significantly. Between 1994 and 2000, the negative productivity gap had closed by over two-thirds.

Hampshire managed to increase it's percentage of national GDP per capita by 11.6% between 1994 and 2000. Hampshire moved from the 10th rank in the South East region in 1994 to 9th in the year 2000.

Figure 13. Effect on GDP of equalising growth drivers to Great Britain average for Hampshire Sub Region



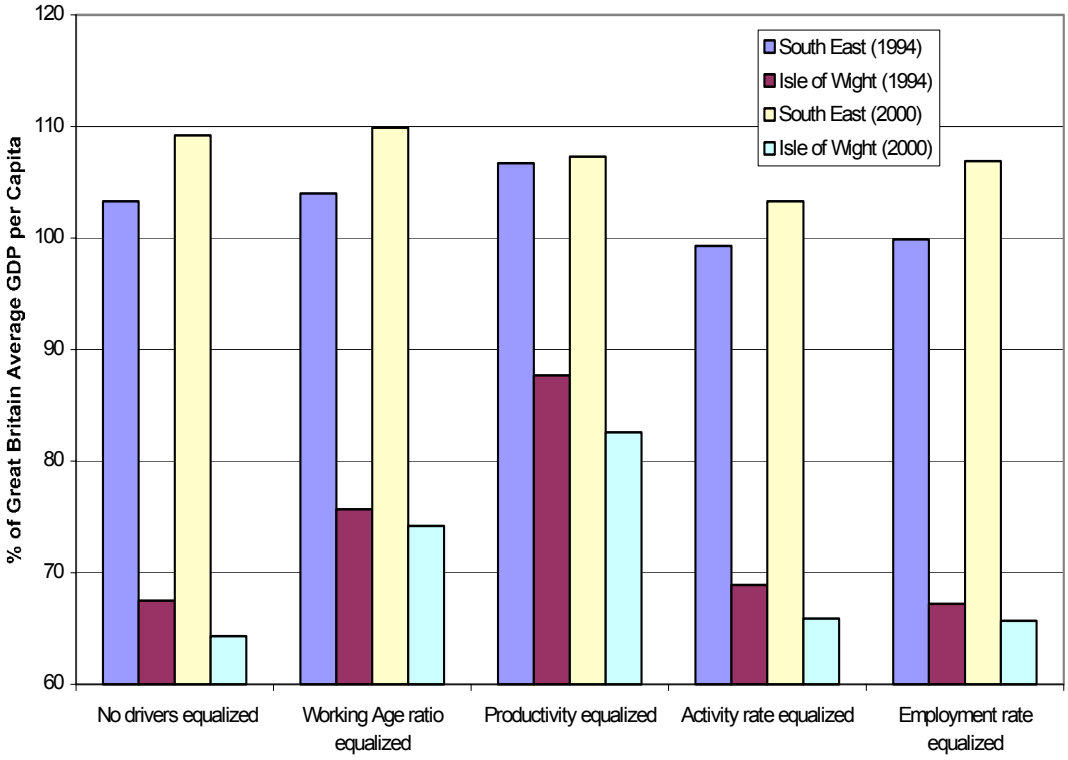
Isle of Wight

In 1994 the Isle of Wight's relative GDP per capita was well below the Great Britain average as well as below the average for the whole of the South East. The Isle of Wight in fact had the lowest relative GDP per capita in the whole of the South East region. The main contributor to the negative GDP gap for the region was productivity. The working age ratio was the only variable that was above the Great Britain average in 1994.

In 2000 the Isle of Wight continued to perform under the Great Britain average of relative GDP per capita. Out of the fourteen regions at this time it had the 13th highest relative GDP per capita with only East Sussex being lower. Despite this improvement in ranking, by 2000 all of the GDP components were below the national average.

The Isle of Wight between 1994 and 2000 fell further behind the GB average in terms of the GDP gap, with it increasing from –32.5% to –35.7%.

Figure 14. Effect on GDP of equalising growth drivers to Great Britain average for Isle of Wight Sub Region



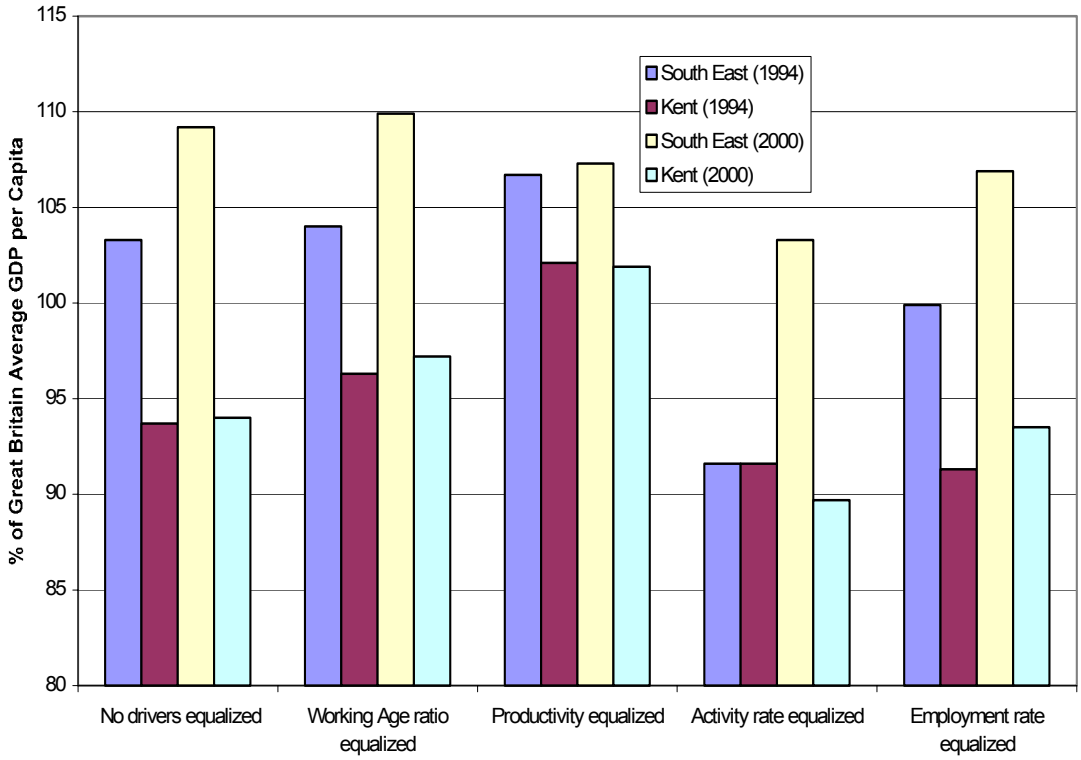
Kent

The relative GDP per capita for Kent in 1994 was below the average for Great Britain and below the average for the South East Region as a whole. Kent had the 9th highest relative GDP per capita out of the 14 regions in the South East. In this year the main contributor to the negative GDP per capita gap was productivity. However, employment and the activity rate were higher than the Great Britain average.

Kent continued to perform under the Great Britain average of relative GDP per capita by 2000 and stayed in 9th position out of the 14 South East regions. Productivity continued to be the main contributor to the negative gap for the region with only marginal relative improvement in the productivity gap.

Between 1994 and 2000 Kent closed the negative GDP gap slightly between itself and Great Britain from –6.3% to -6.0%.

Figure 15. Effect on GDP of equalising growth drivers to Great Britain average for Kent Sub Region

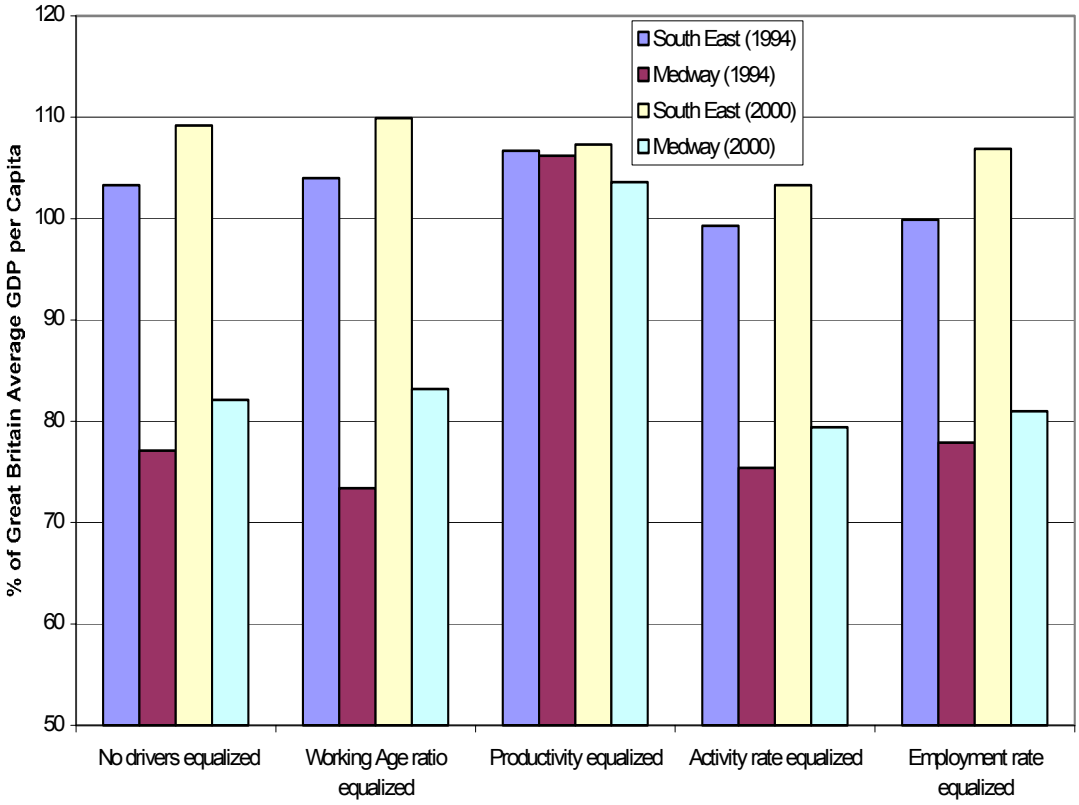


Medway

In 1994, Medway's relative GDP per capita was below the Great Britain and below the average for the South East region. Out of the 14 South East regions Medway had the 12th highest relative GDP per capita. The main reason for this low ranking was low productivity. Both Productivity and the employment rate were below the Great Britain average but the working age rate and the activity rate were above the Great Britain average.

In 2000, once again the relative GDP per capita for Medway was below the Great Britain and South East average and Medway continued to have the 12th highest relative GDP per capita in the South East. Despite closing the productivity and GDP gap with Great Britain, GDP remained significantly below the Great Britain average by 2000.Medway experienced and increase in the GDP gap between itself and Great Britain between 1994 and 2000 from –17.9% to –22.9%.

Figure 16. Effect on GDP of equalising growth drivers to Great Britain average for Medway Sub Region



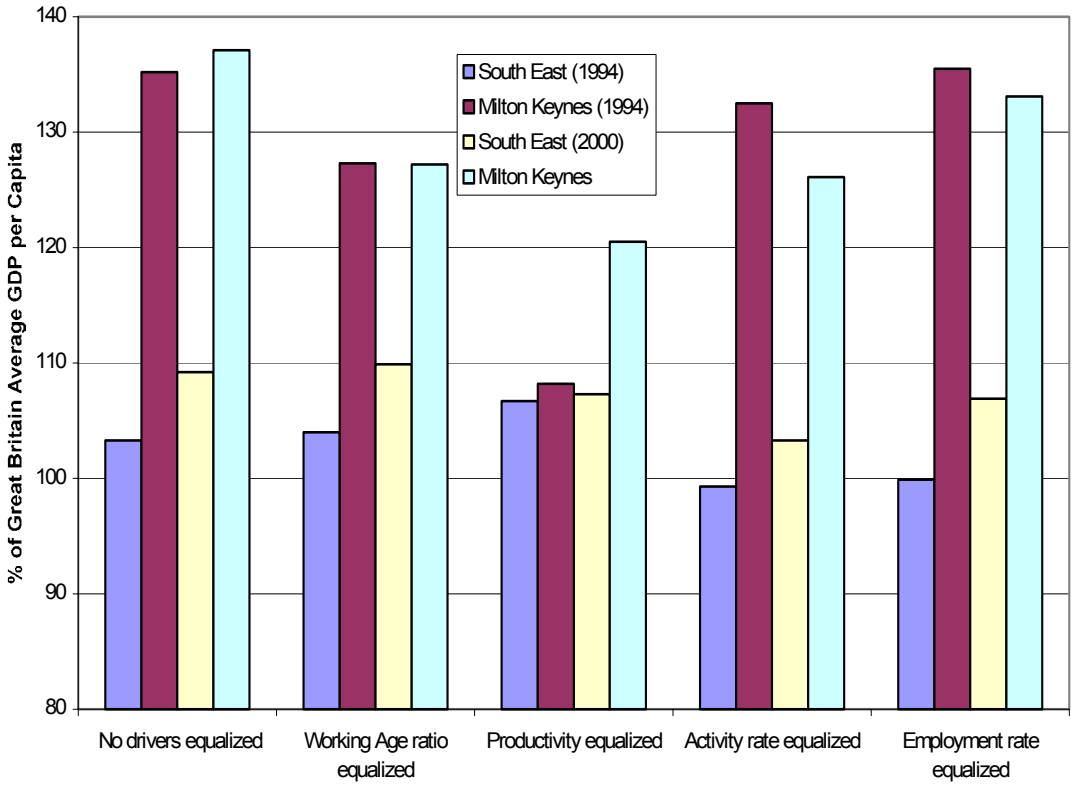
Milton Keynes

In 1994, Milton Keynes relative GDP per capita was above both the Great Britain and the South East average. Out of the 14 regions in the South East, Milton Keynes had the second largest relative GDP per capita. The main driver for Milton Keynes at this time was productivity, whilst the smallest driver was the employment rate. The employment rate was the only variable under the Great Britain average in 1994.

In 2000, Milton Keynes once again had a relative GDP per capita that was greater than the Great Britain and South East average. However in this year it was the third highest in the South East region, despite slight growth relative to Great Britain. In 2000 each variable was above the average for Great Britain with productivity remaining as the main driver for Milton Keynes, despite falling relative to the Great Britain average over this period.

The positive GDP gap between Milton Keynes and Great Britain between 1994 and 2000 actually increased from 35.2% to 37.1%, although had the positive productivity gap remained, then GDP would have been even higher.

Figure 17. Effect on GDP of equalising growth drivers to Great Britain average for Milton Keynes Sub Region



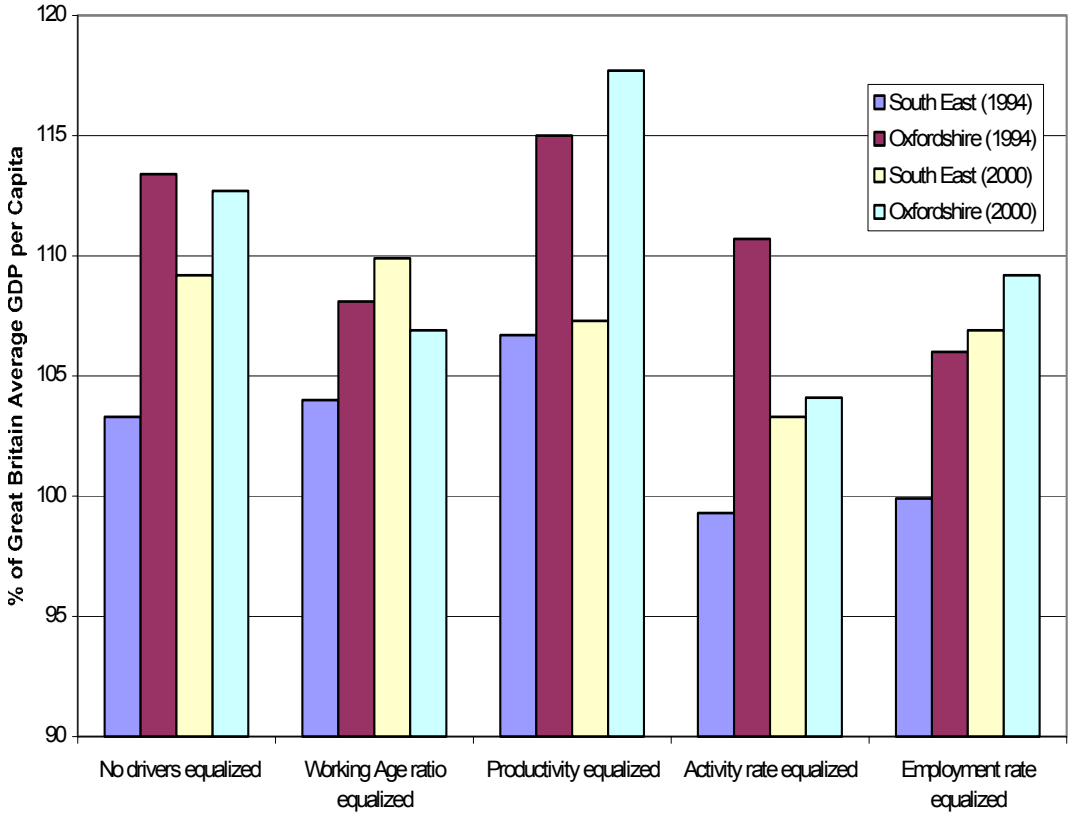
Oxfordshire

In 1994,the relative GDP per capita in Oxfordshire was above the Great Britain and south east average. The area had the 5th highest GDP per capita out of the 14 South East regions. The largest contributor to the positive GDP gap for the area was the employment rate. The smallest driver was productivity, which was the only variable that was below the Great Britain average.

In 2000,Oxfordshire had slipped to be the 6th highest area in the South East in terms of relative GDP per capita but was still performing above the Great Britain average. As in 1994 the only variable that was below the Great Britain average was productivity. The negative productivity gap had increased over this period, contributing to a fall in the positive GDP gap.

The positive GDP gap between Oxfordshire and between Great Britain 1994 and 2000 decreased from 13.4% to 12.7%.

Figure 18. Effect on GDP of equalising growth drivers to Great Britain average for Oxfordshire Sub Region



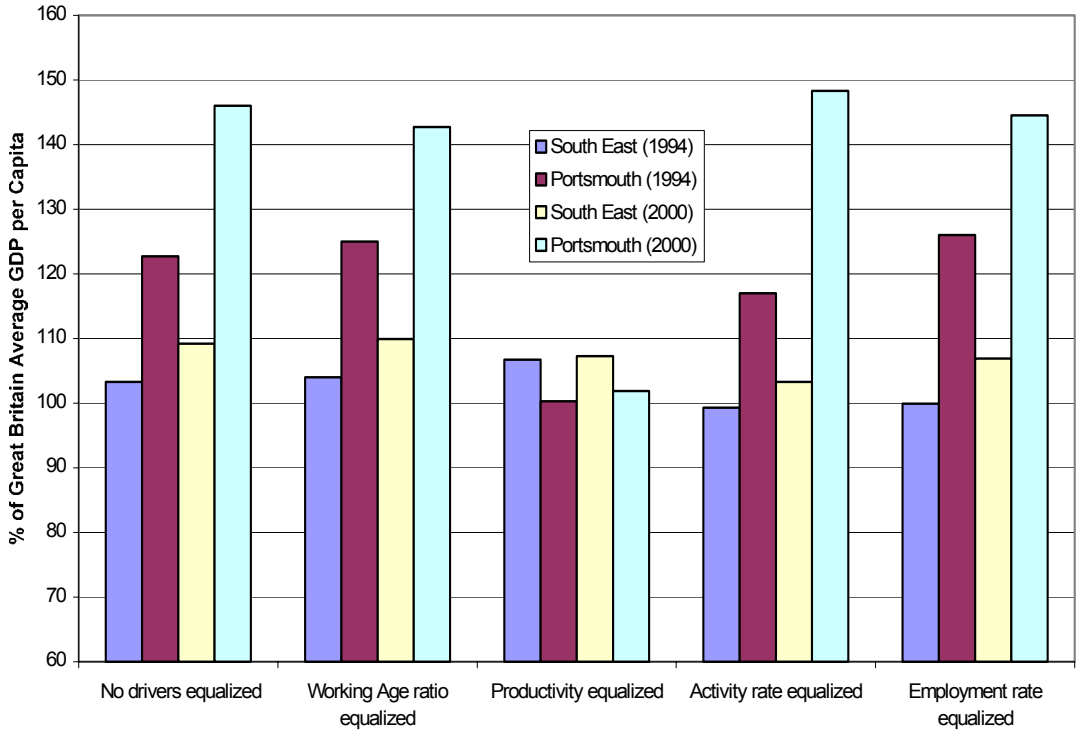
Portsmouth

In 1994, Portsmouth's relative GDP per capita was greater than the averages for Great Britain and the South East. Out of the 14 South East regions, Portsmouth had the 3rd highest relative GDP per capita. The main driver for the region at this time was productivity with the lowest driver being the working age ratio. Both productivity and the activity rate for the area were above the Great Britain average whilst the employment rate and the working age ratio were below the Great Britain average.

Again in 2000, Portsmouth's relative GDP per capita was greater than the Great Britain average and was in fact the second highest in the South East region. Once again productivity was the main driver while the employment rate was the smallest driver. The activity rate was the only variable that was below the Great Britain average.

The positive GDP gap between Great Britain and Portsmouth increased from 22.7% in 1994 to 46% in 2000, fuelled by increased productivity over this period.

Figure 19. Effect on GDP of equalising growth drivers to Great Britain average for Portsmouth Sub Region



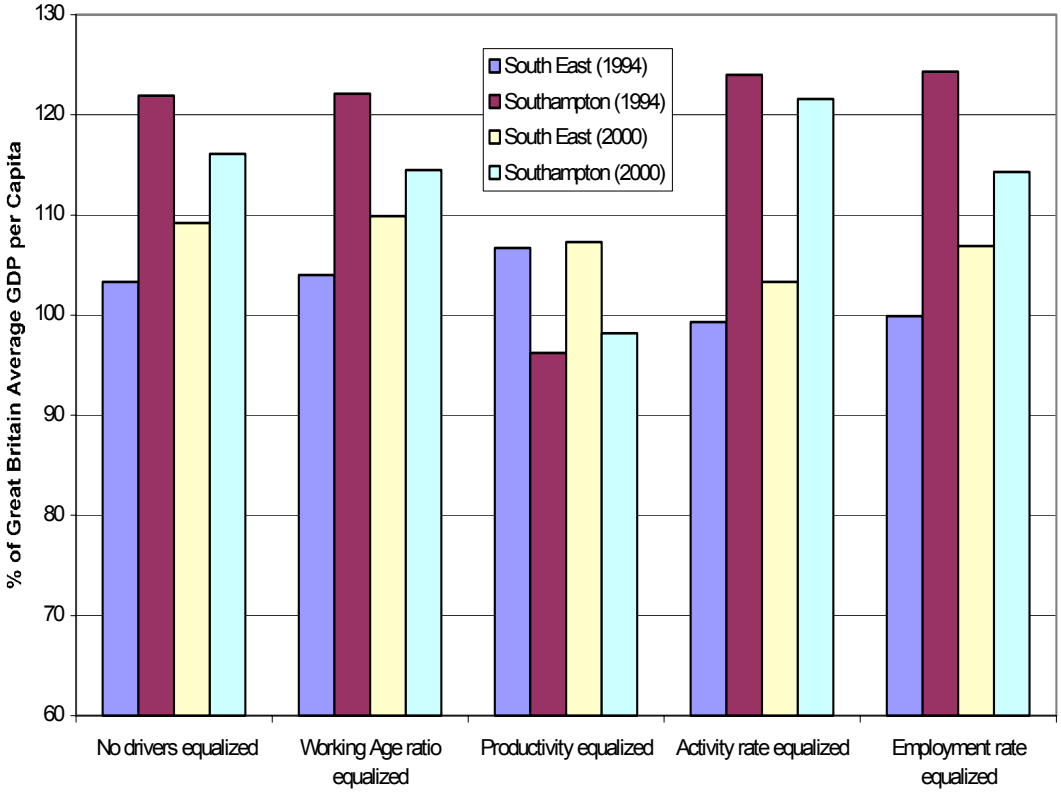
Southampton

In 1994, Southampton had the 4th highest relative GDP per capita out of the 14 South East regions and was above the Great Britain average. Productivity was the main driver for the region and was the only variable to be over the Great Britain average.

In 2000, Southampton had the 5th highest relative GDP per capita out of the 14 South East regions and remained above the Great Britain average. As in 1994 productivity was the main driver for the region, although the gap between the Sub-region and GB had fallen. Unlike 1994, in the year 2000 the only variable that was lower than the Great Britain average was the activity rate.

The positive GDP gap between Southampton and Britain decreased between 1994 and 2000 from 21.9% to 17.1%, mainly as a result of the fall in the positive productivity gap.

Figure 20. Effect on GDP of equalising growth drivers to Great Britain average for Southampton Sub Region



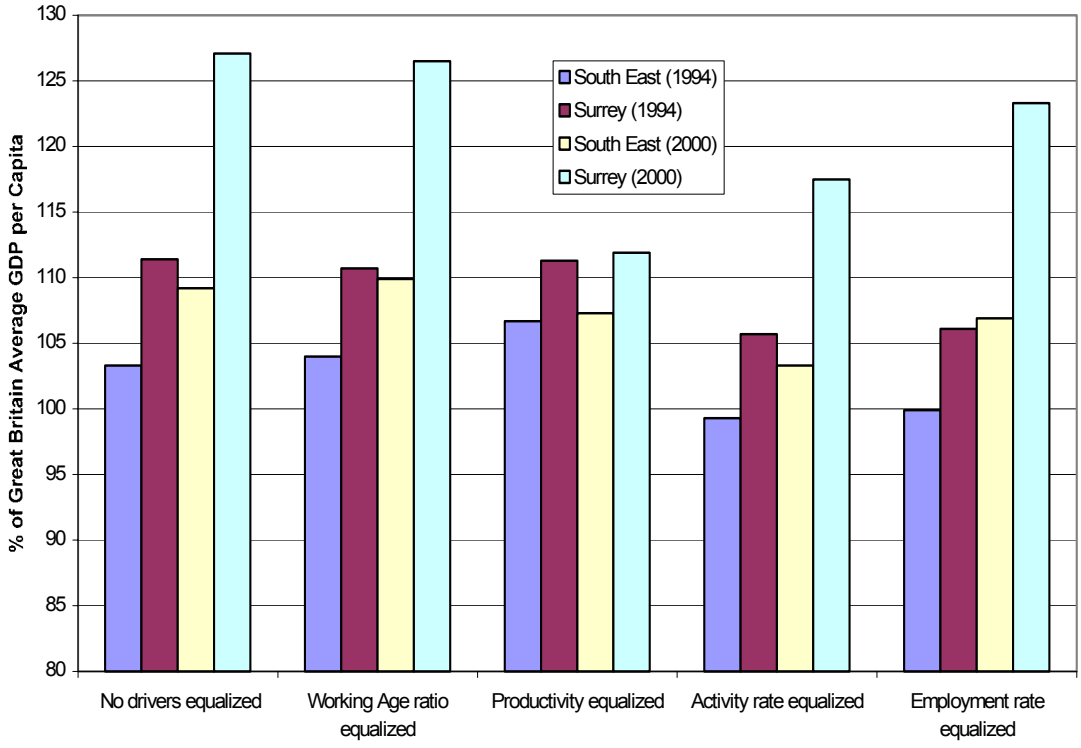
Surrey

In 1994, Surrey's relative GDP per capita was above the Great Britain average as well as above the relative GDP per capita for the South East region. Out of the fourteen regions the relative GDP per capita for surrey was the 6th highest. All the GDP Drivers were greater than the Great Britain average.

In 2000, Surrey continued to perform above the Great Britain and South East average relative GDP per capita and was the 4th highest area out of the 14 South East regions. The main driver for Surrey's relative GDP per capita at this time was productivity and once again all variables were above the Great Britain average.

The GDP gap between Great Britain and Surrey between 1994 and 2000 increased from 11.4% to 27.1% mainly as a result of high productivity growth relative to Great Britain.

Figure 21. Effect on GDP of equalising growth drivers to Great Britain average for Surrey Sub Region



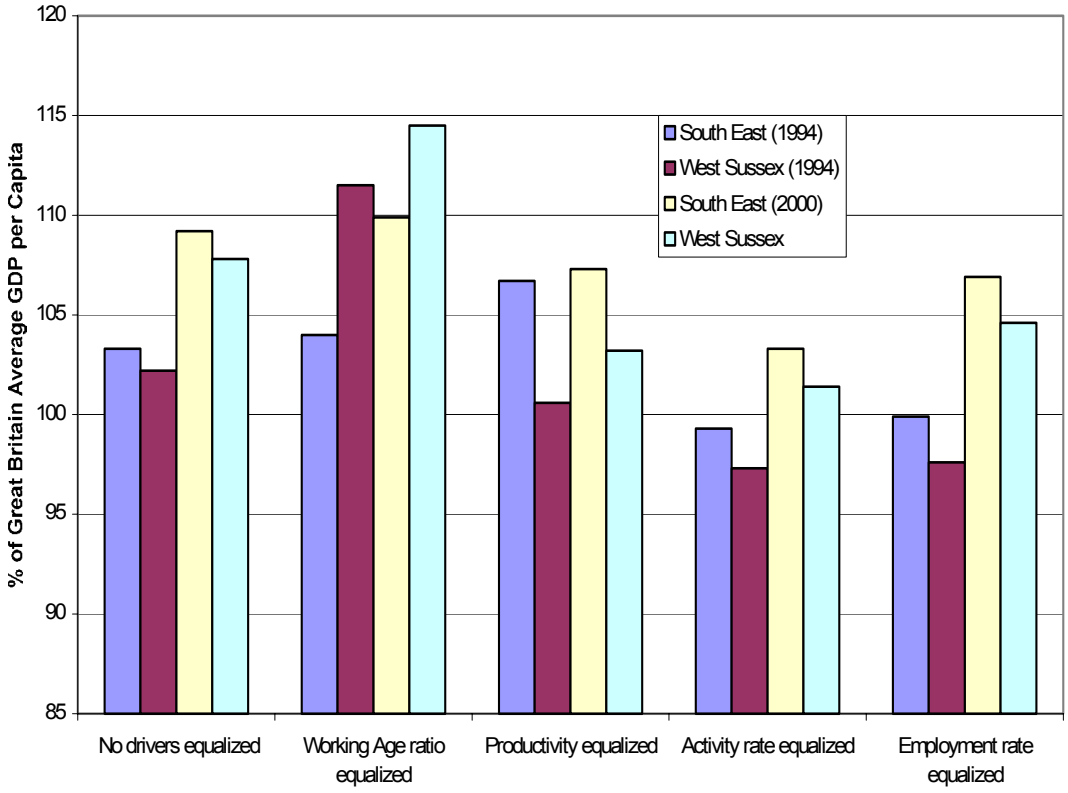
West Sussex

In 1994, West Sussex was above the Great Britain relative GDP per capita but below the average for the whole of the South East. Out of the 14 regions in the South East, West Sussex had the 8th highest relative GDP per capita. The only variables that were above the Great Britain average at this time were the activity rate and the employment rate.

In 2000, West Sussex was still above the relative GDP per capita average for Great Britain but was below the average level for the South East region as a whole. West Sussex had the 8th highest relative GDP per capita in the South east region again in 2000 as it did in 1994.

The positive GDP gap between Great Britain and West Sussex between 1994 and 2000 has increased from 2.2% to 7.8% mainly as a result of high productivity growth relative to the national average.

Figure 22. Effect on GDP of equalising growth drivers to Great Britain average for West Sussex Sub Region



4. What Differentiates the South East's Sub-Regional Economies?

Following our analysis of the drivers of economic growth within the South East and its sub-regions, it has been found that productivity was the main driver of economic growth within the region between the years 1994 and 2000. This suggests that further analysis is needed in order to understand what has actually been driving productivity growth across large parts of South East of England.

The next stage of the growth model is to analyse the differentiation across a whole range of variables between the sub-regions of South East England, and how these disparities affect growth. In order to study how disparities amongst the South East England economy are associated a process called factor analysis is applied. Factor analysis is used to simplify complex and diverse relationships that exist among a set of observed variables by uncovering common dimensions or factors that link them together, and provide insight into the underlying structure of the data.

The common dimensions identified by the factor analysis will highlight what specifically differentiates South East England's sub-regional economies. By uncovering these common dimensions we can form hypothesis about what drives the economies of South East England.

Where change has been analysed, the years 1994 and 2000 have been chosen as the period of study. This choice of years is for the following reasons:

- It enables comparison of a number of datasets
- It is long enough a time period in order to eradicate short-term affects having a large influence on the data
- It is short enough a time period to enable recent growth trends to be studied.

All the data used within the model was calculated as compound annual growth. Where the year of availability of the data did not match exactly the 1994-2000 period the nearest equivalent was chosen. The factor analysis is undertaken in order to derive:

- Links between productivity growth and growth in other economic and social factors (the drivers of productivity growth)
- Links between the drivers of productivity growth and other economic and social factors

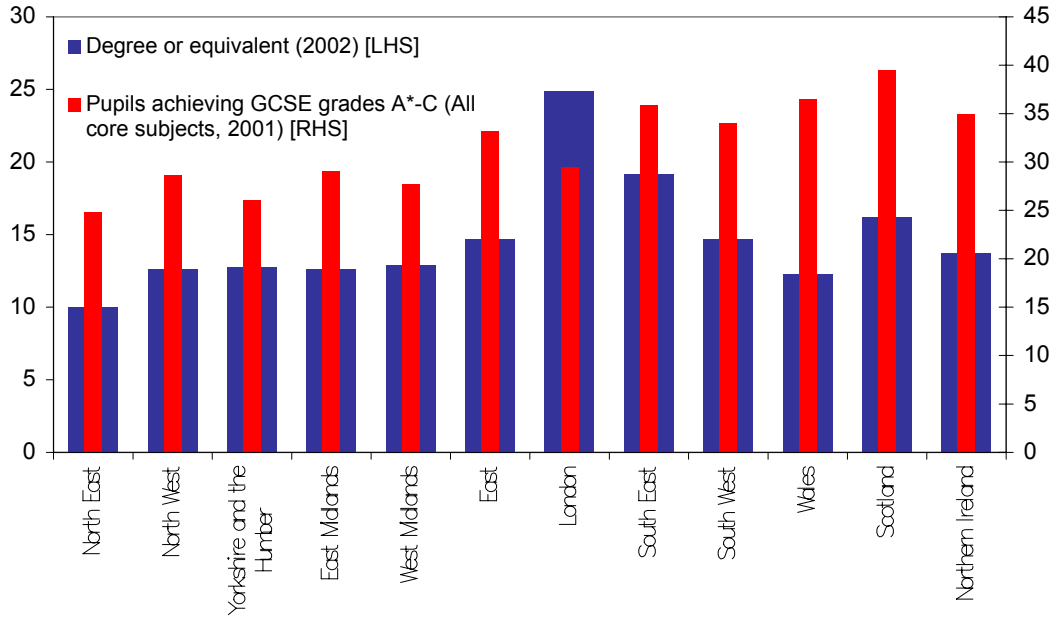
The analysis was undertaken at a sub-regional level in order to understand the local drivers of growth within the South East region. Initially, those drivers most closely correlated with productivity growth are determined. Once these drivers are identified, the study extrapolates what pushes forward the drivers themselves, by again looking at those variables showing the greatest correlations with their drivers. Our study looked at, where data was available, some of the drivers identified in the 2001 HM Treasury report 'Productivity in the UK – The Regional Dimension'. The drivers were identified as:

- Skills
- Investment
- Innovation
- Enterprise
- Competition

However, within each of these drivers of productivity growth there are a number of different sub-sectors, each with their own indicator. For example, skills can be looked at from a number of

different angles. For example, there are often substantial differences between resident's skills and the performance of schoolchildren in the local area – as illustrated in figure 23 below. Whilst we may expect areas with comparatively better performing schools to have a greater proportion of residents with high-level qualifications this is not necessarily the case. For example, London has significantly more residents with degree level qualifications or better than any other region of the UK, but performs relatively poorly in terms of school performance. The migrational issues that determine these results are fairly obvious – but at the same time highlight the need to understand that for drivers of productivity, such as skills, there is more than one indicator that we can include within our analysis. For this reason we have included a comprehensive list of indicators in order to determine the drivers of growth within the sub-regional economies of South East England.

Figure 23: Differential between schools and residents performance.



The aim of this analysis is to provide a comprehensive set of indicators that determine growth within the sub-regional economies of South East England, and hence suggest areas of policy intervention in order to aid further economic growth for the sub-regional economies and the South East England economy as a whole.

Analysis is undertaken in two strands – Static Factor Analysis and Dynamic Factor Analysis document the results gain from the analysis – and highlights those factors driving South East England's sub-regional economies.

Static Factor Analysis

The full list of variables studied in the static factor analysis is as follows:

- Labour Productivity
- Proportion of Working Age with NVQ3+
- Economic Activity Rate
- Employment in Higher Education
- Employment in Research and Development
- Employment in Electronics and Optical Equipment
- Employment in Finance and Business
- Proportion of High Tech Manufacturing Businesses
- Proportion of High Tech Service Businesses
- Proportion of Knowledge Based Businesses
- Average House Price
- Working Age Population
- Output per Capita
- Proportion of Ethnic Minorities within Resident Population
- Proportion of Working Age with NVQ4+
- Proportion of Working Age with No Qualifications
- Business Registration per Capita
- Business Stocks per Capita
- Inward Migration per Capita
- Outward Migration per Capita
- Proportion of Population with Good health (2001)
- Proportion of Population Fairly good health (2001)
- Proportion of Population Not good health (2001)
- Proportion of Population With a limiting long-term illness (2001)
- Proportion of Population Without a limiting long-term illness (2001)
- Proportion of Workforce who work mainly at or from home (2001)
- Proportion of Workforce who travel by Underground; metro; light rail; Tram (2001)
- Proportion of Workforce who travel by Train (2001)
- Proportion of Workforce who travel by Bus; Mini Bus or coach (2001)
- Proportion of Workforce who travel by Motorcycle; Scooter; moped (2001)
- Proportion of Workforce who travel by Driving a car or van (2001)
- Proportion of Workforce who travel by Passenger in a car or van (2001)
- Proportion of Workforce who travel by Taxi or minicab (2001)
- Proportion of Workforce who travel by bicycle (2001)
- Proportion of Workforce who travel by on foot (2001)
- Public transport users in households with car or van (2001)
- Public transport users in households without car or van (2001)
- Managers/Administrators Gross Weekly Pay
- Patent Applications per Capita
- High-Technology Patent Applications per Capita
- Net Migration per Capita
- Average Key Stage 2 Scores (1998)
- University Applications per Capita (1998)
- Violent crimes per Capita (2001)
- Sexual crimes per Capita (2001)
- Robbery per Capita (2001)
- Burglary per Capita (2001)
- Motor theft per Capita (2001)

- Retail rateable value
- All bulk accommodation rateable value
- Proportion of Large employers and higher managerial occupations
- Proportion of Higher professional occupations
- Proportion of Lower managerial and professional occupations
- Proportion of Intermediate occupations
- Proportion of Small employers and own account workers
- Proportion of Lower supervisory and technical occupations
- Proportion of Semi-routine occupations
- Proportion of Routine occupations
- Proportion of Workforce Working more than 45 hours per week
- Proportion of those in work receivibg job related training within the last 4 weeks
- Population Density
- Unemployment rates (Reversed)
- Recycling within the Public Sector
- Average Drive Time to London
- Total Poor Literacy
- Total Poor Numeracy

The factor analysis provided some interesting results. Two relevant factor components were extracted – economic inputs and urbanism. These factors represent the inputs with which we can derive economic output, and also the marketplace and supply side factors that drive the sub-regional economies. Factor scores, represented as an average of 100 for the South East are presented in the table below. The factor scores have been calculated using the results from the first and second components of the factor analysis on the variables identified above. The overall index is a straight average of these two factors. The main constituents of each factor are described below. Statistical details on the factor analysis can be found within the appendix.

Table 3: Factor Scores for South East Sub-Regional Economies (South East Average = 100)

	ECONOMIC INPUTS	URBANSIM	OVERALL INDEX
Berkshire	128.3	107.6	117.9
Surrey	130.6	98.3	114.5
Oxfordshire	120.1	101.8	111
Buckinghamshire	127.7	94.1	110.9
Brighton and Hove	95.3	124.3	109.8
Milton Keynes	107.3	105.3	106.3
Southampton	80.3	118.9	99.6
Hampshire	110.7	87.7	99.2
West Sussex	99.4	92	95.7
Portsmouth	75.3	112.6	93.9
Kent	93.9	93.4	93.7
Medway	84.8	97.2	91
East Sussex	86.7	92.6	89.6
Isle of Wight	59.5	74.4	67

Source: Robert Huggins Associates

The first factor included a large number of economic inputs – from skills to sector composition. These factors identified explained much of the variation (around 40%) amongst the sub-regions of South East England. In particular the economic input factor is characterised by the following indicators:

- Proportion of Working Age with NVQ3+
- Economic Activity Rate
- Managers/Administrators Gross Weekly Pay
- Patent Applications per Capita
- High-Technology Patent Applicatuions per Capita
- Proportion of High Tech Service Businesses
- Proportion of Knowledge Based Businesses
- Average House Price
- Average Key Stage 2 Scores
- Aniversity Applications per Capita
- Proportion of Ethnic Minorities within Resident Population
- Proportion of Working Age with NVQ4+
- Business Registration per Capita
- Business Stocks per Capita
- Outward Migration per Capita
- Proportion of Population with Good health
- Proportion of Workforce Working more than 45 hours per week
- Proportion of Workforce who travel by Driving a car or van
- Total Poor Literacy
- Total Poor Numeracy.

The variable highlighted above explains much of the variation within South East England's sub-regional economies.

Qualifications and educational performance are an important contributor towards the sub-regional economies of South East England. More skilled, more highly qualified workers are able to employ more efficient production techniques, are faster in adopting new technologies and are also more prone to further skills development.

High-technology and knowledge based sectors are high value added sectors that will logically contribute more towards an economy than lower value added sectors. Knowledge-based businesses often employ more skilled workers – and hence create a link with resident qualifications. It is fairly safe to assume that a more skilled workforce is a more qualified workforce. Similarly, we can assume that these higher value added sectors often pay higher wages.

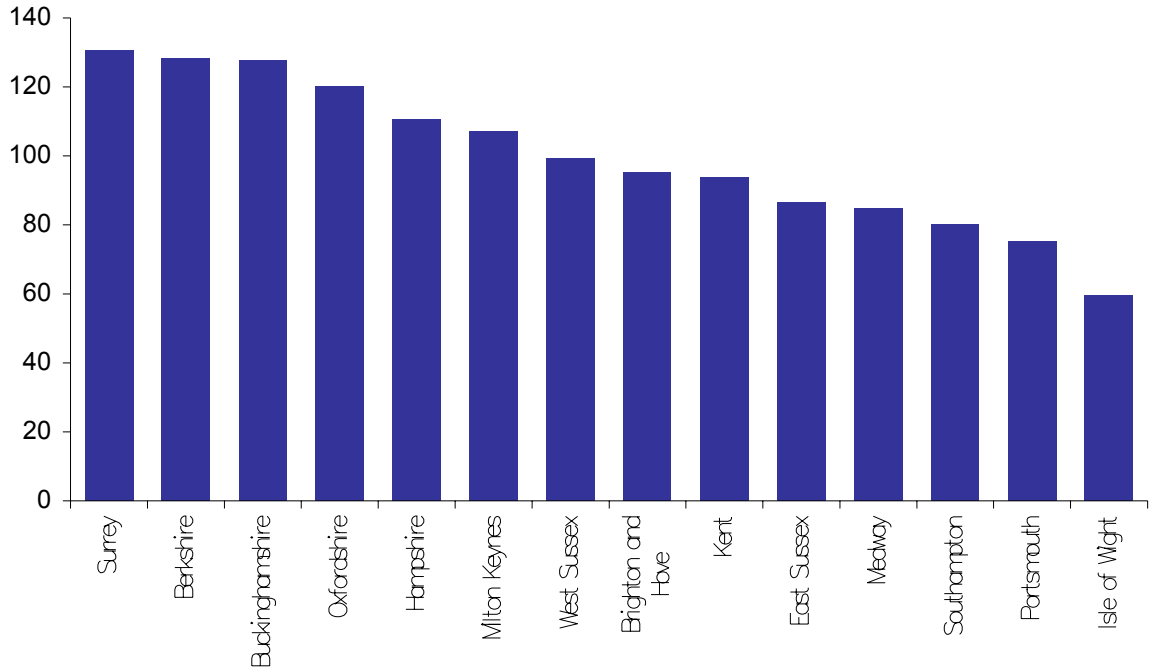
Business enterprise (measured in this instance by registration rates and business density) aid competition and hence contributes towards productivity differentials.

Innovation is also an important element of the knowledge economy, and is measured in our model as patent applications. Patenting enables businesses to exploit the knowledge embedded within any invention or process.

Economic activity and health are inextricably linked. However, economic activity is often more than just a function of resident's health. Economic activity measures the availability of human inputs for the production of knowledge. High levels of economic participation are also an indicator of high levels of quality of life within a region or sub-region.

If we look at the factor scores for each sub-region we can see that Surrey is the highest performing South East region, closely followed by Berkshire and Buckinghamshire. These areas all perform above average in most of the indicators mentioned above, and are also some of the most knowledge-intensive sub-regional economies within the UK and Europe.

Figure 24: How the Sub-Regions Scored – Economic Inputs (SE =100)



Source: Robert Huggins Associates

If we unpack into the constituents of the factor scores we can see (unsurprisingly) similar trends. The proportion of residents with NVQ level 4 or higher for example is particularly high in the areas of Brighton and Hove, Surrey, Oxfordshire, Buckinghamshire and Berkshire, as highlighted in table 4 below. Four out of these five comprise of the top four sub-regions in terms of the economic input factor.

Table 4: Index of Resident Qualifications – NVQ Level 4 or Higher 2000

	% with NVQ4+ - working age population
Brighton and Hove	135.0
Surrey	130.8
Oxfordshire	122.7
Buckinghamshire	116.9
Berkshire	113.1
East Sussex	93.5
Hampshire	93.1
Milton Keynes	90.8
West Sussex	85.4
Portsmouth	83.1
Southampton	80.0
Kent	79.2
Isle of Wight	60.4
Medway	48.1

Source: Labour Force Survey

Similar trends can be seen if we look at literacy and numeracy in sub-regional economies of South East England. Table 5 illustrates that Berkshire, Buckinghamshire, Oxfordshire and Surrey have relatively high literacy and numeracy rates.

Table 5: Proportion of Working Age Population with Poor Literacy and Numeracy 2000

	Total Poor Literacy	Total Poor Numeracy
Kent	34.6%	24.6%
Hampshire	30.4%	21.8%
Isle of Wight	26.1%	24.8%
Southampton	25.6%	26.7%
Portsmouth	25.3%	26.6%
South East	24.9%	21.5%
East Sussex	24.1%	22.1%
Medway	23.5%	24.1%
Milton Keynes	23.4%	23.5%
Brighton and Hove	23.0%	22.7%
West Sussex	22.6%	21.3%
Berkshire	20.9%	20.2%
Oxfordshire	20.6%	20.0%
Buckinghamshire	19.5%	18.4%
Surrey	18.9%	17.5%

Source: Basic Skills Agency

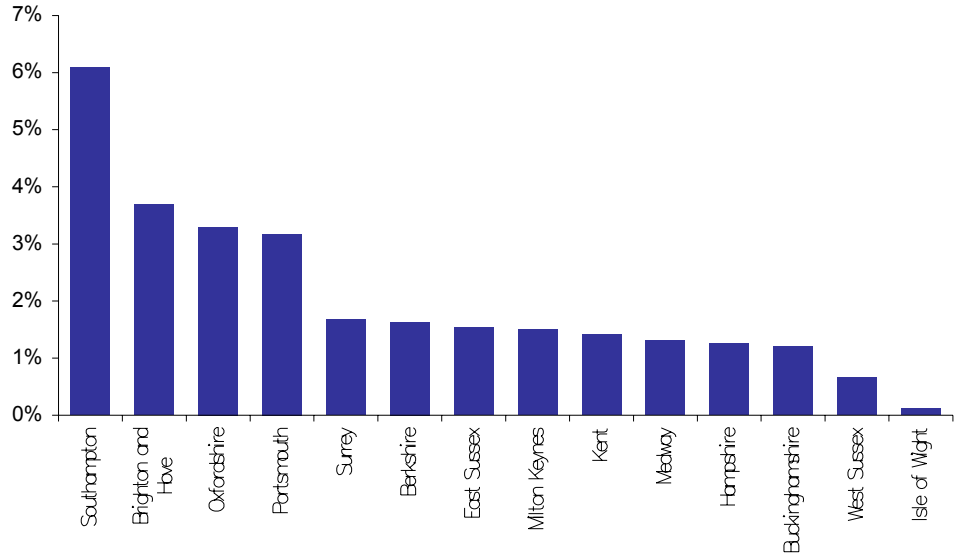
Similar themes continue if we look at the proportions of knowledge-based businesses within South East England. Berkshire has the highest proportion of high-technology businesses. The sub-region is noted for its high-technology concentrations – particularly in and around the Thames Valley area.

The second factor that we have analysed we have termed urbanism. Urban areas often display significant polarities within themselves, often characterised by poor inner city areas contrasting against richer suburbs. Urbanity reflects marketplace and density of the markets – the more people that live in an area the more opportunities there are to sell, buy and to create networks. The main constituents of our urbanity factor were characterised by the following indicators:

- Public transport users in households with car or van
- Public transport users in households without car or van
- Employment in Higher Education
- Employment in Finance and Business
- Proportion of High Tech Service Businesses
- Proportion of Knowledge Based Businesses
- Working Age Population
- Violent crimes per Capita
- Sexual crimes per Capita
- Robbery per Capita
- Burglary per Capita
- Inward Migration per Capita
- Outward Migration per Capita
- Population Density
- Proportion of Workforce who travel by Bus; Mini Bus or coach

The business and employment characteristic identified represent those particular sectors that are prone to locating in geographic groupings – and also need a density of businesses with which to serve.

Figure 25: Employment in Higher Education as a proportion of total employment 2000



Source: Annual Business Inquiry

High levels of both inward and outward migration characterised the second factor. High levels of labour mobility is needed if an area wants to attract the right type of labour and the right type of skills to serve the sectors that are based within the sub-region. As illustrated in table 6 below there is a high degree of correlation between inward and outward migration.

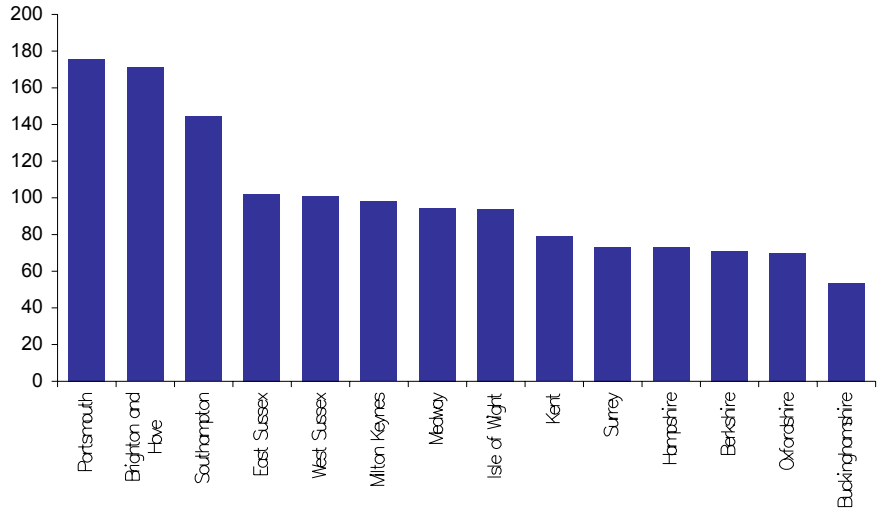
Table 6: Index of Inward and Outward Migration per Capita (South East =100) (2000-2001)

	Inward Migration	Outward Migration
Oxfordshire	116	123
Brighton and Hove	120	118
Surrey	115	121
Southampton	111	117
Berkshire	106	120
East Sussex	108	93
Hampshire	100	101
Buckinghamshire	95	105
Portsmouth	93	100
West Sussex	97	92
Kent	96	92
Milton Keynes	96	86
Medway	72	75
Isle of Wight	76	57

Source: National Statistics

The more 'urban' a place is the more crime is committed – in this case we found that a broad range of crimes were prevalent in the Urbanism factor. Figure 26 documents the prevalence of violent crime in the sub-regions of South East England.

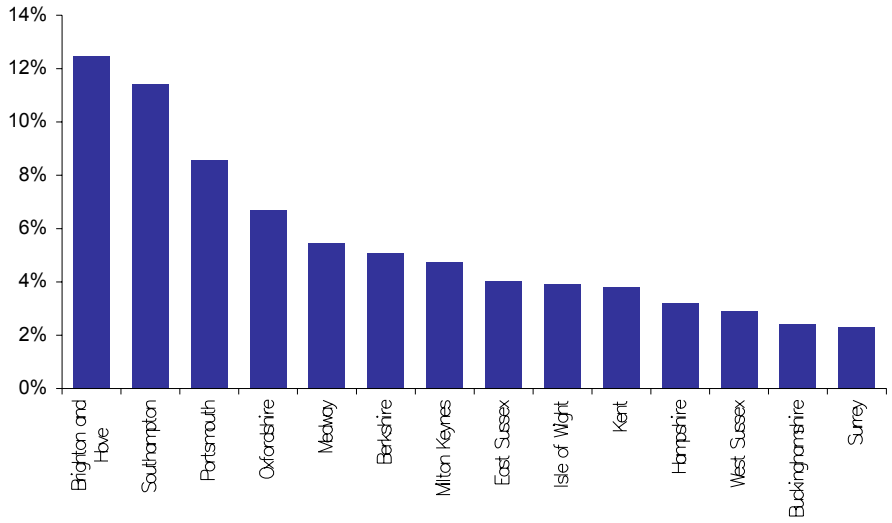
Figure 26: Index of Violent Crime per Capita (South East = 100) 2000



Source: Home Office

Public transport is also a key constituent of an urban environment. Lower average car speeds, higher average travel costs and greater difficulty in parking private vehicles means that those working in more densely populated areas have a greater incidence of public transport use – as illustrated in figure 27 below.

Figure 27: Proportion of working population who travel to work via bus or coach (2001)



Source: Census 2001

Summary of Static Factor Analysis

We have identified in the static factor analysis that the following themes are drive disparity amongst the sub-regional economies of South East England.

- Resident Qualification Levels
- Educational Achievement
- Number of High-Technology and Knowledge Based Businesses
- Employment in High Tech Sectors
- Ethnicity
- Business Enterprise
- Economic Activity
- Health
- Innovation
- University Employment
- Finance and Business Employment
- High Proportion of Working Age Population
- High levels of both inward and outward migration
- High levels of crime
- High levels of public transport usage
- High levels of population density

Dynamic Factor Analysis

The dynamic factor analysis seeks to understand the differences in growth of a number of variables within the South East England sub-regional economies, but uses growth data as opposed to the static measures used in the first factor analysis strand.

The initial analysis used data based around the year 2000. The dynamic analysis looks at growth rates as opposed to static measures.

The analysis has been undertaken for the change between the years 1994 to 2000. These variables consist of:

- Economically active population
- Working Age Population
- Gross Domestic Product per capita
- Mid year Population Estimate
- Total Employment
- Productivity
- Total Businesses
- Knowledge Based Businesses
- Employment in Higher Education
- Employment in R&D
- Employment in Manufacture of Electrical & Optical Equipment
- Employment in manufacture of Optical Instriments
- Employment in manufacture of electrical equipment
- Employment in Hi-tech manufacturing
- Employment in Finance & Business
- Patent Applications
- Business registrations
- Business deregistrations
- Business stocks at start of year
- Average House Prices
- % all work age receiv. job rel. train.(NOTE: Berkshire average excludes Slough and Bracknell Forest)
- Claimants under 18 years
- Working Age NVQ 4+ (1996 – 2000)

Two factor components were identified from the analysis – the first being Knowledge Economy variables and the second being People & Skills. The factor weights have been used to calculate factor scores which are presented in table 7 below. The overall index is a simple average of the two scores.

Table 7 – Factor Scores Dynamic Model. 1994 – 2000 (SE = 100)

Area	ECONOMY	LABOUR MARKET	OVERALL INDEX
Berkshire	118.0	86.6	102.3
Brighton & Hove	123.4	108.3	115.8
Buckinghamshire	115.0	102.2	108.6
East Sussex	113.4	97.6	105.5
Hampshire	112.8	87.9	100.3
Isle of Wight	84.5	102.1	93.3
Kent	103.8	95.4	99.6
Medway	102.6	87.5	95.0
Milton Keynes	132.6	101.6	117.1
Oxfordshire	103.2	86.3	94.7
Portsmouth	156.3	76.6	116.4
Southampton	87.9	120.2	104.0
Surrey	124.4	95.3	109.8
West Sussex	113.7	92.1	102.9

The first Factor included compound annual growth rates from 1994-2000 for several inputs and outputs of the Economy and accounted for around 27% of the variation amongst the sub-regions of South East England. These variables included:

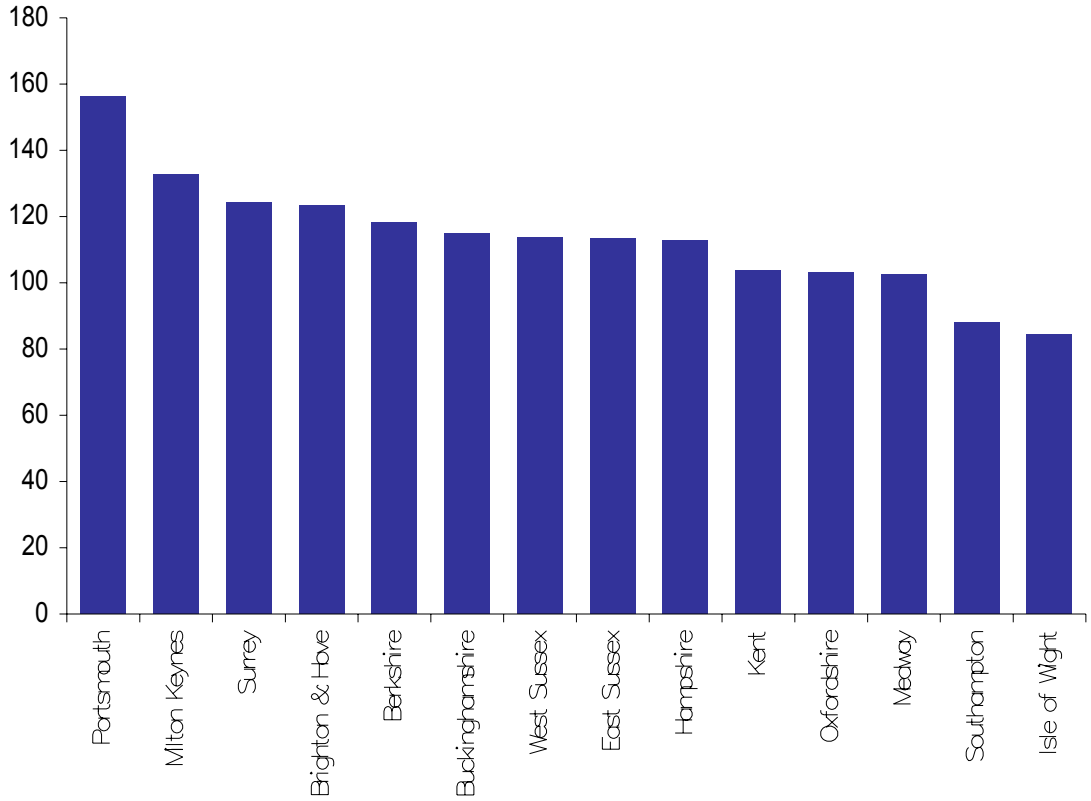
- Gross Domestic Product per capita
- Total Employment
- Total Number of Businesses
- Number of Knowledge Based Businesses
- Employment in Higher Education
- Employment in Finance & Business
- Business stocks at start of year
- Average House Prices
- Percentage of working age population receiving job related training.

It is widely acknowledged that successful economies have a high proportion of knowledge based, high-value added activities, and that regions specialising in such sectors tend to be highly competitive – characterised by high levels of growth in business. As with the static model, many of these factors may be considered as intuitively associated with variations in the economic sub-regions.

Growth in total employment, total number of businesses, knowledge based businesses and business stocks are indicators of levels of competition in the model. High levels of competition and business enterprise contribute positively toward productivity levels. Another indicator of levels of competition is given by growth in average house prices.

Growth of employment in higher education, finance & business and the number of knowledge based businesses give a measure of the vibrancy of higher value added sectors within the economy. As already mentioned, higher levels of employment and businesses in these sectors indicate high levels of skills within the economy and are associated with higher levels of earnings than lower skilled sectors. Workforce skill levels are also captured in the model by the proportion of working age people receiving job related training.

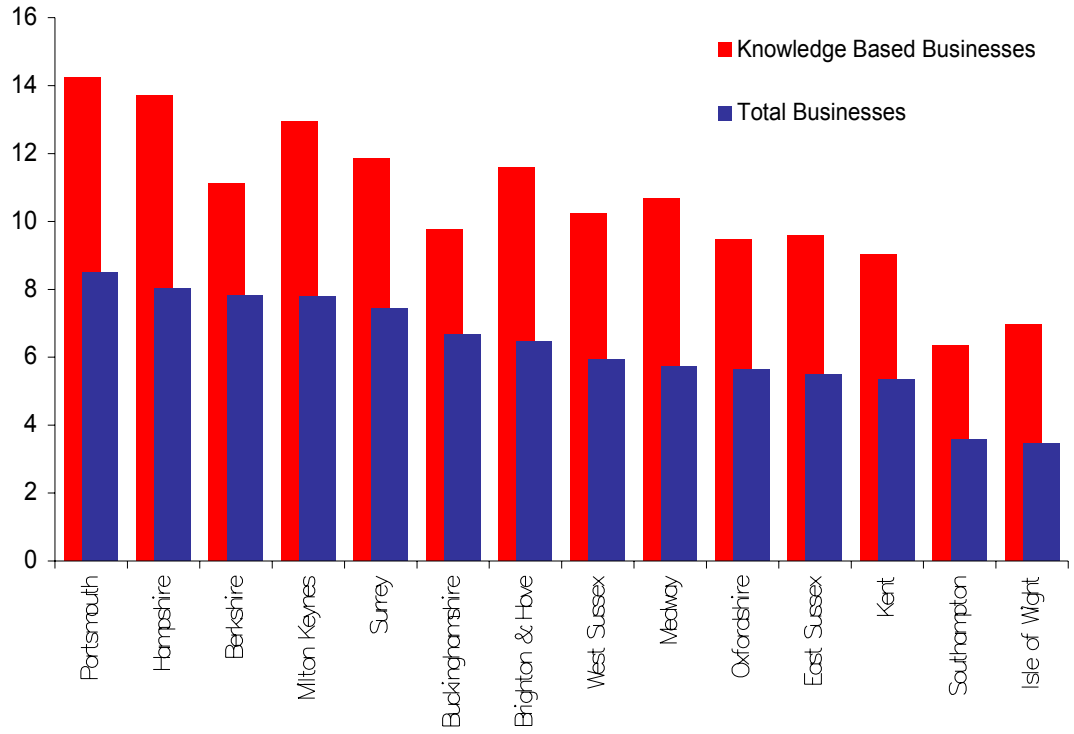
Figure 28: How the sub-regions scored – Economy



Source: Robert Huggins Associates

We can see that Portsmouth, Milton Keynes and Surrey lead the way in terms of dynamic factor scores for the knowledge economy, followed by Brighton and Berkshire. It is immediately apparent that the top four regions in terms of GDP per capita are in the top five here. It is also worth noting that Portsmouth has also seen the greatest rise in output per capita over the period of study.

Figure 29. Compound annual growth in number of Knowledge-based businesses and Total number of Businesses 1994-2000



Source: Annual Business Inquiry

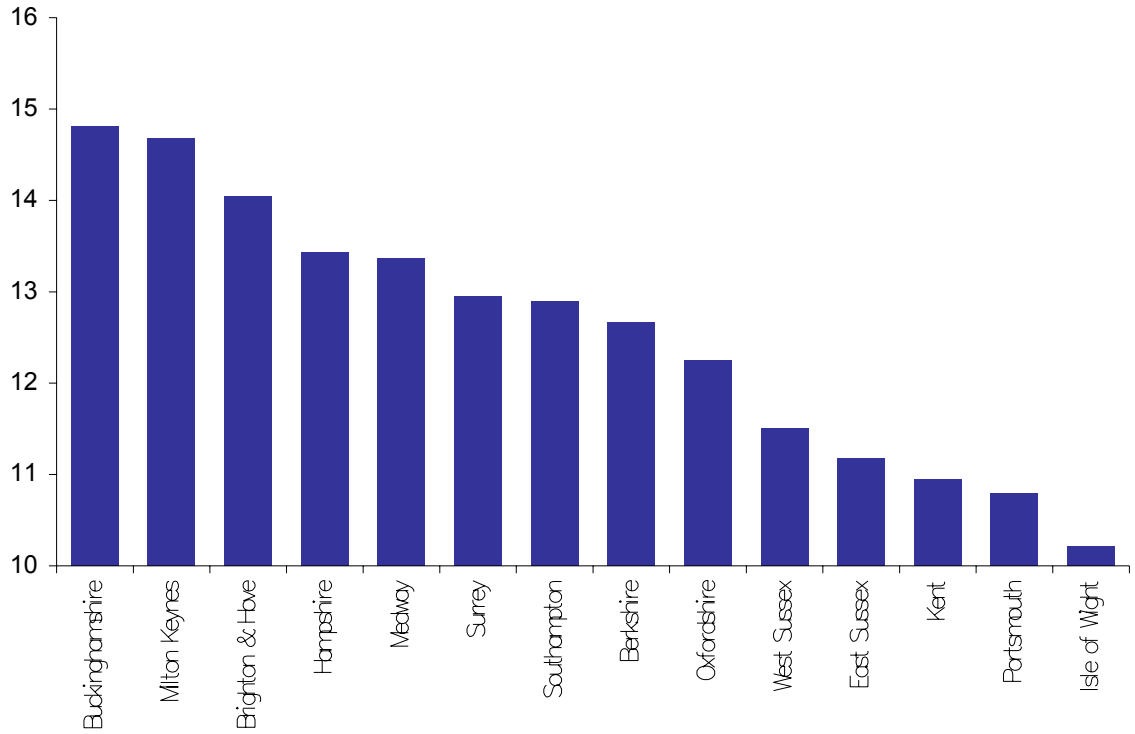
Analysing the component parts of the factor scores allows us to see where variances between sub-regions are largest. Above, indicators of competition and competition within a high-value added sector are shown. Again Portsmouth leads the way, although Hampshire performs particularly well, and is ranked second in both variables - reflecting it's vastly improved position in terms of GDP per capita since 1994.

With the exception of Hampshire, the top 6 in terms of total business growth are the top 6 in terms of the knowledge economy factor. However, in terms of the number of knowledge based businesses, growth in Berkshire (6th) and Oxfordshire (11th) are perhaps surprisingly ranked lower than many of the other sub-regions.

Interestingly, Portsmouth performs relatively poorly in terms of house price growth – although each of the sub-regions saw compound annual growth of over 10%. Whilst five of the aforementioned 'top 6' saw relatively high levels of house price growth between 1994-2000, Portsmouth was ranked second lowest.

On the other hand Medway had the fifth highest house price growth, above areas such as Surrey, Oxfordshire and Berkshire. Hampshire and Brighton & Hove again are ranked relatively highly in this indicator.

Figure 29. Compound annual growth in average house prices by sub-region 1994-2000



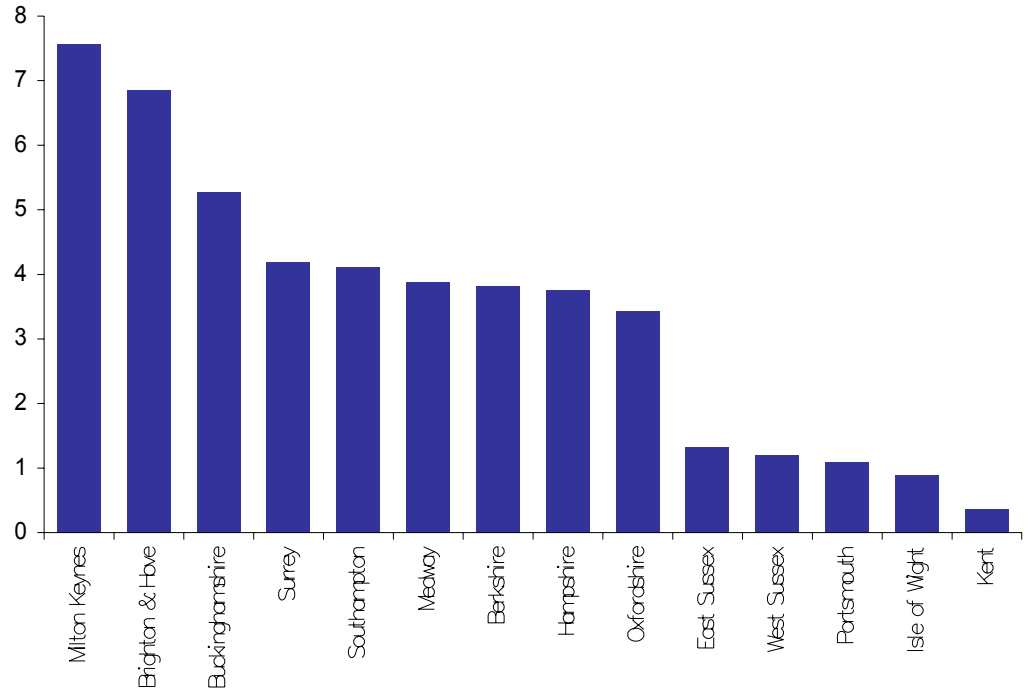
Source: Land Registry

The leading sub-regions within the Economy Factor again perform well in terms of growth in employment within the financial & business sector. Aside, from Portsmouth – which again has the second lowest annual average growth rate – the other leading sub-regions in this factor were all within the top 7 (and occupied each of the top 4 places).

Disparities within the sub-region are evident here, with the five sub-regions with the lowest growth rates growing by less than 1.5% - over five times slower than the leading sub-region – Milton Keynes.

The labour market factor identified encompasses a number of variables associated with the changes in the size and skill levels of the available workforce in each sub-region. As mentioned earlier, more skilled and highly qualified workers are more able to improve productivity levels. The success of economies in attracting employment in high-value added and knowledge based sectors depends upon the supply of people that are adequately equipped with the required skills.

Figure 30. Compound annual Growth in employment in Financial & Business sectors



Source: Annual Business Inquiry

The People & Skills factor captures the following factors which explain around 20% of the variations between sub-regions of the South East.

- Changes in Resident Qualification levels
- Changes in the size of the workforce
- Vibrancy of the labour market
- Changes in knowledge intensive sector employment.

Compound annual growth rates for the following variables were the main contributors towards this factor:

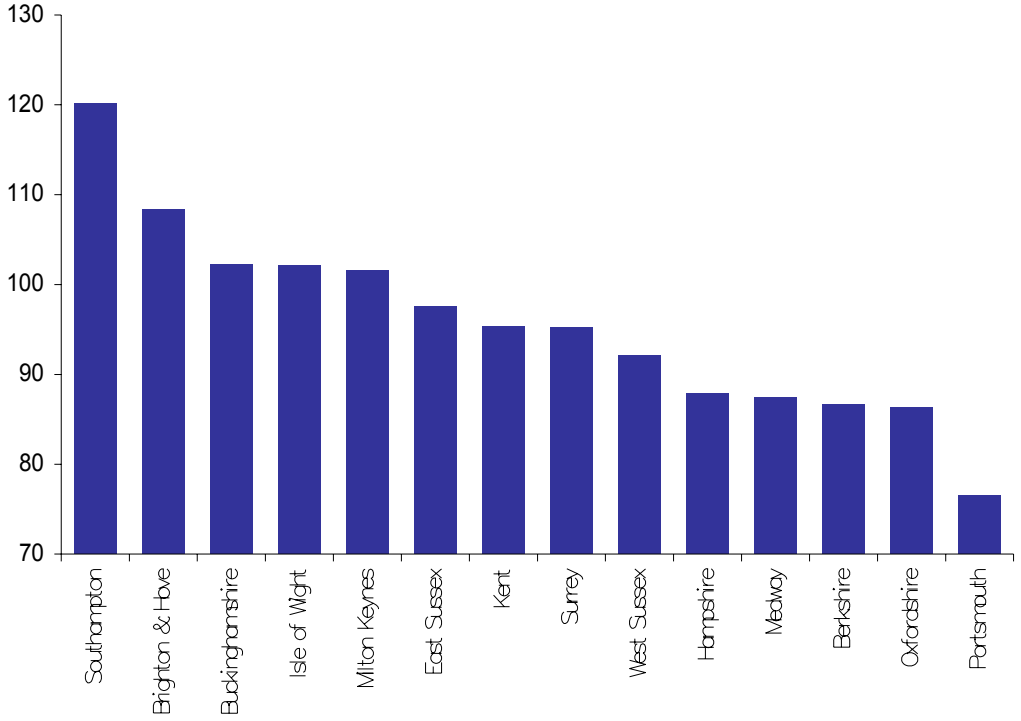
- Economically Active Population
- Working Age Population
- Total Population
- Total Employment
- Employment in Research & Development
- Number of people with NVQ 4 or above.

Changes in resident qualification levels are measured here by looking at changes in the number of people with NVQ level 4 or above. As previously outlined, this captures changes in the skill levels of the workforce and the potentially beneficial consequences of a higher skilled workforce. It could also measure the success of a sub-region in attracting highly skilled workers.

The size of the workforce and vibrancy of the labour market are measure d by looking at trends in economic activity, employment, population and the working age population. This enables comparisons to be made in the demography of the workforce and the possible effects on the economy.

Finally, trends in knowledge intensive sector employment are captured by looking at employment in the research and development sector. This is a particularly knowledge intensive activity associated with high value added activities and competitive areas.

Figure 31. How the regions scored – Labour Market

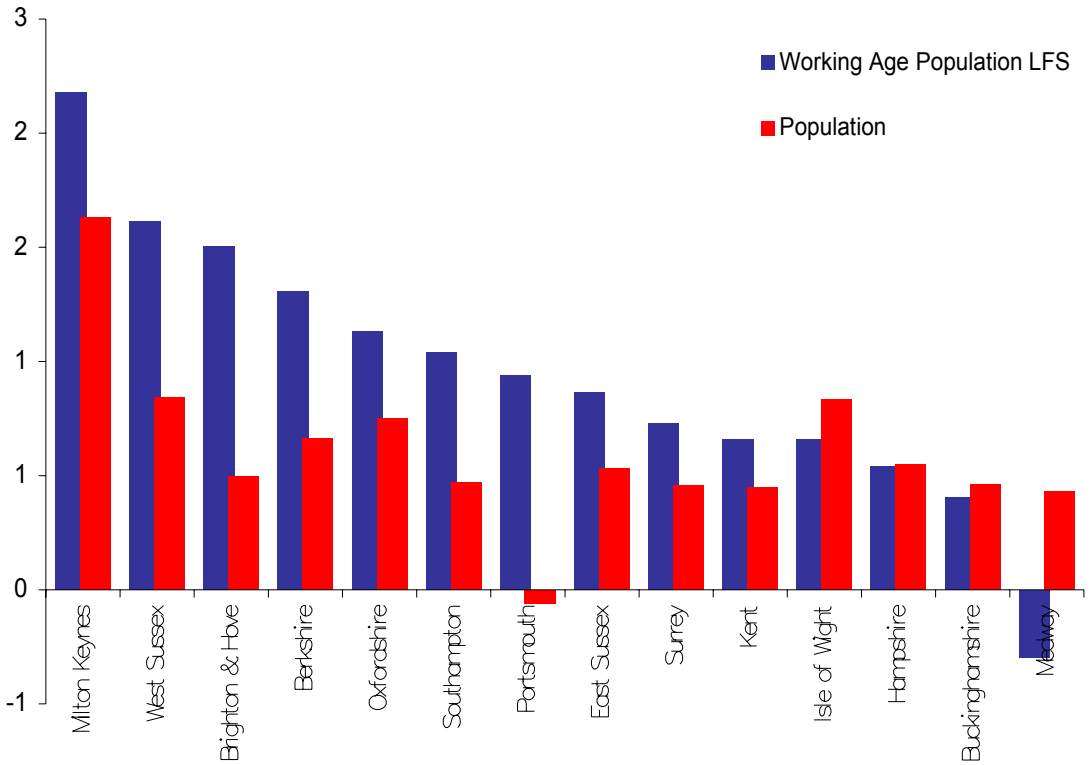


Source: Robert Huggins Associates

The chart above shows that some of the sub-regions with comparatively poorer GDP and general economic performance have performed well in the people & skills factor. The Isle of Wight and East Sussex in particular are both ranked above areas such as Berkshire, Portsmouth, Surrey and Oxfordshire.

Looking further at the components of the Labour Market Factor – we can begin to unravel some of the trends in the variables affecting these factor scores.

Figure 32. Compound annual growth rates of population and working age population 1994-2000.



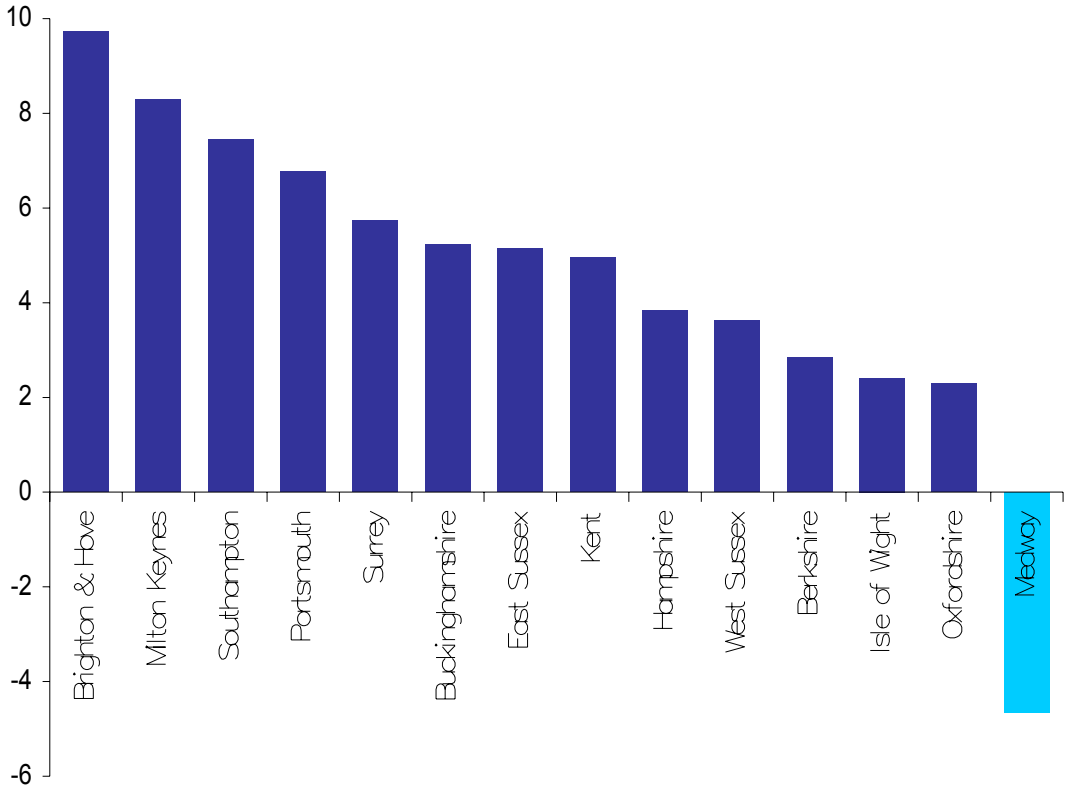
Source: Labour Force Survey

Analysing the comparative growth trends in the working age population and the population as a whole gives us an opportunity to gauge the relative competitiveness of each sub-region in attracting new workers. Intuitively, a higher growth rate in the working age population in an area suggests a net inward migration of workers. In turn, this points to an area with increasing employment opportunities and a vibrant labour market which attracts people.

The competitiveness of each sub-region in attracting (or retaining) highly qualified workers has obvious implications for attracting employers.

In terms of changes in the skill levels of the resident population, the sub-regions with high relative GDP and productivity perform well. Aside from Berkshire, the five sub-regions with the highest GDP in 2000 are in the top 5 here. Brighton & Hove leads the way with compound annual growth approaching 10%, whilst Milton Keynes again performs well with over 8% average growth. Medway, on the other hand, performs particularly badly with a fall of over 4.5% a year on average.

Figure 33. Compound annual growth rate in proportion of residents with NVQ level 4 or above 1996-2000

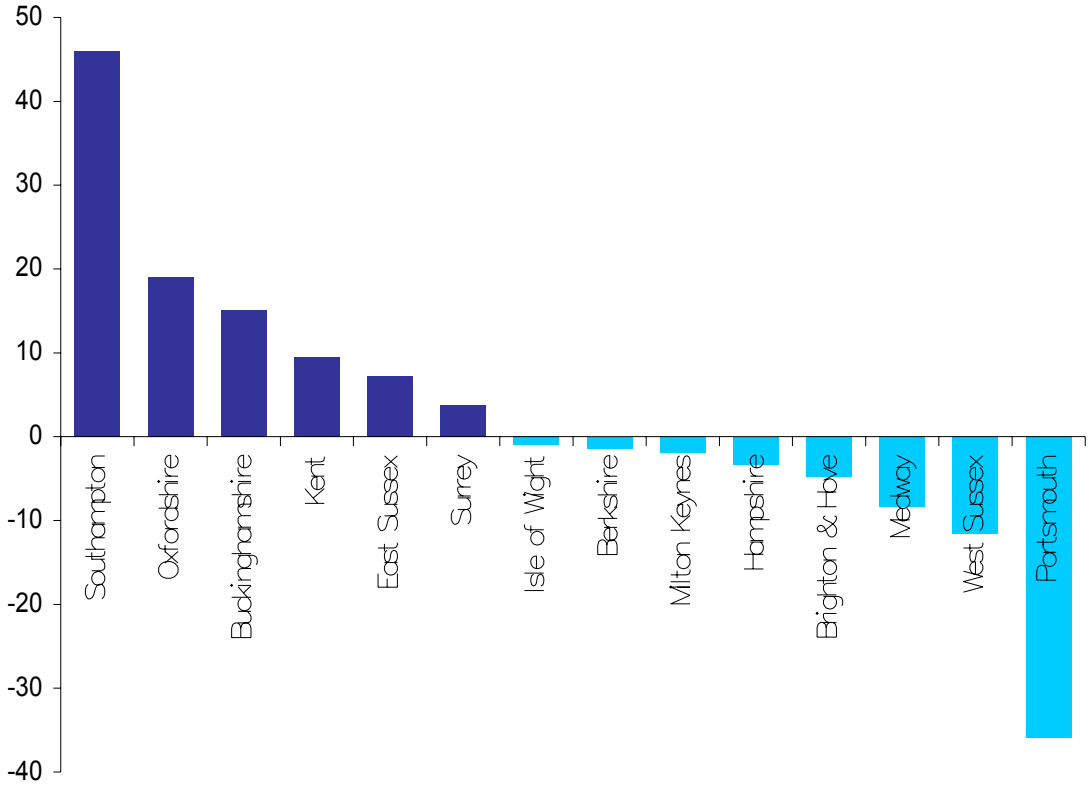


Source: Labour Force Survey

Southampton, Oxfordshire and Buckinghamshire, respectively, are the best performing regions in terms of growth in this sector, with the former growing by over 46%. However, East Sussex and Kent have both experienced relatively high levels of growth within the sector (7.3% and 9.5% respectively).

Over one half of the sub-regions in the South East have seen a decline in R&D sector employment with Portsmouth the largest faller at almost 40%. However, it is important to note that Portsmouth and Southampton have relatively low numbers of employment in R&D, therefore small increases/decreases in terms of numbers lead to large proportional increases.

Figure 34. Compound annual growth rate in employment in Research and Development.



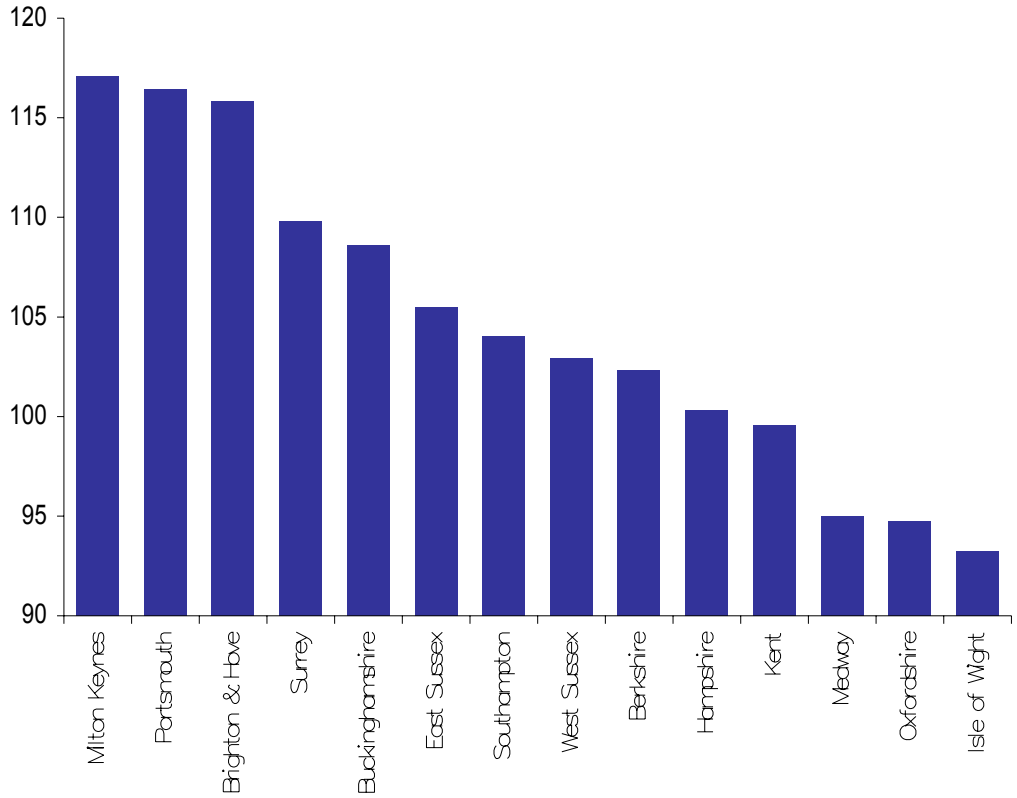
Source: Annual Business Inquiry

Overall Dynamic Model Factor Scores.

The overall dynamic factor score is an average of the two component factor scores – Economy and Labour Market.

Milton Keynes heads the list for the overall factor scores followed by Portsmouth, Brighton & Hove and Surrey. East Sussex has performed relatively well in terms of growth in the selected components, whilst Medway, Kent and the Isle of Wight continue to lag behind in terms of the relative dynamics of their economies.

Figure 35. How the regions scored - Overall Factor Scores for the Sub-regions of South East England.



Source : Robert Huggins Associates

5. Quantification of the Drivers of Growth

In the preceeding analysis we have identified the drivers of growth within the sub-regional economies of the South East of England. However, the factor analysis does not tell us *how much* these factors influence the sub-regional economies. This section aims to quantify how changes in the drivers of the South East economy would affect the economy in output terms. Due to the complexity of sub-regional economies the approach we use will untangle the relationships between individual indicators and economic output and or productivity individually. This is due to the large levels of multi collinearity that would be at operation within any complex economic model, and would make it impossible to map the effects of changes in a single aspect of the sub-regional economy.

The hypothesis of the regional economic growth model is that differentials in economic output are caused by variations in a large number of economic indicators within the sub-regional economies of South East England. If we were to equalise each of these indicators, and they were to show the same rates of growth we would expect the regional economies to perform more equally. Following the factor analysis a number of factors have been identified as explaining the differentials that exist within the South East economy. However, some of these factors will comprise of indicators that are the result of, rather than the cause, of performance in other economic indicators. As a result appropriate indicators need to be chosen to help explain the differences that exist in South East England's economy.

We have found in our factor analysis that the following constituents of the sub-regional economies in the South East of England are key to explaining the differentials that exists between the economies:

- Knowledge Economy Indicators
- Workforce Skills
- Business Enterprise and competition
- Innovation

Modelling Productivity

Preceeding analysis has highlighted what drivers South East England's regional economy the analysis has yet to quantify the degree to which each variable would be expected to affect the regions economies. This section looks at the relationships between each individual variable and, where the relationship is significant, quantifies the expected changes to a sub-regional economy given a shift in the appropriate variable.

In modelling the South East economy we found that the only significant relationships existed with sector based data. Notably we found that as we increased the number and or proportion of knowledge-based businesses within an area we saw subsequent increases in productivity. Below are the significant results found within the study,

Relationship between Productivity and Proportion of Knowledge-Based Businesses

The constant elasticity model was used in order to estimate the relationship between the proportion of knowledge-based businesses in a sub-regional economy in South East England and labour productivity: The full definition of knowledge-based businesses can be found within the Appendix. The model uses the following equation:

$$P = CK^e$$

Which can be re-written as:

$$\ln P = \ln CK^e = \ln C + e \ln K$$

Where:

P = Productivity

C = Constant

e = Elasticity

K = Input Variable

It is imperative that we understand that the formula is not telling us what a rise in knowledge-based businesses would cause, but rather what a rise in knowledge based businesses would be ***associated with***. The results are as follows:

Table 8 Relationship between Productivity and Proportion of Knowledge-Based Businesses (K = Knowledge-Based Businesses)

	Co-efficient	t	Sig.
C	9.153	13.513	0.000
lnK	0.417	1.922	0.079
Dependent Variable: LNP			

Hence we can re-write the above equation as:

$$P = 9442.7(K)^{0.417}$$

This simply means that a 100% increase in the proportion of knowledge-based businesses within a sub region we would expect to see a subsequent increase in productivity of 41.7%. The t-statistic of 1.922 means that our result is statistically significant to zero at the 92.1% level. These results suggest that if a policy tool can affect the proportion of knowledge-based businesses within a region or sub-region, we can significantly improve productivity levels.

Relationship between Productivity and Proportion of Knowledge-Based Employment

We have repeated the above model looking at knowledge-based employment. The above analysis makes no differentiation between large and small businesses. By looking at employment we have a greater understanding regarding the size of business.

Table 9 Relationship between Productivity and Proportion of Knowledge-Based Employment (K = Knowledge-Based Employment)

	Co-efficient	t	Sig.
C	9.121	16.755	0.00
lnK	0.447	2.455	0.03
Dependent Variable: LNP			

The results were broadly similar. However, the employment model is more statistically robust, and is significant at the 97% level. The overall equation for the above model is:

$$P = 9154.3(K)^{0.447}$$

Hence we would assume that an increase in knowledge-based employment of 100% would lead to a productivity increase of 44.7%. This is again a significant figure – and we would expect any movements in the proportion of knowledge-based employment to have substantial effects on the overall productivity rate.

Relationship between Productivity and Proportion of High Tech Service Businesses

5The analysis has also been undertaken for high-technology service businesses. High-technology service businesses range from finance businesses through to architecture and accountancy. Similar results to the above are found. The results are presented below.

Table 10 Relationship between Productivity and Proportion of Knowledge-Based Businesses (K = Knowledge-Based Businesses)

	Co-efficient	t	Sig.
C	9.269	14.526	0.000
lnK	0.387	1.859	0.088
Dependent Variable: LNP			

Hence we can write the equation as:

$$P = 10604.1(K)^{0.387}$$

The above results are less significant than those found for all knowledge-based businesses. However, there is still a considerable degree of correlation evident.

Relationship between Productivity and Proportion of High Tech Service Employment

The analysis has also been undertaken for high-technology service employment. Similar results to the above are found. The results are presented below – we would expect a 100% increase in the proportion of high-technology service employment to increase productivity by around 25%.

Table 11 Relationship between Productivity and Proportion of High-Technology Service Employment (K = High-Technology Service Employment)

	Co-efficient	t	Sig.
C	9.774	29.341	0.000
lnK	0.246	2.059	0.062
Dependent Variable: LNP			

Hence we can write the equation as:

$$P = 17570.1(K)^{0.246}$$

Dynamic Analysis

Growth analysis has used a linear OLS model to explain the relationship between growth in one variable and subsequent growth in productivity. The aim of the dynamic analysis is to develop a quantifiable understanding of the relationship between productivity growth and growth in other economic variables. The period of study is from the year 1994 to 2000.

Relationship between Productivity Growth and Business Growth

As already noted, business growth aids competition and innovation – and hence we would expect growth in business stock to improve productivity within a sub-region. Regression analysis vindicates this hypothesis – and as illustrated in the regression results below the rate of change of business stock has a significant effect on productivity growth within South East England.

Table 12: Relationship between Productivity Growth and Business Growth (B = Businesses)

	Co-efficient	t	Sig.
C	2.17	1.38	0.19
B	0.52	2.15	0.05
Dependent Variable: PRODUCTIVITY			

This can be re-written simply as:

$$dP/dt = 2.17 + (0.52)*dB/dt$$

Where B represents the total number of businesses.

As a result we would expect that an increase in the total number of businesses by 1% would lead to an increase in the growth of productivity of 0.52%age points, and a rise in the growth rate of the total number of businesses by 2% would lead to an extra 1.04%age points on the productivity growth rate.

Relationship between Productivity Growth and Knowledge-Based Business Growth

Productivity growth is highly correlated with high value added businesses. Not only will the economy benefit from improved competition associated with business stock growth it will also benefit from the increased stock of innovative businesses. In order to quantify the relationship we have analysed the relationship between the growth in the number of knowledge-based businesses and productivity growth.

Table 13: Relationship between Productivity Growth and Knowledge-Based Business Growth (K = Knowledge-Based Businesses)

	Co-efficient	t	Sig.
C	1.48	1.06	0.31
K	0.45	3.46	0.00
Dependent Variable: PRODUCTIVITY			

This can be re-written simply as:

dP/dt = 1.48 + (0.45)*dK/dt

Where K represents the total number of knowledge-based businesses.

The results gained were highly significant, and are illustrated above. Whilst knowledge-based businesses constitute a minority of businesses within all sub-region of South East England we find that the co-efficient of growth is 0.45. This means that an increase in the total number of knowledge-based businesses of 1% would add an extra 0.45%age points to the productivity growth rate.

6. What does this mean for the Sub-Regions of South East England?

Raising the Levels of Knowledge-Based Employment

Our analysis has shown that the most effective route towards raising levels of productivity within an area is to raise the proportion of knowledge-based employment. Table 14 below highlights the expected changes in productivity for each sub-region of South East England given a proportional rise in knowledge economy employment. As we can see, even a 10% rise in the proportion of knowledge-based employment leads to a substantive increase in productivity in all sub-regions. If we were to rise the proportion of knowledge-based employment across all sub-regions of South East England we would expect to see productivity rise from £35,762 for the whole of South East England to a level of £42,692 – an increase of almost 20%. This is a substantive increase in productivity and would cause a substantive rise in output per capita for the region.

Table 14: The effects of changes in the proportion of knowledge based employment on overall productivity by NUTS 3 region (2000)

Percentage Increase in Knowledge Employment	0%	10%	20%	30%	40%	50%
Brighton and Hove	£28,343	£30,005	£31,586	£33,095	£34,541	£35,932
Buckinghamshire	£34,516	£36,164	£37,731	£39,228	£40,662	£42,040
East Sussex	£22,653	£23,837	£24,963	£26,038	£27,069	£28,059
Hampshire	£33,417	£34,940	£36,388	£37,771	£39,096	£40,369
Isle of Wight	£27,331	£28,570	£29,748	£30,873	£31,952	£32,988
Kent	£32,409	£33,736	£34,998	£36,204	£37,359	£38,469
Medway	£27,863	£29,274	£30,615	£31,896	£33,124	£34,304
Milton Keynes	£39,962	£41,680	£43,315	£44,876	£46,371	£47,809
Oxfordshire	£33,641	£35,260	£36,800	£38,270	£39,679	£41,033
Portsmouth	£50,371	£51,754	£53,069	£54,325	£55,528	£56,684
Southampton	£41,522	£43,099	£44,598	£46,030	£47,401	£48,720
Surrey	£39,881	£41,546	£43,128	£44,639	£46,087	£47,479
West Sussex	£36,695	£38,173	£39,577	£40,919	£42,204	£43,440
Berkshire	£46,498	£48,316	£50,045	£51,695	£53,277	£54,797
South East Average	£35,762	£37,280	£38,723	£40,101	£41,422	£42,692

Source: Eurostat/Robert Huggins Associates

Raising the total stock of businesses

Raising the total stock of businesses would lead to a number of outcomes. Firstly we would expect that increased competition would lead to greater efficiency in the workplace, and hence higher levels of productivity. Secondly, high rates of business growth are associated with high levels of innovative activity, be it via formal methods such as patenting and licensing or more informal business model innovation. Table X below illustrates how changes in the level of business growth rates (compound annual growth rate) between the years 1994 and 2000 would be affected given changes in the rate of growth of business stock. As can be seen from the table a 1%age point increase in the business growth rate would have lead to a 0.5%age point increase in the rate of growth of productivity between the period 1994 to 2000 for the whole of South East England. If we were to see a 5%age point increase in the rate of business growth we would expect a subsequent rise in productivity growth from 6.0% to 8.6% for South East England.

Table 15: Projected changes to productivity growth given increases in business stock growth rate.

	0%age point Increase	1%age point Increase	2%age points Increase	3%age points Increase	4%age points Increase	5%age points Increase
Berkshire	6.5	7.0	7.5	8.0	8.6	9.1
Brighton & Hove	4.0	4.5	5.0	5.6	6.1	6.6
Buckinghamshire	5.7	6.2	6.7	7.2	7.7	8.3
East Sussex	2.7	3.2	3.7	4.2	4.7	5.3
Hampshire	7.3	7.9	8.4	8.9	9.4	9.9
Isle of Wight	5.3	5.8	6.3	6.8	7.3	7.9
Kent	5.2	5.7	6.2	6.7	7.2	7.8
Medway	6.6	7.2	7.7	8.2	8.7	9.2
Milton Keynes	3.4	4.0	4.5	5.0	5.5	6.0
Oxfordshire	4.6	5.1	5.6	6.1	6.6	7.2
Portsmouth	7.9	8.4	8.9	9.5	10.0	10.5
Southampton	3.9	4.4	4.9	5.4	6.0	6.5
Surrey	7.3	7.8	8.4	8.9	9.4	9.9
West Sussex	5.6	6.1	6.6	7.1	7.7	8.2
South East Average	6.0	6.5	7.0	7.5	8.0	8.6

Raising Levels of Economic Activity

Raising levels of economic activity can have a significant affect on overall economic output. A rise in the activity rate of 5% for example would lead to South East England's level of output per capita rising from 109.2% of the Great Britain average to 114.6% of the Great Britain average.

Table 16: The effects of a 5% change in Economic Activity

Area	GDP per capita 2000	Percentage of Great Britain GDP per capita 2000	Activity Rate +5%	New GDP per capita	New Percentage of Great Britain GDP per capita
Great Britain	16,303	100			
South East	17,797	109.2	0.87	18,687	114.6
Berkshire	24,620	151.0	0.88	25,851	158.6
Brighton & Hove	13,609	83.5	0.80	14,290	87.7
Buckinghamshire	17,902	109.8	0.88	18,797	115.3
East Sussex	10,126	62.1	0.87	10,632	65.2
Hampshire	17,051	104.6	0.89	17,904	109.8
Isle of Wight	10,476	64.3	0.80	11,000	67.5
Kent	15,327	94.0	0.87	16,093	98.7
Medway	13,390	82.1	0.85	14,059	86.2
Milton Keynes	22,344	137.1	0.90	23,461	143.9
Oxfordshire	18,369	112.7	0.89	19,287	118.3
Portsmouth	23,808	146.0	0.81	24,998	153.3
Southampton	18,923	116.1	0.79	19,870	121.9
Surrey	20,713	127.1	0.89	21,749	133.4
West Sussex	17,578	107.8	0.88	18,456	113.2

7. Influencing Growth – Productivity

Given the evidence collected so far we have found that increasing knowledge employment and the rate of business growth to be two key drivers of the South East's sub-regional economies. However, in order to develop useful policy tools we need to understand how we can raise the proportion of knowledge-based employment, and also the rate of growth of business stocks.

Knowledge Based Employment

For any knowledge-based business to flourish it needs to be fed knowledge. Knowledge at small area levels is often best represented by the levels of resident qualifications. It is important here to re-iterate that it is resident qualifications, and not educational achievement at school level that is important. As can be seen from figures 36 and 37 below, there is a significant correlation between resident qualifications and the proportion of knowledge-based employment.

Figure 36: Relationship between knowledge-based employment and proportion of working age population with NVQ level 3 or higher

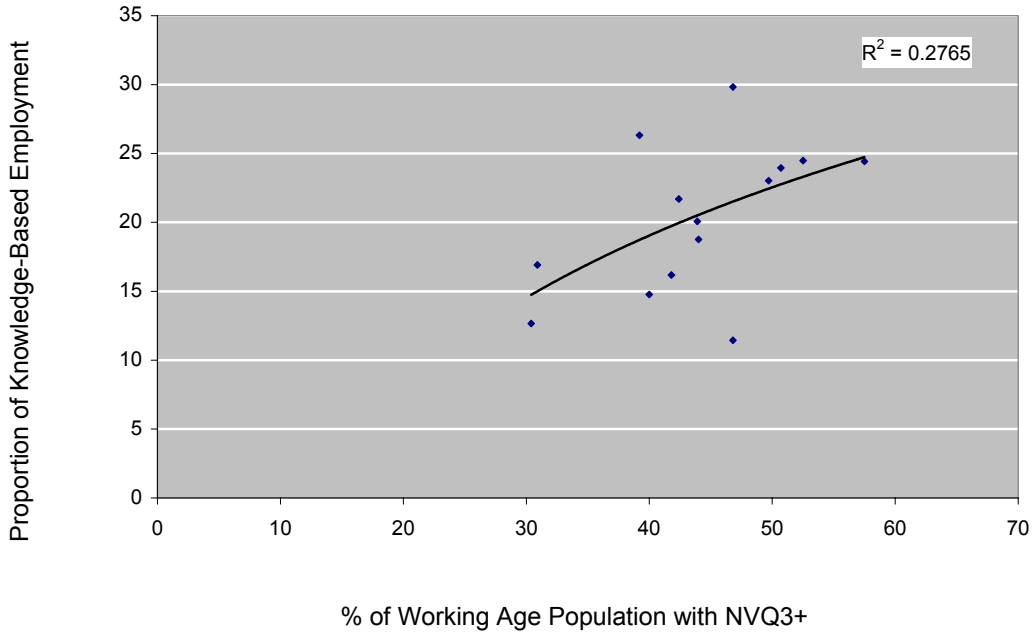
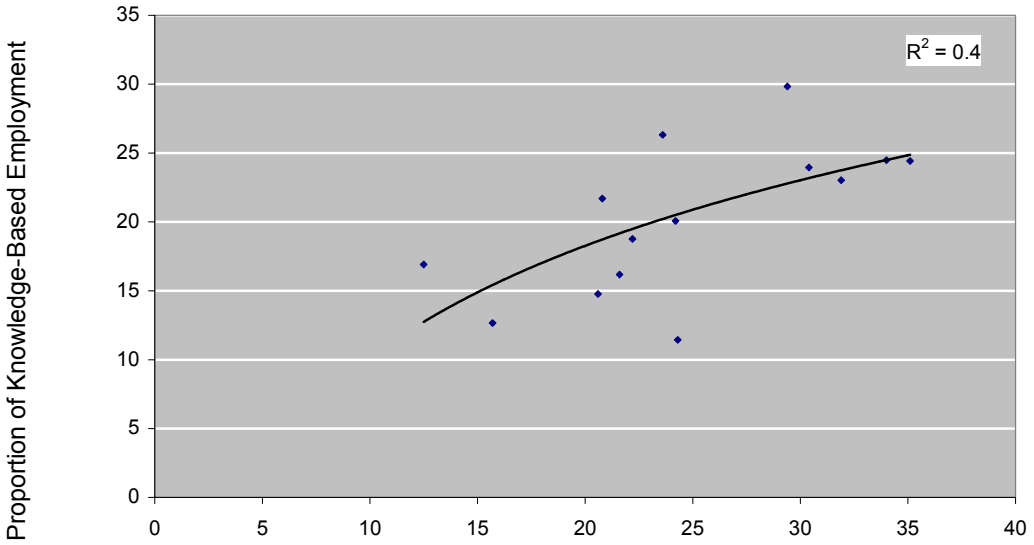
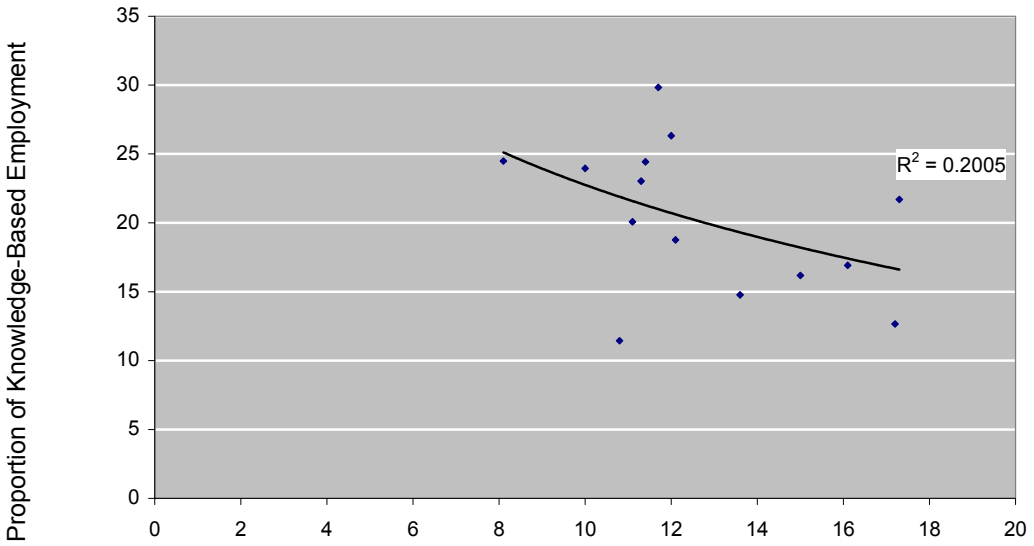


Figure 37: Relationship between knowledge-based employment and proportion of working age population with NVQ level 4 or higher



Similarly, and rather predictably we find a negative correlation between the proportion of knowledge-based employment within a sub-region and the proportion of working age population with no qualifications.

Figure 38: Relationship between knowledge-based employment and proportion of working age population with no qualifications



There is a small, if rather insignificant, relationship between the number of applications to university per capita from a particular sub-region and its level of knowledge-based employment. A similar story can be seen when analysing the relationship between proportion of knowledge-based employment and average Key Stage 2 scores within each sub-region.

Figure 39: Relationship between knowledge-based employment and resident university applications per capita

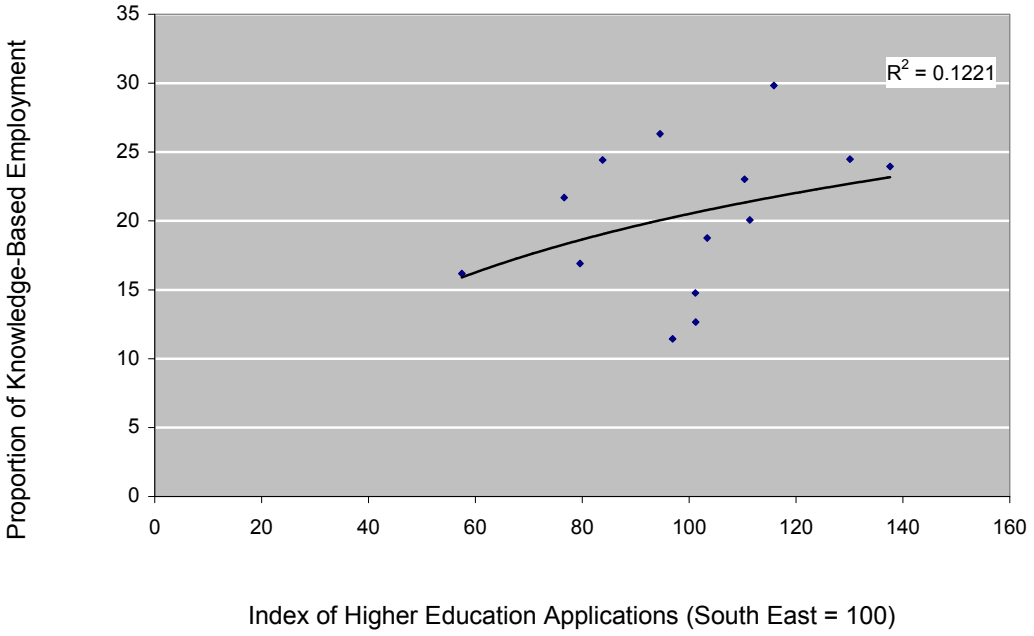
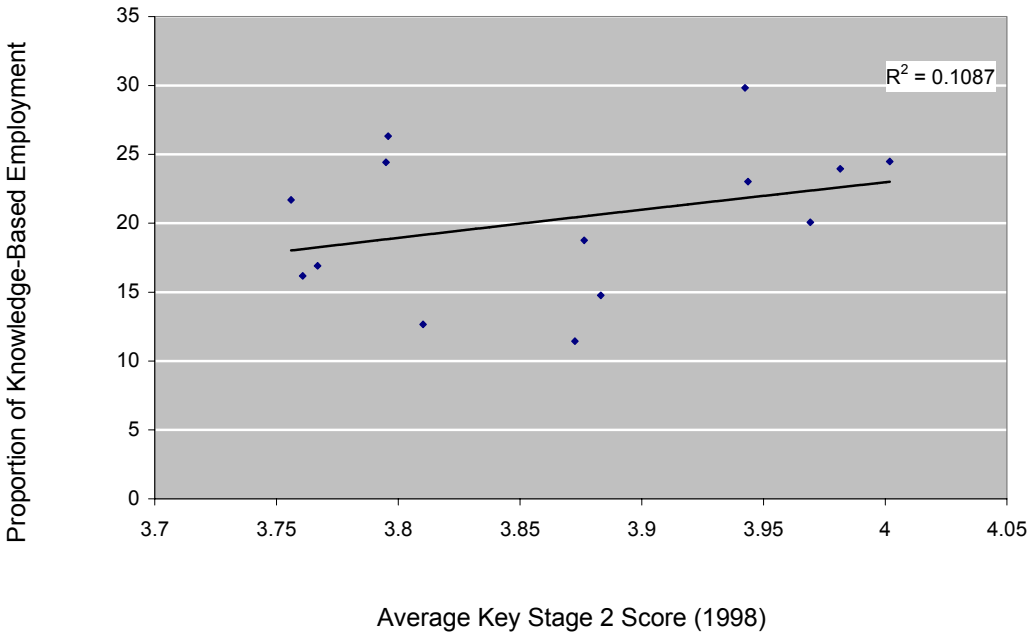


Figure 40: Relationship between knowledge-based employment and Average Key Stage 2 scores



There is also a small but evident relationship between the proportion of workforce working greater than 45 hours per week and the proportion of knowledge-based employment. One hypothesis regarding the causation between the two indicators is that knowledge-based businesses often seek 'hard' working individuals – often prepared to work more than the average number of working hours per week.

Figure 41: Relationship between knowledge-based employment and Proportion of Working Population Working 45 hours per week or more

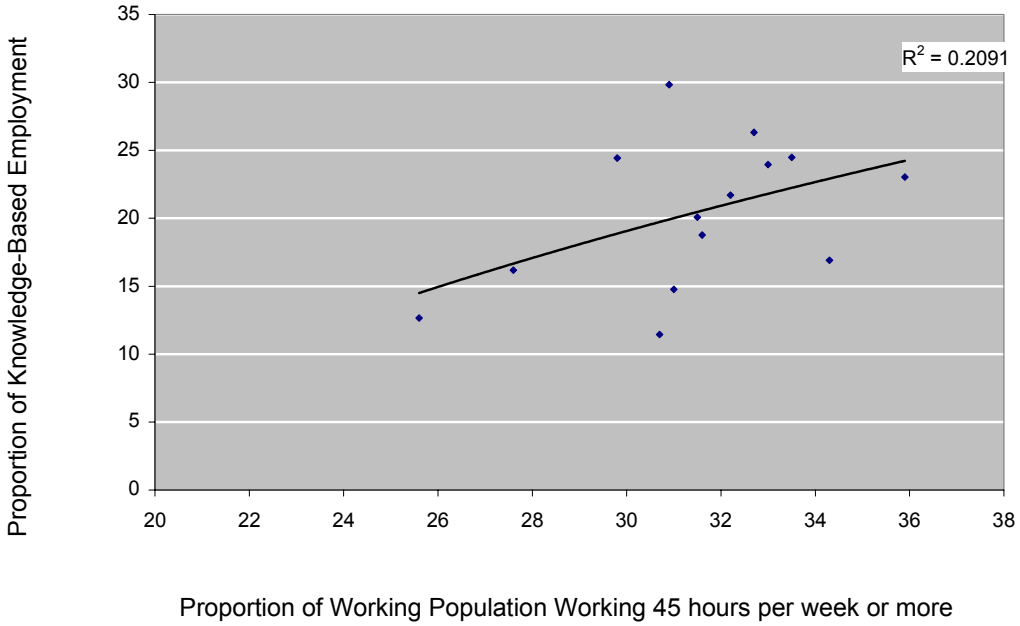
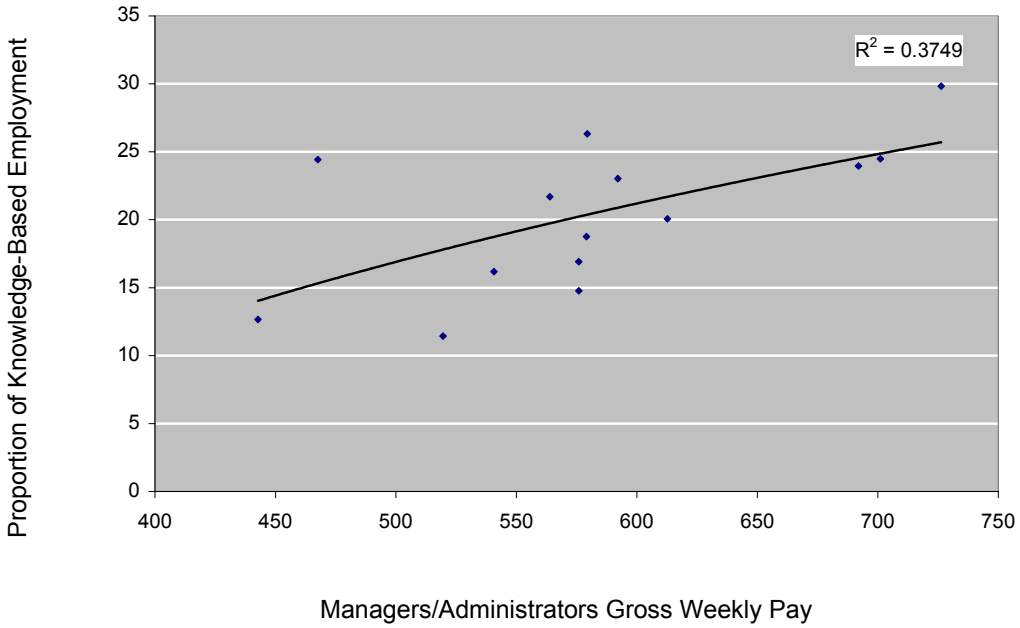


Figure 42: Relationship between knowledge-based employment and Managers and Administrators Gross Weekly Pay



Growth in Business Stocks

The rate of growth of business stocks is highly associated with the level of growth of knowledge-based businesses. As a result key drivers of business growth can be considered to be similar to those of knowledge-based employment. If we have greater levels of knowledge-based employment we have greater levels of knowledge-based businesses, and as we see knowledge-based businesses grow we will find growth in total business stock. A less significant relationship can be seen between the rate of business growth and the rate of growth of working age population with NVQ level 4 or higher, as illustrated in figure 43 below.

Figure 43: Relationship between rate of business growth and rate of growth of knowledge-based businesses

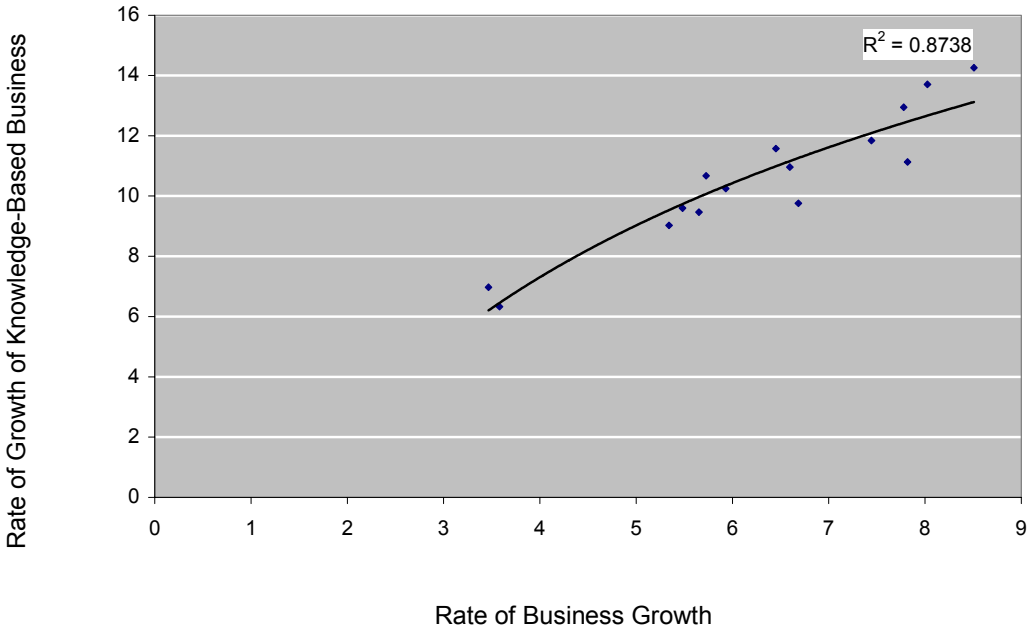
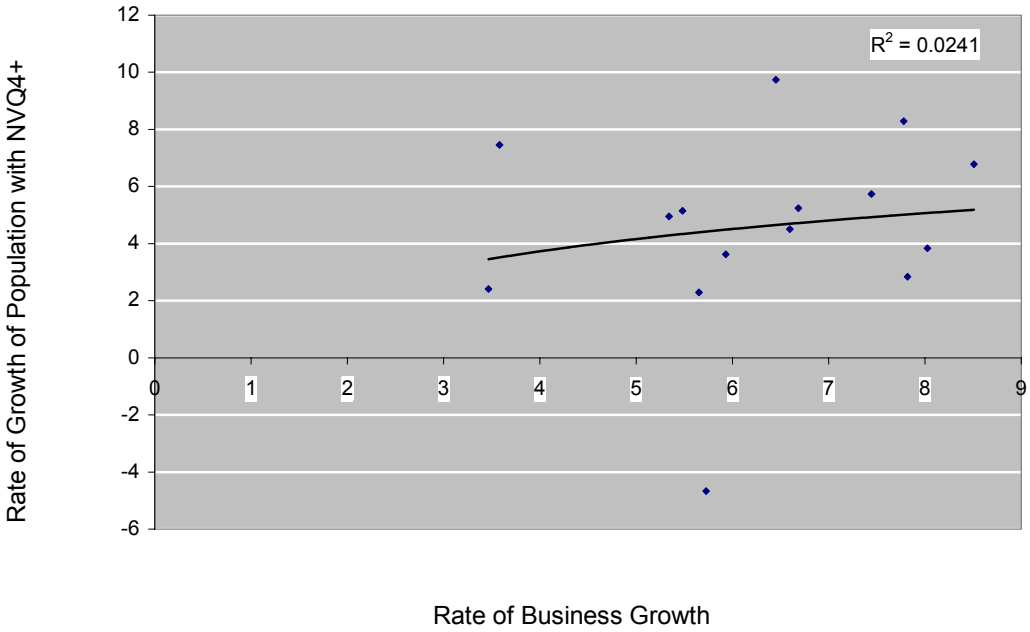


Figure 44: Relationship between rate of business growth and rate of Population with NVQ level 4 or higher



8. Influencing Growth – Economic Activity

There is a significant relationship between levels of economic activity and educational performance. Figure 45 below highlights the association between economic activity and average key stage 2 scores. There is also a similar relationship between economic activity and the proportion of population applying to gain university entrance.

Figure 45: Relationship between Economic Activity Rate and Av. Key Stage 2 Scores

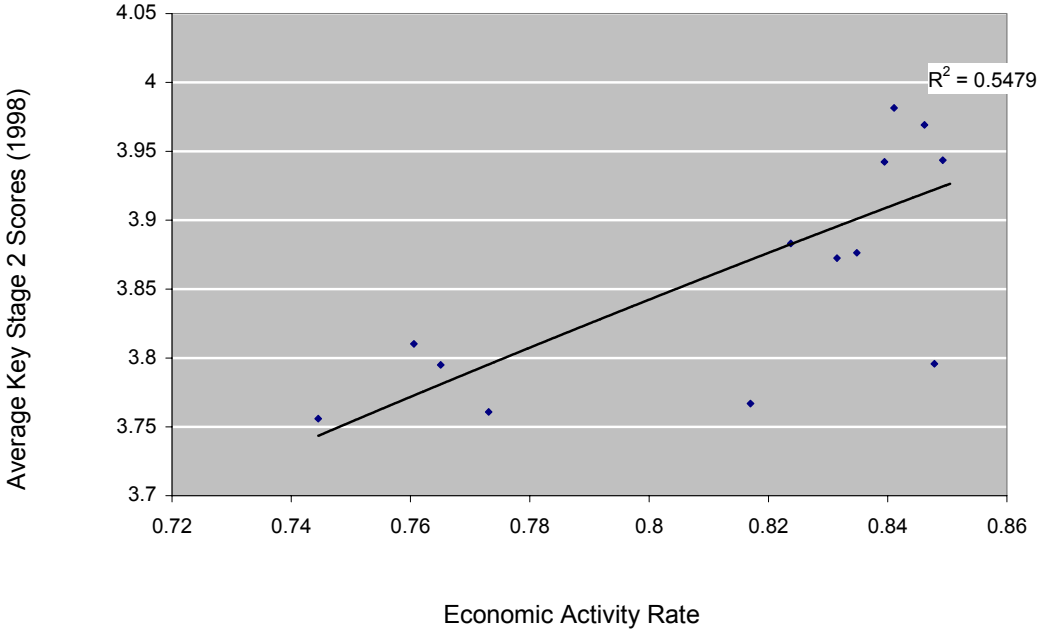
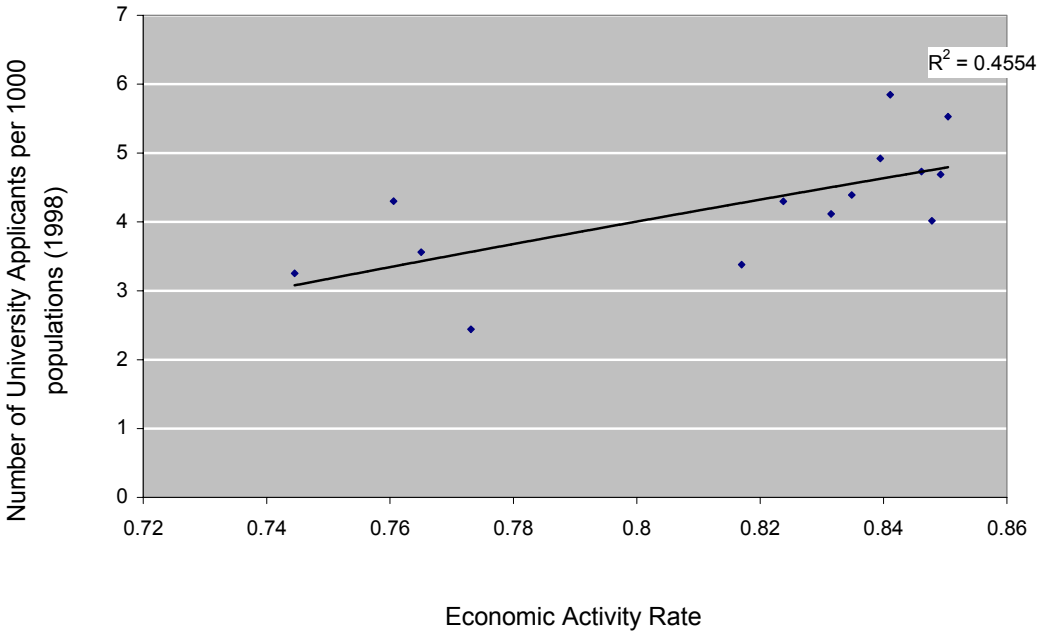


Figure 46: Relationship between Economic Activity Rate and University Applications



There is a further relationship between economic activity rate and levels of health within each sub-region. This is an obvious conclusion – as one reason that an individual may be inactive would be due to poor health. There is also a significant relationship between economic activity and house prices. This relationship, however, is more of a result of higher house prices indicating areas where people desire to live and work – and hence will attract more economically active residents.

Figure 47: Relationship between Economic Activity Rate and Health

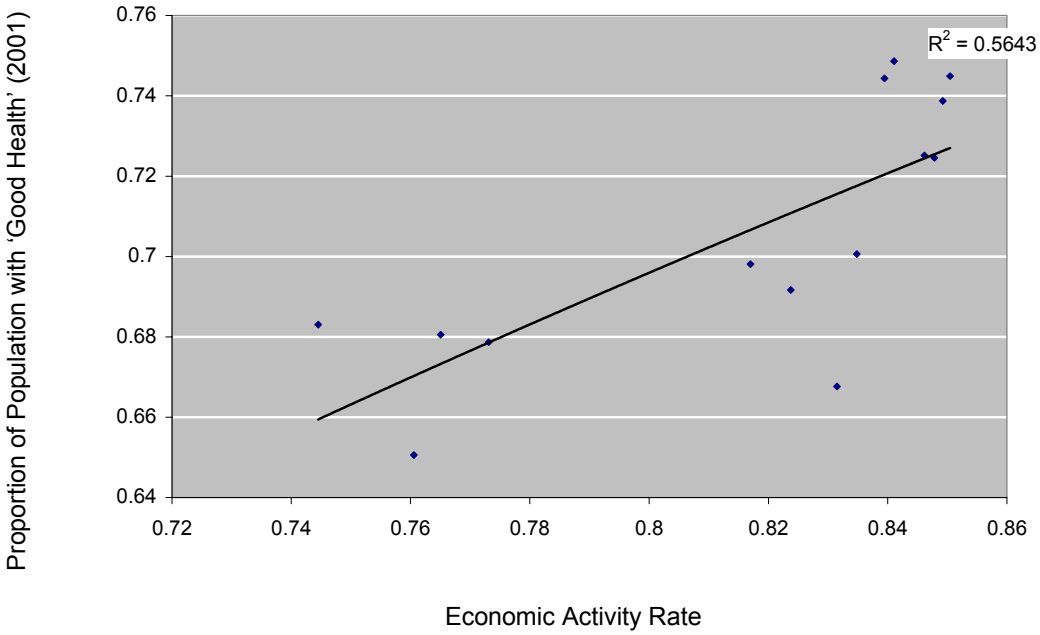
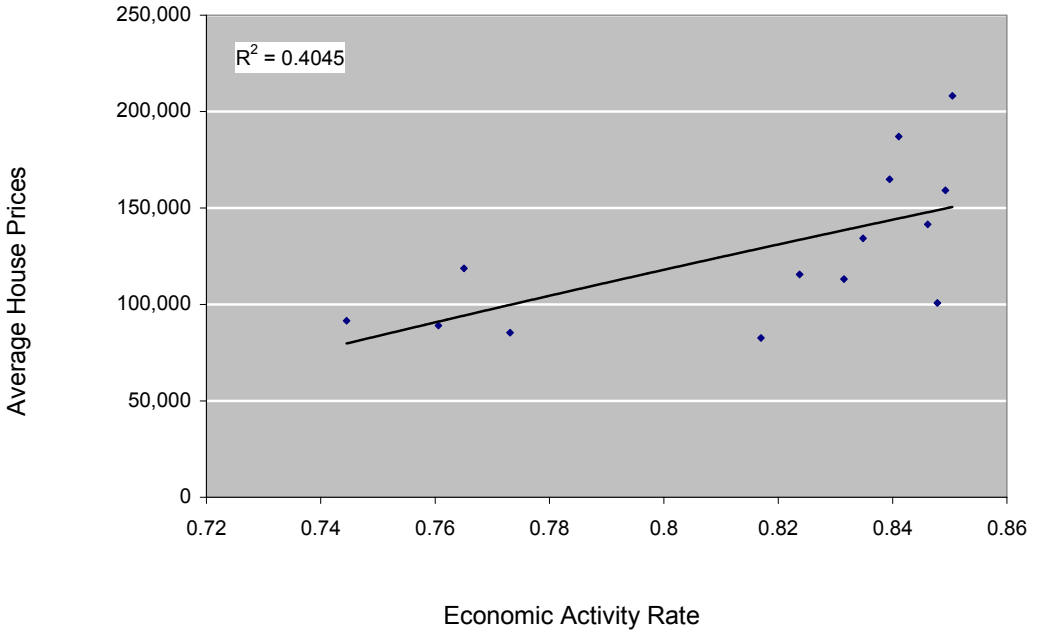


Figure 48: Relationship between Economic Activity Rate and House Prices



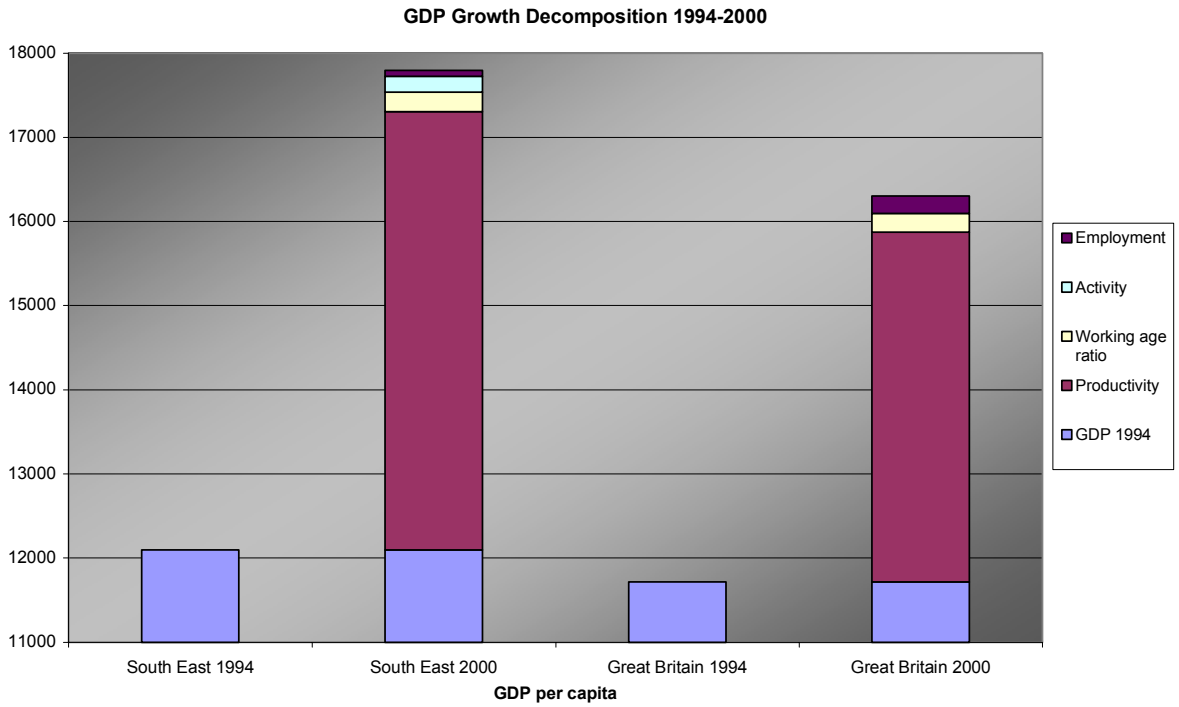
9. Conclusions

Productivity gains have been the main contributor to economic growth in South East England over recent years – accounting for 91% of economic growth between 1994 and 2000. The main contributors to growth can be seen in figure 49 below. The chart not only shows that productivity has been the major catalyst in driving economic growth in South East England, but also shows that South East England has significantly outstripped for the whole of Great Britain during the period of study.

Figure 49 – GDP Growth 1994-2000 Decomposed

2000 values are broken down to its growth components plus 1994 value.

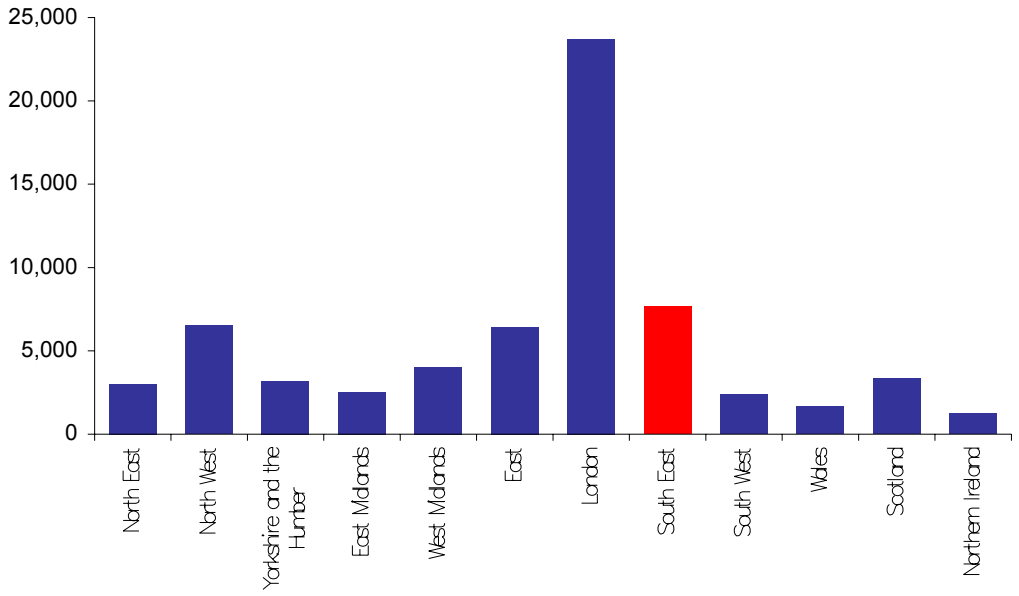
Values Expressed in £



Source: Eurostat/National Statistics

The study has also shown how South East England's sub-regional economy is highly disparate, as can be seen in figure 50 below. Only London – whose figures are distorted by the exceptional performance of Inner London West – has a more disparate economy. By gaining a greater understanding on what differentiates the South East's economy we can also gain further insight into what drives forward the South East's sub-regional economies. In order to undertake this task factor analysis was undertaken for a wide range of variables – both static and dynamic – for the NUTS 3 sub-regions of South East England.

Figure 50: Standard Deviation of Sub-Regional GDP per Capita for UK Regions



Source: Eurostat

Factor provided us with a greater understanding of how various aspects of South East England's sub-regional economies interact. The study found that differentials amongst South East England's sub-regional economies were caused mainly by variables highlighted in figure 51:

The variables highlighted in figure 51 were selected as the drivers of South East England's sub-regional economies. However, further analysis was undertaken in order to quantify the relationships that exists between these drivers and overall productivity levels. This was undertaken using regression analysis. The analysis sought to explain how much a change in one variable would affect productivity. The results of our analysis show a considerable positive relationship between levels of knowledge-based employment and business enterprise.

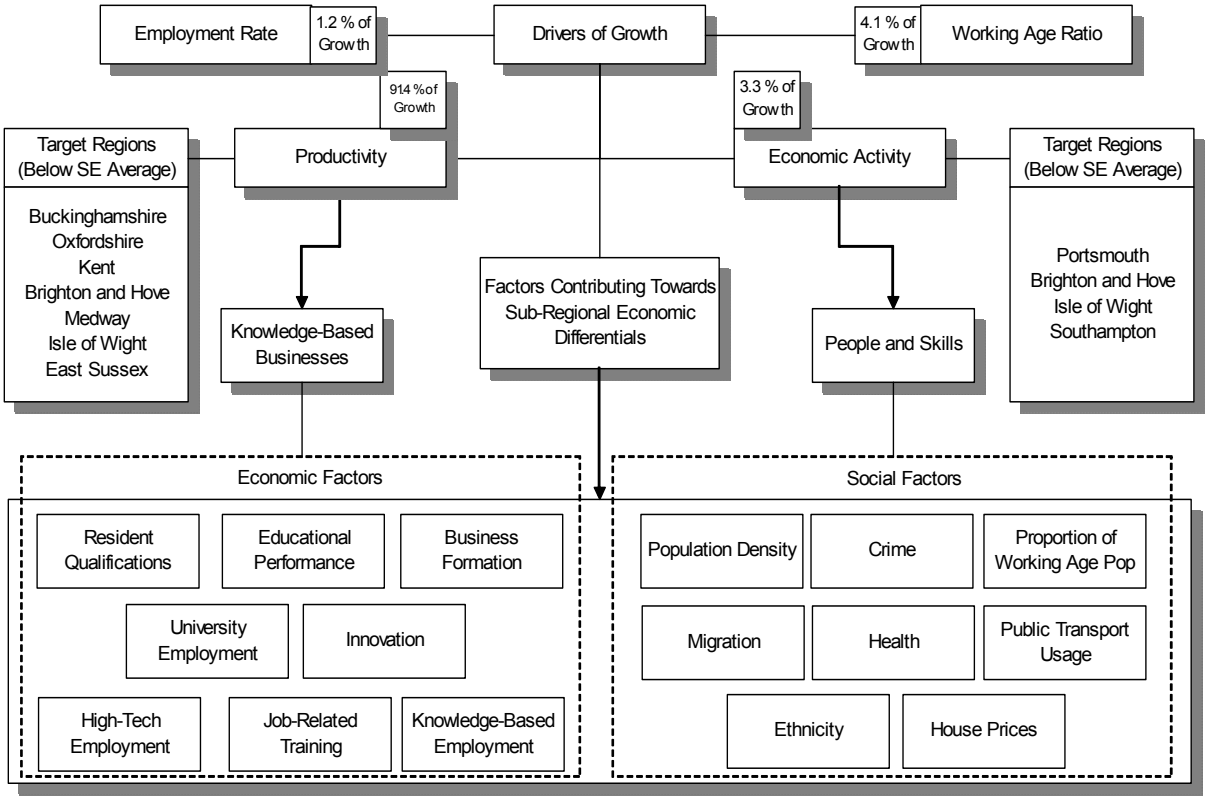
As a result of the high degree of positive correlation between levels of knowledge-based employment and labour productivity further studies into what contributes towards the levels of knowledge-based activities were undertaken, of which the main factor was identified as levels of resident qualifications. Other contributing variables were also found – although the level of correlations was slightly less. These included school performance, levels of pay and university applications.

Similarly we analysed what drove business enterprise in South East England, and also economic activity. Levels of business formation were found to be closely linked with growth of knowledge-based businesses. Economic Activity was closely linked to school performance and health.

Figure 51 below summarises the relationships derived from the study. The study has highlighted the key drivers to economic growth – namely the level of employment within Knowledge-Based businesses. These businesses, particularly in South East England, are reliant upon a knowledge-base upon which to work. This knowledge base consists of a number of key constituents, including:

- Qualifications
- Educational Performance
- Business Enterprise
- Patents
- University and High-Technology Employment
- Job-related training

Figure 51: Drivers of Economic Growth in South East England 1994-2000



In summary our analysis of the South East's sub-regional economy has concluded that:

- Most of the recent growth in output can be attributed to **growth in productivity**.
- Productivity is closely linked to growth in **knowledge-based** businesses.
- Productivity growth is closely linked to growth in the **total number of businesses**.
- The number of knowledge-based businesses is closely linked to **resident skills**.
- Growth in total businesses is closely linked to growth in the number of **knowledge-based businesses.**
- Increases in economic activity can also contribute significantly toward economic growth.
- Economic activity rates are influenced by **educational performance and health**.

In order to accelerate the overall development of the economy of South East England we would concentrate upon the factors identified above.

Implications of the Model

The results of the model indicate that economic disparities are related to variations in productivity which are associated with variations in knowledge-based businesses (KBBs). Resident skills and education. *Ipso facto*, in order to reduce economic disparities we need to encourage the growth of KBBs and up-skilling in disadvantaged areas. We feel that ere is a range of subtler indications form the meodel:

- ***The pattern of growth varies across the South East's sub-regions***: in most cases growth is related productivity gains/deficits, and in a smaller number of cases growth is a function of economic activity and demographic factors.
- ***Development Strategies thus Vary*** - It appears that some sub-regions are better placed to pursue a future growth strategy based on enhancing productivity through improving the business infrastructure, while others should concentrate on labour market/human capital.
- ***Improving Business Infrastructure is Vital***- In the case of business infrastructure policy intervention should be focused on improving the capacity and efficiency of existing businesses through a strong business development initiatives.

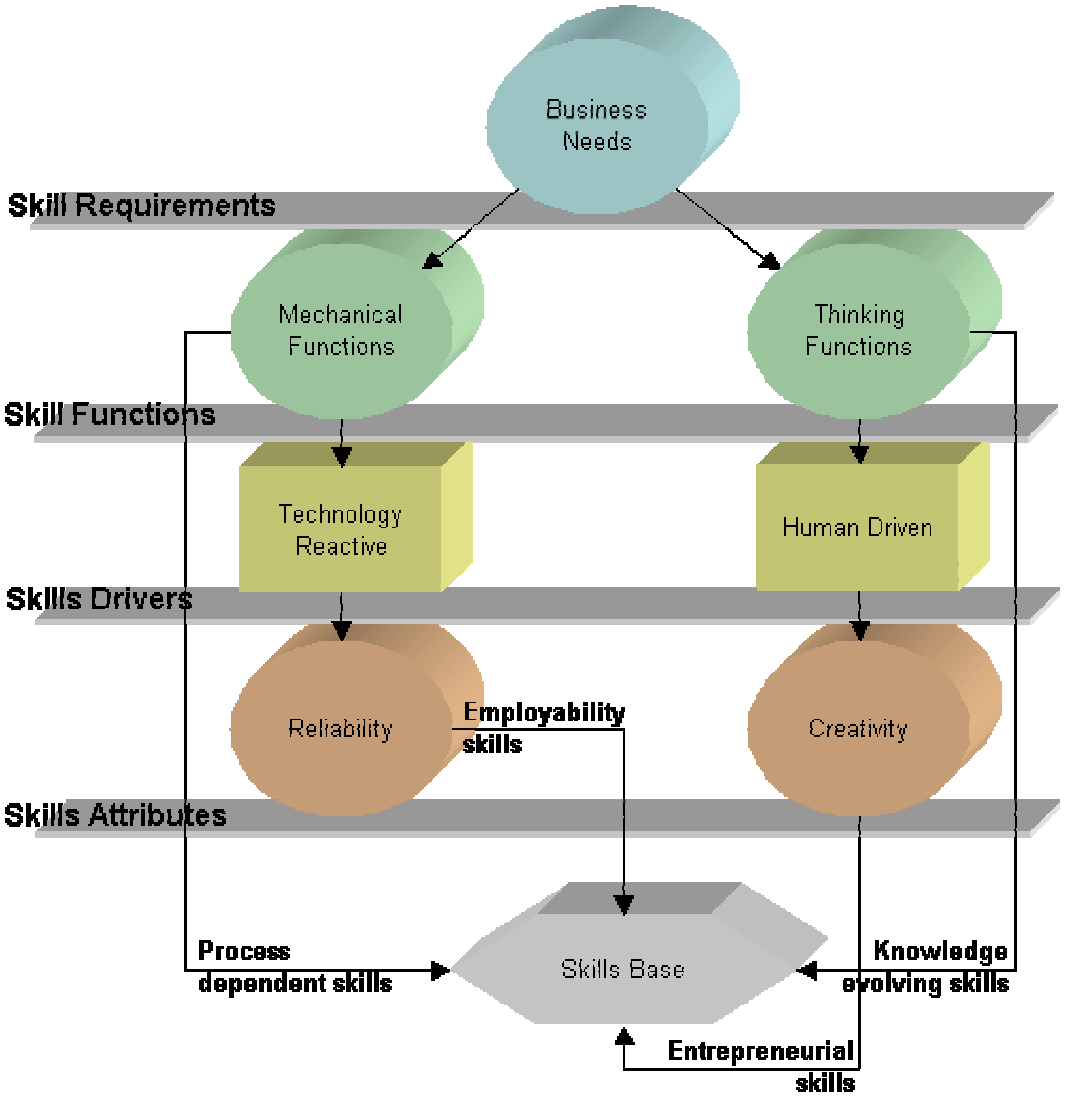
Recommendations to policymakers include the following:

Focus on Business Strategy

It is, perhaps, a sad indictment of both the UK's skills and knowledge economies that British companies used £200 billion to buy other companies in 2000, whereas investment in training was only about £23 billion. The skills economy remains a sideshow for many British business people seeking to achieve both company competitiveness and personal prosperity. This would appear to be the case whatever the size of the business, but is most accentuated for those smaller companies that are the future lifeblood of both the national and regional economies within which they reside. A survey carried out in 2002 found that the majority of employers in the UK's small companies do not provide any form of workforce development, since it was considered that such development was unlikely to generate benefits for their business. These views were most exacerbated in companies where the employer showed little ambition in terms of expanding markets, undertaking innovation as a competitiveness strategy, or extending their company in any shape or form.

This evidence leads us to believe that the skills and knowledge development strategies undertaken by companies across the UK should begin by managers focusing on the issue. It is managers who set the context and environment for skills development and the intensity of their utilisation. It is managers who create an appetite for knowledge; and, therefore, it is managers who play the crucial role in creating either knowledge-rich or knowledge-poor workplaces. We suggest a few pointers in what we believe to be the right direction.

Business managers must redefine their conceptualisation of how the workplace and the workforce addresses the needs and objectives of their business. Such needs and objectives may themselves be blurred, but should be assessed from the view that they must be customer-driven at the highest level. Managers should explore the skill requirements necessary to meet these needs. From a knowledge-based perspective, the crucial factor in assessing the requirements appropriately is to differentiate and understand the components of work within the business. We can distinguish between *mechanical* and *thinking* functions as the two sources of work activities.



Mechanical functions relate to workers who undertake activities dependent on process skills and one-off or periodical instances of 'learning'. Typical activities are the repeated use of a particular piece of equipment or technology, whereby change in the nature of work only changes when there is a change or upgrade in the technology or plant utilised. The effectiveness of mechanical functions is dependent on both the reliability of the technology and its users. Effective users will be those who possess and/or develop strong employability skills.

Thinking functions are driven by human enquiry, and relate to workers who rely on continuous learning and assessment of situations to undertake their role effectively. These functions are the premise of knowledge workers, whose own creativity are at the heart of their key skills and attributes. They operate in a dynamic manner through knowledge-building skills that are continually evolving. Interestingly, it is workers undertaking thinking, as opposed to mechanical, functions who possess the strongest propensity for entrepreneurial skills. In other words, knowledge, creativity and entrepreneurship go hand-in-hand as the factors upon which successful business strategies are formulated.

It is perhaps true to state that the major gaps in British businesses relate to skills with a requirement for thinking functions. Furthermore, as changes in these knowledge evolving skills continues to accelerate, the effectiveness of those with thinking occupations is worsening. UK businesses must create competitiveness strategies that seek to identify and remedy gaps in thinking functions. Companies that do not invest sufficiently in such strategies may have little part to play in the knowledge economy of today or tomorrow.

Public Policy Responses

A key feature of future UK public policy relating to the competitiveness agenda must be to work with and facilitate UK businesses in achieving the above. The prevalence of hidden skill gaps makes clear that the role of policy is to understand, measure and develop the demand factors within the UK's weak and polarised skills economy. The apparent surplus of graduates reported in UK business surveys is surely an indication that neither the national economy nor most regional economies are evolving within a trajectory that will create the necessary high-skill equilibrium. Too many businesses are continuing to operate with occupations and skills that are going to leave them stranded. Too many individuals are entering the labour market seeking careers that are soon to be redundant; and too many resources are becoming ploughed into economic activities that are quickly becoming obsolete. Competitive businesses cannot afford to retain employees who do not possess proficient enough skills, particularly as customer expectations cannot and will not be limited as in the past.

The knowledge economy demands that structural changes occur in labour market policies. They must be based on foresight and future intelligence rather than being reactive to an already changed economic climate. An integral feature of the UK's competitiveness agenda must be to ensure (as far as is possible within a world of uncertainties) that the managers of current and future workforces have an understanding of what skills they should be demanding, and how ensuing gaps can be addressed. At a practical level, the development of new awareness and skills raising activities, to encourage both businesses and individuals to capitalise upon their latent skills capacity, are crucial to enhancing the UK's skills economy, particularly within the least competitive regions. These activities should be developed at a number of differing levels, ranging from the direct promotion of increased productivity, to facilitating excluded individuals in the development of basic employability and 'job-getting' skills'. Within a broad sense, it is vital that these new activities incorporate the following elements: integration of the skills agenda with the business development agenda; formal upgrading of 'on-the-job' training; and a focus on management training at its different and constituent levels.

Intervention related to knowledge-based entrepreneurship would appear to be crucial. Yes, there are high start-up rates in the South East but these are often in low value-added service sectors. Knowledge-based entrepreneurship is obviously linked to the innovation agenda, and parts of the South East must what more they can be doing on the lines of the innovation hubs, also spin-out intervention is usually linked to HE activity, but it also be related to other public sector establishments as well corporate venturing within by private sector – there is potentially a role for the public sector in stimulating these activities, particularly at the local/sub-regional level.

Local policy intervention could be based around the creation of a cultural and attitudinal change towards the perception of entrepreneurship and business creation. Such activities are far more difficult to stimulate and activate than mainstream business support, and require a 'velvet glove' approach. Part of this velvet glove approach should be enhancing the mechanisms for information sharing, mentoring, accounting for local and global viewpoints, and accessing new resources and knowledge. Furthermore, the routes followed by entrepreneurs in their attempt to alleviate these barriers remain an important issue for policymakers, particularly in the least competitive regions.

An important starting point is to recognise, enhance and develop the features that distinguish potential entrepreneurs from employees. Such factors include: characteristics – take risks, be innovative, take initiatives, exploit business opportunities, create jobs; attributes – foresight, imagination, intelligence, decisiveness, alertness, aptitude for organization; behaviour – to raise profits and monetary rewards, personal achievement, independence, self-realisation, creative activity. Policy responses for the above, at the local level would be truly innovative (different) and potentially providing huge long-term gains, whilst factors such as affordable housing, low crime and good health are as much as a given for all areas as is increasing the number of KBBs.

The Basic Skills Problem

A key feature of recent policy evidence and intervention in the UK's skills economy is a focus on increasing basic skills levels, enhancing the employability of individuals. These basic skills primarily concern literacy, numeracy and communication, which translate into employability attributes through an increased ability to follow instructions, understand customer needs, team-working, initiative-taking, etc. Most of these skill-types are overlapping generic skills that are basically cognitive and tacit in nature, and initially 'learnt' through the period of formative education. Therefore, the UK's gap in these skills is a reflection of a gap in the education system. This is a complex and contentious issue which is best summarised by the fact that educational supply has not kept up with employer and working practices. Such practices now place a greater demand on requirements such as team-working, and the need for a broader range of skills from most workers and more in-depth skills from others.

Among adult literacy and numeracy levels in the OECD nations, only Poland and Ireland have a record worse than the UK. Approximately two in every five British adults have been found to have 'low' literacy skills - below those expected of 11 year olds! Also, one in five of the adult working population has 'very low' numeracy levels, preventing them from performing the most basic number calculations. Literacy and numeracy have a profound effect on average earnings. A survey undertaken in the late 1990s in the UK found that 60% of employees with high level literacy, and 66% with high level numeracy, earned at least £13,000 annually. These figures fell to 24% and 22% respectively for employees with low-level literacy and numeracy. Indeed, 20% of employees with low-level literacy, and 26% with low-level numeracy, earned less than £5,000 annually.

Most basic and generic skills development should be the responsibility of the education system at school level. However, the evidence indicates that there are large deficiencies in such skills throughout the UK. Therefore, a major UK policy requirement for the future should consist of the development of these skills forming part of the standard curriculum, alongside traditional academic qualifications, and be assessed to the same level applied to achievement in traditional academic subjects.

Basic skills problems at least partly reside within the low skills equilibrium, i.e. a lack of perceived demand for such skills. A recent survey found that many UK employers continue to underestimate the degree of basic skills difficulties existing within the workplace. Also, many employers who are aware of basic skills problems appear to continue operate around them, seemingly oblivious to the negative effects on business performance.

Technical Appendix

GDP Drivers 2000

Area	Working age Ratio	Activity Rate	Employment Rate	Productivity	GDP per capita	% of GB GDP per capita
Great Britain	0.62	0.79	0.95	35138	16303	100.0
South East	0.62	0.83	0.97	35762	17797	109.2
Bedfordshire	0.64	0.85	0.97	28788	15071	92.4
Berkshire	0.65	0.84	0.97	46498	24620	151.0
Brighton & Hove	0.67	0.76	0.94	28343	13609	83.5
Buckinghamshire	0.63	0.84	0.98	34516	17902	109.8
East Sussex	0.56	0.83	0.97	22653	10126	62.1
Gloucestershire	0.60	0.86	0.96	32911	16133	99.0
Hampshire	0.62	0.85	0.97	33417	17051	104.6
Isle of Wight	0.54	0.77	0.93	27331	10476	64.3
Kent	0.60	0.82	0.95	32409	15327	94.0
Medway	0.62	0.81	0.96	27863	13390	82.1
Milton Keynes	0.67	0.85	0.97	39962	22344	137.1
Northamptonshire	0.62	0.85	0.96	32966	16646	102.1
Outer London - South	0.65	0.82	0.95	26277	13328	81.8
Outer London - West & North West	0.69	0.78	0.94	36588	18368	112.7
Oxfordshire	0.66	0.85	0.98	33641	18369	112.7
Portsmouth	0.64	0.77	0.96	50371	23808	146.0
Southampton	0.63	0.75	0.96	41522	18923	116.1
Surrey	0.63	0.85	0.98	39881	20713	127.1
Swindon	0.63	0.86	0.96	44123	22997	141.1
West Sussex	0.59	0.84	0.98	36695	17578	107.8
Wiltshire	0.61	0.85	0.96	29900	14811	90.9

GDP Drivers 1994

Area	Working Age Ratio	Activity Rate	Employment Rate	Productivity	GDP per capita	% of GB GDP	GDP Gap
Great Britain	0.61	0.79	0.93	26104	11716	100	-
South East	0.61	0.82	0.96	25272	12097	103.3	3.3
Bedfordshire	0.62	0.85	0.95	21929	11002	93.9	-6.1
Berkshire	0.62	0.83	0.97	31892	15986	136.4	36.4
Brighton & Hove	0.63	0.80	0.90	22400	10274	87.7	-12.3
Buckinghamshire	0.63	0.83	0.97	24811	12699	108.4	8.4
East Sussex	0.54	0.82	0.96	19353	8231	70.3	-29.7
Gloucestershire	0.61	0.84	0.95	24612	11934	101.9	1.9
Hampshire	0.62	0.83	0.97	21846	10898	93.0	-7.0
Isle of Wight	0.55	0.77	0.93	20085	7910	67.5	-32.5
Kent	0.60	0.81	0.95	23955	10975	93.7	-6.3
Medway	0.64	0.81	0.92	18947	9033	77.1	-22.9
Milton Keynes	0.65	0.80	0.93	32625	15844	135.2	35.2
Northamptonshire	0.64	0.81	0.95	24776	12227	104.4	4.4
Outer London - South	0.63	0.81	0.93	21076	10157	86.7	-13.3
Outer London - West & North West	0.64	0.78	0.92	28133	13023	111.2	11.2
Oxfordshire	0.64	0.81	1.00	25754	13287	113.4	13.4
Portsmouth	0.60	0.83	0.91	31932	14381	122.7	22.7
Southampton	0.61	0.77	0.91	33059	14276	121.9	21.9
Surrey	0.62	0.83	0.98	26116	13050	111.4	11.4
Swindon	0.66	0.87	0.96	32267	17573	150.0	50.0
West Sussex	0.56	0.83	0.97	26497	11970	102.2	2.2
Wiltshire	0.61	0.86	0.97	22154	11215	95.7	-4.3

2000 Productivity equalised

Area	GDP per capita	% of GB GDP per capita	GDP Gap	Change in GDP gap
Great Britain	16303	100.0	0.0	-
South East	17487	107.3	7.3	-20.8
Bedfordshire	18394	112.8	12.8	-269.8
Berkshire	18605	114.1	14.1	-72.3
Brighton & Hove	16872	103.5	3.5	-121.1
Buckinghamshire	18224	111.8	11.8	20.2
East Sussex	15707	96.3	-3.7	-90.4
Gloucestershire	17224	105.7	5.7	-642.6
Hampshire	17929	110.0	10.0	117.3
Isle of Wight	13469	82.6	-17.4	-51.4
Kent	16617	101.9	1.9	-132.2
Medway	16885	103.6	3.6	-120.0
Milton Keynes	19647	120.5	20.5	-44.6
Northamptonshire	17742	108.8	8.8	319.7
Outer London - South	17822	109.3	9.3	-151.1
Outer London - West & North West	17640	108.2	8.2	-35.2
Oxfordshire	19186	117.7	17.7	39.5
Portsmouth	16608	101.9	1.9	-95.9
Southampton	16014	98.2	-1.8	-111.0
Surrey	18249	111.9	11.9	-55.9
Swindon	18314	112.3	12.3	-70.0
West Sussex	16832	103.2	3.2	-58.5
Wiltshire	17406	106.8	6.8	-174.0

2000 Economic Activity Equalized

Area	GDP per capita	% of GB GDP per capita	GDP Gap	% Change in GDP Gap
Great Britain	16303	100.0	0.0	-
South East	16833	103.3	3.3	-64.5
Bedfordshire	13919	85.4	-14.6	93.4
Berkshire	23037	141.3	41.3	-19.0
Brighton & Hove	14019	86.0	-14.0	-15.2
Buckinghamshire	16731	102.6	2.6	-73.2
East Sussex	9578	58.7	-41.3	8.9
Gloucestershire	14831	91.0	-9.0	766.4
Hampshire	15842	97.2	-2.8	-161.5
Isle of Wight	10750	65.9	-34.1	-4.7
Kent	14620	89.7	-10.3	72.4
Medway	12945	79.4	-20.6	15.3
Milton Keynes	20565	126.1	26.1	-29.4
Northamptonshire	15447	94.8	-5.2	-349.5
Outer London - South	12822	78.7	-21.3	17.0
Outer London - West & North West	18629	114.3	14.3	12.6
Oxfordshire	16966	104.1	4.1	-67.9
Portsmouth	24177	148.3	48.3	4.9
Southampton	19832	121.6	21.6	34.7
Surrey	19154	117.5	17.5	-35.4
Swindon	21092	129.4	29.4	-28.5
West Sussex	16526	101.4	1.4	-82.5
Wiltshire	13745	84.3	-15.7	71.5

2000 Employment Rate Equalized

Area	GDP per capita	% of GB GDP per capita	GDP Gap	Change in GDP gap
Great Britain	16303	100.0	0.0	-
South East	17422	106.9	6.9	-25.1
Bedfordshire	14765	90.6	-9.4	24.8
Berkshire	23903	146.6	46.6	-8.6
Brighton & Hove	13744	84.3	-15.7	-5.0
Buckinghamshire	17350	106.4	6.4	-34.5
East Sussex	9887	60.6	-39.4	3.9
Gloucestershire	15930	97.7	-2.3	119.4
Hampshire	16596	101.8	1.8	-60.8
Isle of Wight	10707	65.7	-34.3	-4.0
Kent	15244	93.5	-6.5	8.5
Medway	13198	81.0	-19.0	6.6
Milton Keynes	21700	133.1	33.1	-10.7
Northamptonshire	16399	100.6	0.6	-71.7
Outer London - South	13225	81.1	-18.9	3.5
Outer London - West & North West	18460	113.2	13.2	4.5
Oxfordshire	17804	109.2	9.2	-27.4
Portsmouth	23553	144.5	44.5	-3.4
Southampton	18638	114.3	14.3	-10.9
Surrey	20100	123.3	23.3	-13.9
Swindon	22688	139.2	39.2	-4.6
West Sussex	17049	104.6	4.6	-41.4
Wiltshire	14542	89.2	-10.8	18.0

2000 Working Age Ratio equalized

Area	GDP per capita	% of GB GDP per capita	GDP Gap	% Change in GDP Gap
Great Britain	16303	100.0	0.0	-
South East	17920	109.9	9.9	8.2
Bedfordshire	14760	90.5	-9.5	25.2
Berkshire	23747	145.7	45.7	-10.5
Brighton & Hove	12640	77.5	-22.5	36.0
Buckinghamshire	17680	108.4	8.4	-13.9
East Sussex	11380	69.8	-30.2	-20.3
Gloucestershire	16821	103.2	3.2	-405.3
Hampshire	17146	105.2	5.2	12.6
Isle of Wight	12092	74.2	-25.8	-27.7
Kent	15849	97.2	-2.8	-53.6
Medway	13565	83.2	-16.8	-6.0
Milton Keynes	20742	127.2	27.2	-26.5
Northamptonshire	16729	102.6	2.6	24.4
Outer London - South	12771	78.3	-21.7	18.7
Outer London - West & North West	16654	102.2	2.2	-83.0
Oxfordshire	17435	106.9	6.9	-45.2
Portsmouth	23262	142.7	42.7	-7.3
Southampton	18664	114.5	14.5	-9.9
Surrey	20620	126.5	26.5	-2.1
Swindon	22624	138.8	38.8	-5.6
West Sussex	18669	114.5	14.5	85.6
Wiltshire	15226	93.4	-6.6	-27.8

1994 – Working age ratio equalized.

Area	GDP per capita	% of GB GDP	GDP Gap	% Change in GDP Gap
Great Britain	11716	100	0.0	-
South East	12182	104.0	4.0	22.2
Bedfordshire	10885	92.9	-7.1	16.3
Berkshire	15728	134.2	34.2	-6.0
Brighton & Hove	9947	84.9	-15.1	22.7
Buckinghamshire	12271	104.7	4.7	-43.5
East Sussex	9265	79.1	-20.9	-29.7
Gloucestershire	12059	102.9	2.9	57.7
Hampshire	10753	91.8	-8.2	17.7
Isle of Wight	8872	75.7	-24.3	-25.3
Kent	11286	96.3	-3.7	-41.9
Medway	8602	73.4	-26.6	16.1
Milton Keynes	14916	127.3	27.3	-22.5
Northamptonshire	11725	100.1	0.1	-98.2
Outer London - South	9799	83.6	-16.4	22.9
Outer London - West & North West	12423	106.0	6.0	-45.9
Oxfordshire	12665	108.1	8.1	-39.6
Portsmouth	14647	125.0	25.0	10.0
Southampton	14301	122.1	22.1	1.0
Surrey	12964	110.7	10.7	-6.4
Swindon	16423	140.2	40.2	-19.6
West Sussex	13067	111.5	11.5	432.9
Wiltshire	11258	96.1	-3.9	-8.6

1994 - Productivity Equalized

Area	GDP per capita	% of GB GDP	GDP Gap	% Change in GDP Gap
Great Britain	11716	100	0.0	-
South East	12496	106.7	6.7	104.6
Bedfordshire	13097	111.8	11.8	-293.3
Berkshire	13085	111.7	11.7	-67.9
Brighton & Hove	11973	102.2	2.2	-117.8
Buckinghamshire	13360	114.0	14.0	67.4
East Sussex	11103	94.8	-5.2	-82.4
Gloucestershire	12657	108.0	8.0	333.0
Hampshire	13022	111.1	11.1	-259.6
Isle of Wight	10281	87.7	-12.3	-62.3
Kent	11960	102.1	2.1	-132.9
Medway	12445	106.2	6.2	-127.2
Milton Keynes	12677	108.2	8.2	-76.7
Northamptonshire	12883	110.0	10.0	128.3
Outer London - South	12580	107.4	7.4	-155.4
Outer London - West & North West	12084	103.1	3.1	-71.9
Oxfordshire	13468	115.0	15.0	11.5
Portsmouth	11756	100.3	0.3	-98.5
Southampton	11273	96.2	-3.8	-117.3
Surrey	13044	111.3	11.3	-0.4
Swindon	14217	121.3	21.3	-57.3
West Sussex	11792	100.6	0.6	-70.0
Wiltshire	13215	112.8	12.8	-398.8

1994 Activity Rate Equalized

Area	GDP per capita	% of GB GDP	GDP Gap	% Change in GDP Gap
Great Britain	11716	100	0.0	-
South East	11639	99.3	-0.7	-120.2
Bedfordshire	10211	87.2	-12.8	110.7
Berkshire	15213	129.8	29.8	-18.1
Brighton & Hove	10085	86.1	-13.9	13.1
Buckinghamshire	12009	102.5	2.5	-70.2
East Sussex	7951	67.9	-32.1	8.0
Gloucestershire	11148	95.2	-4.8	-361.4
Hampshire	10318	88.1	-11.9	70.8
Isle of Wight	8069	68.9	-31.1	-4.2
Kent	10727	91.6	-8.4	33.5
Medway	8834	75.4	-24.6	7.4
Milton Keynes	15519	132.5	32.5	-7.9
Northamptonshire	11848	101.1	1.1	-74.3
Outer London - South	9847	84.0	-16.0	19.8
Outer London - West & North West	13119	112.0	12.0	7.3
Oxfordshire	12971	110.7	10.7	-20.2
Portsmouth	13702	117.0	17.0	-25.5
Southampton	14525	124.0	24.0	9.7
Surrey	12382	105.7	5.7	-50.1
Swindon	15976	136.4	36.4	-27.3
West Sussex	11402	97.3	-2.7	-224.1
Wiltshire	10299	87.9	-12.1	182.5

Employment Rate Equalized

Area	GDP per capita	% of GB GDP	GDP Gap	% Change in GDP Gap
Great Britain	11716	100	0.0	-
South East	11707	99.9	-0.1	-102.5
Bedfordshire	10718	91.5	-8.5	39.8
Berkshire	15286	130.5	30.5	-16.4
Brighton & Hove	10579	90.3	-9.7	-21.1
Buckinghamshire	12186	104.0	4.0	-52.2
East Sussex	7988	68.2	-31.8	7.0
Gloucestershire	11702	99.9	-0.1	-106.7
Hampshire	10495	89.6	-10.4	49.2
Isle of Wight	7879	67.2	-32.8	0.8
Kent	10698	91.3	-8.7	37.4
Medway	9131	77.9	-22.1	-3.7
Milton Keynes	15879	135.5	35.5	0.9
Northamptonshire	11968	102.1	2.1	-50.8
Outer London - South	10113	86.3	-13.7	2.8
Outer London - West & North West	13140	112.2	12.2	8.9
Oxfordshire	12423	106.0	6.0	-55.0
Portsmouth	14768	126.0	26.0	14.5
Southampton	14558	124.3	24.3	11.0
Surrey	12436	106.1	6.1	-46.1
Swindon	17046	145.5	45.5	-9.0
West Sussex	11437	97.6	-2.4	-210.2
Wiltshire	10785	92.1	-7.9	85.7

Static Factor Analysis Statistical Summary – Factor Score

Component Matrix

Component

	1	2	3	4	5	6	7	8	9
PRODUCTIVITY	0.25	0.43	0.64	0.21	0.32	0.03	-0.34	-0.14	0.04
NVQ3+	0.62	0.44	-0.52	0.29	0.06	0.16	-0.08	-0.02	0.05
ACTIVITY	0.79	-0.40	0.11	-0.22	-0.17	0.33	0.06	0.00	-0.08
HE EMP	-0.14	0.82	0.06	0.35	-0.28	-0.14	0.06	-0.16	0.18
R&D EMP	0.47	0.10	0.12	0.55	-0.34	-0.14	0.45	-0.10	-0.19
ELEC OPT EMP	0.34	-0.31	0.37	0.50	-0.30	0.31	0.24	0.28	-0.18
FIN BUS EMP	0.24	0.68	-0.15	-0.43	0.00	-0.24	0.01	0.24	0.32
HI TECH MAN BUS	-0.12	-0.51	0.44	0.25	0.63	0.04	-0.03	0.11	-0.18
HI TECH SERV BUS	0.66	0.58	0.23	0.00	0.16	-0.07	0.14	0.17	0.23
KNOWLEDGE BUS	0.65	0.51	0.30	0.04	0.27	-0.06	0.14	0.19	0.21
HOUSE PRICES	0.91	-0.15	-0.22	0.22	0.08	-0.13	-0.15	-0.07	0.03
WAP	0.48	0.74	0.27	-0.05	0.06	-0.02	0.11	0.24	-0.10
GDP_PC	0.49	0.42	0.63	0.11	0.27	0.09	-0.22	-0.07	0.03
ETHNICITY	0.56	0.43	0.29	-0.34	0.25	-0.18	0.35	-0.01	-0.08
NVQ4+	0.73	0.36	-0.42	0.32	0.17	0.09	0.03	0.09	0.04
NO_QUAL	-0.84	0.06	0.37	-0.01	-0.06	-0.34	0.11	-0.06	-0.06
REG_PC	0.89	0.10	-0.23	-0.09	0.30	0.01	0.12	0.13	0.03
STOCKS PC	0.87	-0.33	-0.20	0.04	0.23	0.06	0.04	-0.08	0.02
INWARD PC	0.47	0.53	-0.38	0.43	-0.20	0.23	0.01	0.03	0.25
OUTWARD PC	0.63	0.60	-0.12	0.41	-0.18	0.00	-0.11	-0.08	0.02
NET_PC	-0.57	-0.41	-0.33	-0.18	0.06	0.34	0.23	0.21	0.32
AVERAGE KS2	0.83	-0.42	-0.16	0.26	-0.05	0.01	-0.14	-0.03	-0.04

UNIV APPL	0.78	-0.50	-0.22	0.07	0.08	-0.20	0.04	-0.02	0.13
VIOLENCE	-0.62	0.69	-0.09	0.09	0.17	0.16	-0.16	0.06	0.03
SEX	-0.55	0.66	0.24	0.17	-0.02	0.03	-0.25	-0.16	0.27
ROBBERY	0.05	0.86	-0.17	-0.16	0.10	0.06	0.20	-0.08	-0.09
BURGLARY	-0.02	0.73	-0.32	-0.19	0.30	0.13	0.21	-0.09	-0.36
MOTOR THEFT	-0.11	0.86	0.08	-0.40	-0.07	0.05	0.20	-0.05	-0.11
RETAIL	0.86	0.34	-0.07	0.07	-0.06	-0.03	0.10	0.05	0.11
MANAGERIAL	0.96	-0.09	0.09	0.00	0.23	0.02	-0.06	-0.03	-0.06
PROFESSIONAL	0.91	0.30	-0.02	0.22	0.07	0.00	0.06	0.14	0.08
LOWER MANAGERIAL	0.90	0.02	-0.25	-0.12	0.16	0.13	-0.08	0.21	-0.07
INTERMEDIATE	0.58	0.18	0.32	-0.61	-0.06	0.14	-0.18	0.25	-0.01
SMALL EMPLOYERS	-0.07	-0.65	-0.74	0.01	0.12	0.09	0.02	-0.07	-0.04
LOWER SUPERVISORY	-0.57	-0.30	0.71	-0.21	-0.14	0.04	0.08	0.09	-0.07
45 HOURS+	0.65	0.12	0.14	-0.20	-0.56	-0.11	0.23	-0.11	0.04
JOB RELATED TRAINING	0.49	0.50	-0.12	0.01	-0.16	0.50	0.03	-0.28	0.19
GOOD HEALTH	0.95	0.01	0.27	-0.03	0.00	-0.10	0.01	0.01	-0.03
FAIRLY GOOD HEALTH	-0.95	-0.07	-0.24	0.03	-0.03	0.09	-0.03	-0.04	-0.01
NOT GOOD HELATH	-0.93	0.09	-0.31	0.02	0.05	0.11	0.01	0.03	0.09
LONG TERM ILLNESS	-0.89	-0.16	-0.38	0.11	0.04	0.09	-0.01	0.02	0.10
NO LONG TERM ILLNESS	0.89	0.16	0.38	-0.11	-0.04	-0.09	0.01	-0.02	-0.10
PEOPLE WHO WORK AT HOME	0.45	-0.62	-0.58	0.10	0.12	0.11	0.17	-0.07	0.03
TRAVEL BY UNDERGROUND OR LIGHT RAIL	0.49	-0.15	-0.20	-0.17	0.41	-0.36	0.01	-0.42	-0.02
TRAIN	0.33	0.12	-0.50	-0.48	-0.23	-0.09	-0.45	0.17	-0.15
BUS OR COACH	-0.40	0.85	-0.07	0.21	-0.06	-0.12	0.15	0.11	-0.03
MOTORCYCLE	-0.63	-0.37	0.29	0.32	-0.05	-0.43	-0.10	0.10	0.15
CAR OR VAN	0.55	-0.60	0.39	-0.30	-0.10	0.10	0.01	-0.17	0.18

PASSENGER IN CAR OR VAN	-0.53	0.07	0.57	-0.44	-0.17	0.23	0.23	-0.04	0.17
TAXI	-0.29	0.44	0.28	-0.12	0.36	0.56	-0.26	-0.17	-0.14
BICYCLE	-0.13	0.32	0.46	0.70	0.08	0.22	0.12	-0.03	-0.15
ON_FOOT	-0.72	0.29	-0.34	0.38	0.26	-0.17	0.02	0.12	-0.16
PUBLIC TRANSPORT USERS WITH CAR	0.22	0.57	-0.41	-0.33	-0.33	-0.26	-0.30	0.10	-0.14
PUBLIC TRANSPORT USERS WITHOUT CAR	-0.40	0.81	-0.32	0.05	0.08	-0.03	0.00	0.23	-0.09
MANAGERS PAY	0.86	-0.03	0.29	-0.08	-0.03	-0.15	-0.25	-0.23	-0.02
PATENT APPLICATIONS	0.72	-0.22	0.13	0.43	-0.37	-0.03	-0.16	0.19	-0.14
HI-TECH PATENT APPLICATIONS	0.62	-0.21	0.23	0.39	-0.18	0.00	-0.26	0.31	0.05
POPULATION DENSITY	-0.46	0.78	0.14	0.17	0.10	-0.08	-0.26	-0.12	0.03
UNEMPLOYMENT	0.81	-0.36	0.30	0.01	-0.15	0.17	-0.06	-0.19	0.07
RECYCLING	-0.03	-0.56	0.33	-0.06	0.60	-0.07	0.05	0.35	0.17
DRIVE TIME TO LONDON	-0.73	-0.33	0.12	0.53	0.15	-0.11	0.05	-0.07	0.13
LITERACY	0.52	0.22	-0.14	-0.02	0.36	-0.19	0.27	-0.22	0.10
NUMERACY	0.89	-0.25	-0.31	0.04	0.09	-0.05	0.02	-0.01	0.01

Extraction Method: Principal Component Analysis.

9 components extracted.

Static Factor Analysis Statistical Summary – Statistical Analysis

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	25.22078322	40.03298924	40.0329892	25.2207832	40.0329892	40.0329892
2	13.47113417	21.38275265	61.4157419	13.4711342	21.3827527	61.4157419
3	6.884880539	10.92838181	72.3441237	6.88488054	10.9283818	72.3441237
4	4.774141213	7.578001925	79.9221256	4.77414121	7.57800193	79.9221256
5	3.238726492	5.140835701	85.0629613	3.23872649	5.1408357	85.0629613
6	2.139769197	3.396459043	88.4594204	2.1397692	3.39645904	88.4594204
7	1.881568657	2.986616915	91.4460373	1.88156866	2.98661692	91.4460373
8	1.495823061	2.374322319	93.8203596	1.49582306	2.37432232	93.8203596
9	1.169657034	1.856598467	95.6769581	1.16965703	1.85659847	95.6769581
10	0.987723482	1.567815052	97.2447731			
11	0.854252301	1.355956033	98.6007292			

12	0.64788911	1.028395412	99.6291246			
13	0.233651519	0.370875426	100			
14	2.61163E-15	4.14545E-15	100			
15	2.14762E-15	3.40893E-15	100			
16	1.51977E-15	2.41233E-15	100			
17	8.04204E-16	1.27651E-15	100			
18	7.26343E-16	1.15293E-15	100			
19	6.60933E-16	1.0491E-15	100			
20	5.74623E-16	9.121E-16	100			
21	5.68803E-16	9.02862E-16	100			
22	5.04812E-16	8.01289E-16	100			
23	4.29418E-16	6.81616E-16	100			
24	3.74527E-16	5.94488E-16	100			
25	3.54637E-16	5.62916E-16	100			
26	3.07808E-16	4.88584E-16	100			
27	2.92949E-16	4.64998E-16	100			
28	2.41613E-16	3.83512E-16	100			
29	2.16036E-16	3.42915E-16	100			
30	1.77337E-16	2.81488E-16	100			
31	1.24559E-16	1.97712E-16	100			
32	1.10058E-16	1.74695E-16	100			
33	8.79094E-17	1.39539E-16	100			
34	5.0571E-17	8.02715E-17	100			
35	1.4031E-17	2.22715E-17	100			
36	3.88387E-18	6.16488E-18	100			
37	-6.3148E-17	-1.0023E-16	100			
38	-8.6537E-17	-1.3736E-16	100			
39	-1.2853E-16	-2.0402E-16	100			
40	-1.4408E-16	-2.28E-16	100			
41	-1.5492E-16	-2.4591E-16	100			
42	-1.9218E-16	-3.050E-16	100			
43	-2.512E-16	-3.9877E-16	100			
44	-2.8044E-16	-4.4514E-16	100			
45	-3.1871E-16	-5.0589E-16	100			
46	-3.2208E-16	-5.1123E-16	100			
47	-3.6609E-16	-5.81E-16	100			
48	-3.7534E-16	-5.9578E-16	100			
49	-3.8308E-16	-6.0807E-16	100			
50	-4.6045E-16	-7.3088E-16	100			
51	-5.1324E-16	-8.1466E-16	100			
52	-5.6985E-16	-9.0452E-16	100			
53	-5.9604E-16	-9.4610E-16	100			
54	-6.003E-16	-9.5290E-16	100			
55	-6.5272E-16	-1.0360E-15	100			
56	-7.0556E-16	-1.1199E-15	100			
57	-7.5984E-16	-1.2061E-15	100			
58	-8.6725E-16	-1.3765E-15	100			
59	-1.0038E-15	-1.5933E-15	100			
60	-1.1297E-15	-1.7932E-15	100			
61	-1.6043E-15	-2.5465E-15	100			
62	-2.6312E-15	-4.1765E-15	100			
63	-3.5027E-15	-5.5588E-15	100			

Extraction Method: Principal Component Analysis.

Dynamic Factor Analysis Statistical Summary – Factor Score

Component Matrix

Component

	1	2	3	4	5	6	7
ACTIVITY	0.5	0.6	0.6	0.3	-0.1	0.1	0.0
WORKING AGE POPULATION	0.5	0.7	0.2	-0.2	-0.2	0.3	0.0
OUTPUT	0.5	-0.7	0.1	-0.2	0.2	0.1	0.0
POPULATION	0.2	0.7	0.6	0.1	0.1	-0.2	0.2
EMPLOYMENT	0.6	0.6	0.3	0.2	0.0	0.1	0.1
PRODUCTIVITY	0.2	-0.9	0.1	-0.3	0.2	-0.1	0.0
BUSINESSES	0.9	-0.4	0.1	0.0	0.0	0.0	0.0
KNOWLEDGE-BASED BUSINESSES	0.9	-0.4	0.0	0.0	-0.1	0.0	0.2
HE EMPLOYMENT	-0.1	-0.4	-0.3	0.8	0.1	0.2	0.0
R&D EMPLOYMENT	-0.5	0.5	-0.1	0.3	0.4	0.1	-0.5
ELECTRICAL AND OPTICAL EMPLOYMENT	-0.3	-0.3	0.7	0.4	0.2	0.3	0.1
OPTICAL INSTRUMENTS EMPLOYMENT	0.3	-0.4	0.6	0.0	-0.2	0.5	-0.1
ELECTRICAL EMPLOYMENT	-0.7	0.0	0.5	0.1	0.4	0.2	0.1
HIGH-TECHNOLOGY MANUFACTURING EMPLOYMENT	-0.1	0.1	0.8	-0.3	0.0	-0.1	-0.3
EMPLOYMENT IN FINANCE AND BUSINESS	0.5	0.5	-0.2	0.0	0.6	-0.2	0.1
PATENT APPLICATIONS	-0.8	0.2	0.4	-0.2	0.1	0.0	0.0
BUSINESS REGSITRATIONS	-0.3	0.2	-0.2	-0.5	0.1	0.6	0.5
BUSINESS DEREGISTRATIONS	0.3	0.3	-0.6	-0.3	0.3	0.4	0.1
BUSINESS STOCKS	0.8	-0.1	0.5	0.1	0.0	-0.1	0.1
HOUSE PRICES	0.5	0.3	-0.2	0.2	0.7	-0.3	0.0
JOB RELATED TRAINING	0.6	-0.1	-0.3	0.5	0.0	0.4	-0.3
UNEMPLOYMENT	-0.3	0.3	-0.3	0.5	-0.5	-0.1	0.3
WORKING AGE NVQ4+	0.4	0.5	-0.3	-0.4	-0.3	0.1	-0.4

Extraction Method: Principal Component Analysis.

7 components extracted.

Dynamic Factor Analysis Statistical Summary – Statistical Analysis

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.258073928	27.20901708	27.2090171	6.25807393	27.2090171	27.2090171
2	4.81280392	20.92523444	48.1342515	4.81280392	20.9252344	48.1342515
3	3.62511674	15.76137713	63.8956286	3.62511674	15.7613771	63.8956286
4	2.328766553	10.12507197	74.0207006	2.32876655	10.125072	74.0207006
5	1.872236083	8.140156883	82.1608575	1.87223608	8.14015688	82.1608575
6	1.468538134	6.384948409	88.5458059	1.46853813	6.38494841	88.5458059
7	1.122581982	4.880791228	93.4265971	1.12258198	4.88079123	93.4265971
8	0.651636802	2.833203487	96.2598006			
9	0.433832452	1.886228051	98.1460287			
10	0.157991049	0.686917606	98.8329463			
11	0.144432782	0.627968619	99.4609149			
12	0.064828771	0.281864221	99.7427791			
13	0.048952208	0.212835688	99.9556148			
14	0.010208595	0.044385196	100			
15	5.94038E-16	2.58277E-15	100			
16	4.87213E-16	2.11832E-15	100			
17	3.11349E-16	1.35369E-15	100			
18	1.9822E-16	8.61824E-16	100			
19	3.19838E-17	1.3906E-16	100			
20	-1.0467E-16	-4.5511E-16	100			
21	-2.7940E-16	-1.2147E-15	100			
22	-3.5873E-16	-1.5597E-15	100			
23	-5.0096E-16	-2.1781E-15	100			

Extraction Method: Principal Component Analysis.

Sector Definitions

Knowledge-Based Businesses

2214 : Publishing of sound recordings
223 : Reproduction of recorded media
244 : Manufacture of pharmaceuticals etc
300 : Manufacture: office machinery/computers
311 : Manuf: electric motors/generators etc
312 : Manuf: electricity distrib. apparatus
314 : Manufacture of accumulators etc
316 : Manufacture of electrical equipment nec
321 : Manufacture of electronic valves etc
322 : Manufacture of TV/radio transmitters etc
323 : Manufacture of TV/radio receivers etc
331 : Manuf: medical/surgical equipment nec
332 : Manuf: instruments for measuring etc
334 : Manufacture of optical instruments etc
335 : Manufacture of watches and clocks
353 : Manufacture of aircraft and spacecraft
642 : Telecommunications
651 : Monetary intermediation
652 : Other financial intermediation
660 : Insurance and pension funding
671 : Activ. auxil. to finan. intermediation
672 : Activ. auxil. to insur./pension funding
721 : Hardware consultancy
722 : Software consultancy and supply
723 : Data processing
724 : Data base activities
725 : Maintenance/repair:office machinery etc
726 : Other computer related activities
731 : Research: natural sciences/engineering
732 : Research: social sciences/humanities
741 : Accounting/book-keeping activities etc
742 : Architectural/engineering activities etc
743 : Technical testing and analysis
744 : Advertising
745 : Labour recruitment etc
921 : Motion picture and video activities
922 : Radio and television activities

Data Sources

Indicators	Sources
Productivity	SOURCE: ONS/LFS/EUROSTAT
% Pop with NVQ 3+	SOURCE: LFS
Activity Rates	SOURCE: ONS/LFS
Emp in HE	SOURCE: ABI
Emp in R&D	SOURCE: ABI
Employment in Electrical and Optical	SOURCE: ABI
Financial and Business Employment	SOURCE: ABI
Proportion of High Tech Service Businesses	SOURCE: ABI
Proportion of Knowledge Based Businesses	SOURCE: ABI
Average House Prices	SOURCE: LAND REGISTRY
LFS Working Age Population as % ONS Mid Year Estimates Population	SOURCE: LFS/ONS
GDP per capita (Eurostat GDP*/ONS Mid year estimate population)	SOURCE: EUROSTAT/ONS
% of non-white - 16+ LFS	SOURCE: LFS
% with NVQ4+ - working age	SOURCE: LFS
% with no qualifications - working age	SOURCE: LFS
% of working age economically inactive who want a job	SOURCE: LFS
% of working age economically inactive who do not want a job	SOURCE: LFS
Business Registrations VAT Nomis	SOURCE: NOMIS
Business Stocks VAT Registered Nomis	SOURCE: NOMIS
Migration - Persons In	SOURCE: ONS
Migration - Persons Out	SOURCE: ONS
Migration - Persons Net	SOURCE: ONS
Average Key Stage 2 Scores	SOURCE: OXFORD UNIVERSITY
Notifiable Offences Recorded By The Police	SOURCE: HOME OFFICE
Multiple ethnic groups 2001	SOURCE: CENSUS 2002
Commercial Property Retail Values	SOURCE: ODPM
Employment by Occupation	SOURCE: CENSUS 2001
Earnings	SOURCE: NEW EARNINGS SURVEY
Job - Related Training	SOURCE: LFS
Average working hours	SOURCE: LFS
Health	SOURCE: CENSUS 2001
Population with Long-Term Illnesses	SOURCE: CENSUS 2001
Method of Transport to Work	SOURCE: CENSUS 2001
Patent Applications per Capita	SOURCE: EUROSTAT
High-Technology Patent Applications per Capita	SOURCE: EUROSTAT
Population Density	SOURCE: EUROSTAT
Recycling Rates	SOURCE: MUNICIPAL WASTE SURVEY
Average Drive Time to London	SOURCE: ARUP
Basic Skills Survey	SOURCE: BASIC SKILLS AGENCY