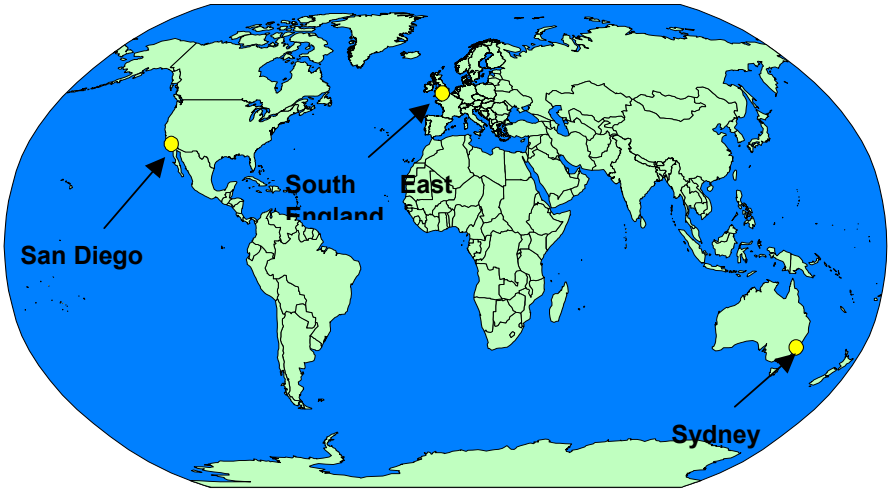
A4 : International Comparisons

1. Introduction

Whilst many recent studies have benchmarked regions internationally, very little study has been undertaken to look at smaller sub-regions in an international context. It is of great interest to examine intra regional disparities as it tells us more about the interactions within regional economies, and how this affects the residents of those regions. As part of this study we examined San Diego, Sydney and South East England (see figure 1.1 below)

Figure 1.1: Location of Comparator Cities



The sub-regions of San Diego in this study are the seven "Major Statistical Areas" (MSA's), according to the definition of the US Census Bureau. The sub-regions of Sydney are the 14 "Statistical Subdivisions" (SSD's) following the definition of the Australian Bureau of Statistics, whilst the sub-regions of South East England have been classified as the NUTS 3 areas.

Table 1.1: Sub-regions of Study

South East England	Sydney	San Diego
Berkshire	Lower Northern Sydney	North City
Surrey	Eastern Suburbs	North County
Buckinghamshire CC	Northern Beaches	East Suburban
Hampshire CC	Inner Sydney	North County East
Milton Keynes	Central Northern Sydney	South Suburban
Portsmouth	Geoge-Sutherland	East County
Oxfordshire	Inner Western Sydney	Central
West Sussex	Gosford-Wyong	
Southampton	Outer Western Sydney	
Medway	Outer South Western Sydney	
Brighton and Hove	Blacktown	
Kent CC	Central Western Sydney	
East Sussex CC	Canterbury-Bankstown	
Isle of Wight	Fairfield-Liverpool	

2. Regional Profiles

Before investigating Sydney, San Diego and South East England at a sub-regional level it is necessary to examine their economies on a regional scale. Below we compare the regions for the most significant economic indicators. Data is collected for the latest comparable year possible. In relevant cases data has been standardised to US dollar values for ease of comparison.

Population Change

Population change is a combination of natural increase and migration. Given fairly stable birth rates in the UK, any significant population shifts can be attributed, in large part, to migration patterns.

The population growth rate is taken over a ten-year period. All three regions have experienced growth rates high enough to suggest that inward migration is higher than outward migration. Inward migration can be seen as a result of economic success and as new labour input.

The South East has the lowest level of population change but has experienced a small yet consistent net inflow of population from within the UK. It also absorbs a high proportion of the UK's immigrant population. San Diego's population has grown at twice the rate. However, it is estimated that approximately 85% of San Diego's population growth is due to natural increase, inward migration making up the left over 15%.

Table 2.1: Ten-year population growth rate 1990-2000.

		Growth rate
San Diego		12.64%
Sydney		9.80%
South East England		6.18%

(Sources: US Census Bureau. Mid-year population estimates, UK Office for National Statistics, Australian Demographic statistics)

Economic Output and Growth

Gross domestic product is the most common measure of economic capacity or output. Per capita values provide a reasonable basis for a comparison of relative prosperity and allow us to compare regions of differing size. The figures shown in table 1 are standardized as US dollar purchasing power parities to take into account exchange rate and price differentials.

Output

The output analysis shows a great deal of disparity between the regions. Despite its relative prosperity at a domestic level the South East lags behind both Sydney and San Diego. Most striking is the output gap between the South East and San Diego. Output per capita in South East England being just 68% of that in San Diego.

Table 2.2: GDP per capita (US$ PPP 2000)

		US$
San Diego		35,068
Sydney		25,648
South East England		23,959

(Sources: US Conference of Mayors, UK Office of National Statistics, Australian Bureau of Statistics)

Growth

The output figures suggest a great deal of potential for catch-up for the South East as it closes the output gap. However, an examination of economic growth suggests that the economies of San Diego and Sydney continue to pull away. South East England has maintained a respectable growth rate but has been outperformed by San Diego and Sydney. For reasons of data availability, growth is compared over a four-year period. Output growth has been deflated by national level price deflators. This method, although imperfect, is necessary due to the lack of a regional inflation rate.

Table 2.3: Annual average percentage growth rate of GDP 1996 – 2000.

San Diego		7.90%
Sydney		5.20%
South East England		3.12%

(Sources: US Conference of Mayors, UK Office of National Statistics, Australian Bureau of Statistics)

Earnings

It is interesting to observe the extent to which income creation (measured by GDP) is transferred into individual earnings. The earnings statistics broadly match the output analysis. However earnings in San Diego are comparatively high relative to GDP. Average weekly earnings are similar in Sydney and South East England.

Table 2.4: Mean Gross Average Monthly Earnings (US$ PPP 1999)

		US $
San Diego		2,830
Sydney		2,192
South East England		2,148

(Source: US Bureau of Economic Analysis: Regional Accounts Data, UK New Earnings Survey, Australian Bureau of Statistics: Compensation of Employees)

The Labour Market

Labour market statistics are useful indicators of economic input, excess capacity and social inclusion.

Activity

The activity rate applied here is defined as the proportion of the population between the ages of 16 and 64 engaged in the labour market. This tells us something about the potential size of labour inputs and the size of the economic burden of the economically inactive. All three regions have remarkably similar levels of activity. The figures represent a reasonable level of activity in South East England.

Table 2.5: Economic Activity Rate 2000/2001

San Diego		65.1%
Sydney		60.6%
South East England		66.9%

(Sources: US Bureau of Labor Statistics, UK Labour Force Survey, Australian Bureau of Statistics: Census of Population and Housing)

Unemployment

The unemployment rate is a measure of excess capacity as well as economic disparity. The figures show broadly the relative unemployment rates, however due to international differences in measurement, accurate comparison is difficult. In addition unemployment rates are largely cyclical and reflect current levels of demand.

South East England has the lowest level of unemployment in our sample. 2.8% represents a particularly low rate, suggesting that the economy is working at somewhere close to full capacity at the given level of capital stock. Sydney on the other hand has a significant unemployment problem.

Table 2.6: Unemployment Rates as proportion of labour force 2000

San Diego		3.30%
Sydney		6.10%
South East England		2.80%

(Sources: US Bureau of Labor Statistics, UK Labour Force Survey, Australian Bureau of Statistics)

3. Economic Structure

An examination of economic structure reveals the relative sizes of different sectors of activity and reflects the region's main functions. Here we use sectoral employment share as a measure of economic structure.

Manufacturing

The manufacturing sector has undergone a sustained decline in most developed countries in the post-war era. Urban areas in particular have undergone structural shifts from manufacturing to tertiary functions. Given that the three regions have a high degree of urbanization the low levels of manufacturing are unsurprising.

San Diego has the edge in manufacturing, much of which is high value added, high technology activity. San Diego has a significant cluster of computer manufacturing. South East England has a similar level of employment in manufacturing. South East England has a significant high technology sector and is prominent in electro-technology.

Table 2.7: Manufacturing employment as a proportion of total employment 1999.

San Diego		13%
Sydney		12.90%
South East England		11.80%

(Sources: US Bureau of Labor Statistics: LABSTAT, UK Office of National Statistics, Australian Bureau of Statistics)

Business and Finance

Structural shifts away from manufacturing have been part of a trend toward a reliance on the business services and finance. This sector is the most significant employer for all three regions.

Again, the business structure is seen to be remarkably similar in all regions. This is a reflection of the similarity of the process toward post industrialization that developed countries have undergone. South East England has the highest percentage of employment in this sector, reflecting its advantage as a neighbour of a global financial center in London.

Table 2.8: Business and Finance employment as a proportion of total employment 1999.

San Diego		19.20%
Sydney		20.20%
South East England		22.90%

(Sources: US Bureau of Labor Statistics: LABSTAT, UK Office of National Statistics, Australian Bureau of Statistics)

Construction

The construction sector is both significant as a sector in its own right and an indicator of the general level of business activity and investment.

The construction sector is a significant yet small sector in all three regions. South East England employs a far lower proportion of its workforce in construction than San Diego and Sydney.

Table 2.9: Construction employment as a proportion of total employment 1999.

San Diego		7.00%
Sydney		6.90%
South East England		4.20%

(Sources: US Bureau of Labor Statistics: LABSTAT, UK Office of National Statistics, Australian Bureau of Statistics)

Wholesale and Retail

The tertiary sector is dominant in all three economies. We can see that the retail sector is a hugely significant employer. Again there is remarkable consistency across the regions. Just under a fifth of employment in South East England is in wholesale and retail.

Table 2.10: Wholesale and retail employment as a proportion of total employment 1999.

San Diego		18.60%
Sydney		20.00%
South East England		19.10%

(Sources: US Bureau of Labor Statistics: LABSTAT, UK Office of National Statistics, Australian Bureau of Statistics)

Transportation

The transportation sector is the least significant employer of the five sectors studied here. South East England has the largest transport sector of the three, which is partly a reflection of the importance of the airport sector in the UK.

Table 2.11: Transportation employment as a proportion of total employment 1999.

San Diego		5.10%
Sydney		5.90%
South East England		6.70%

(Sources: US Bureau of Labor Statistics: LABSTAT, UK Office of National Statistics, Australian Bureau of Statistics)

4. Knowledge Economy

There has been a marked increase in the recognition of the importance of knowledge as a driver of economic growth. Skills, ideas and innovation are now thought to be an integral part of business growth. The extent of the knowledge economy and its impact is difficult to measure directly. Here we focus on research and development and patent activity as indicators of knowledge capacity, knowledge creation and translation of ideas into economic outcomes.

Research and Development

Research and development is a process which seeks to increase the knowledge base of an economy. It is crucial to commercial success in product development and productivity improvements. Research and development can be seen as both creating knowledge and utilizing knowledge.

Business has embraced the knowledge economy as a way of improving performance, hence the high levels of private sector investment in research and development. This is particularly the case for high technology sectors in which knowledge pays a greater role in wealth creation. There are huge disparities in the levels of investment in our three regions, especially considering their structural similarities.

San Diego's lead reflects the common tendency for US industry to recognize the value of research and development. Sydney lags a long way behind in private investment. Businesses in South East England have significant room for catch-up in research and development.

Figure 2.12: Research and development per capita investment expenditure by business per capita 1999.

	US$ per capita
San Diego	1089
Sydney	157
South East England	447

(Sources: US National Science Foundation, Eurostat, Australian Bureau of Statistics: Research and Experimental Development, Business Enterprise)

In the public sector Sydney continues to lag behind San Diego and South East England in terms of research and development. However the pattern of relative investment in San Diego and South East England is reversed. The lower government investment figure in San Diego reflects the reliance on the business sector in the US as a whole.

Table 2.13: Research and development per capita investment expenditure by government 1999.

	US$ per capita
San Diego	154
Sydney	82
South East England	334

(Sources: US National Science Foundation, Eurostat, Australian Bureau of Statistics: Research and Experimental Development, Government and Private Non-profit Organisations)

Patent Activity

The level of patent activity is a good measure of the level of technological advancement in business and success in the transfer of technology into wealth creation. The measure used is the number of patent registrations per million inhabitants.

San Diego is the leads the way in patent activity reflecting a large high technology manufacturing sector. South East England registers (proportionally) one third of the patents of San Diego. Sydney's patent performance is disappointing. The indicators confirm the United States' predominance in knowledge creation and utilization, the effects of which are evident in high labour productivity.

Table 14: Patent registrations per million inhabitants 1999.

San Diego		624
Sydney		43
South East England		208

(Sources: US Patent and Trademark Office, Eurostat)

Living Costs

The costs of living are a useful indicator of long-term economic sustainability. It is important for economies to balance high growth and incomes with affordability. Living costs are, therefore, an important part of quality of life. Due to a lack of a broad comparative cost analysis at the regional level, we confine ourselves to a comparison of housing costs. Housing costs make up a large part of consumer expenditure and are a useful indicator of the general price level.

San Diego has the highest median house price reflecting on its greater wealth. The South East value also breaks the $200,000 mark reflecting a lack of space and a high degree of competition. Sydney house prices are significantly lower.

Table 2.15: Median value house prices 1999/2000 US$

		US$
San Diego		227,200
Sydney		157,000
South East England		202,333

(Sources: Land Registry, City of Sydney Yearbook, US Census Bureau)

5. Intra-regional disparities comparison

Population

Table 3.1 illustrates the spread of population across the sub-regions of South East England, Sydney and San Diego. For example, in the case of the South East, the largest sub-region, Kent, has a population ten times higher than that of the Isle of Wright. While in San Diego, East County accounts for only 0.8% of the total population.

Table 3.1 Sub-regional population distribution

South East England	2001	Sydney	2001	San Diego	2000
South East	8,021,373	Sydney	3,885,223	San Diego	2,813,833
Kent CC	1,331,194	Geoge-Sutherland	412,594	North City	658,877
Hampshire CC	1,241,431	Central Northern Sydney	386,718	Central	619,133
Surrey	1,060,284	Fairfield-Liverpool	336,223	East Suburban	462,663
Berkshire	803,698	Inner Sydney	311,233	North County East	380,430
West Sussex	755,089	Outer Western Sydney	307,787	North County	364,157
Oxfordshire	607,470	Canterbury-Bankstown	296,551	South Suburban	307,469
East Sussex CC	493,130	Central Western Sydney	286,629	East County	21,104
Buckinghamshire CC	479,131	Gosford-Wyong	285,508		
Brighton and Hove	250,218	Lower Northern Sydney	280,982		
Medway	249,704	Blacktown	256,364		
Southampton	219,748	Eastern Suburbs	233,069		
Milton Keynes	209,132	Northern Beaches	219,230		
Portsmouth	188,219	Inner Western Sydney	157,505		
Isle of Wight	132,925	Outer South Western Sydney	114,830		

Source: Population Estimates, Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Table 3.2: Sub-regional population as a percentage of total population.

South East England	2001	Sydney	2001	San Diego	2000
South East	100.0%	Sydney	100.0%	San Diego	100.0%
Kent CC	16.6%	Geoge-Sutherland	10.6%	North City	23.4%
Hampshire CC	15.5%	Central Northern Sydney	10.0%	Central	22.0%
Surrey	13.2%	Fairfield-Liverpool	8.7%	East Suburban	16.4%
Berkshire	10.0%	Inner Sydney	8.0%	North County East	13.5%
West Sussex	9.4%	Outer Western Sydney	7.9%	North County	12.9%
Oxfordshire	7.6%	Canterbury-Bankstown	7.6%	South Suburban	10.9%
East Sussex CC	6.1%	Central Western Sydney	7.4%	East County	0.8%
Buckinghamshire CC	6.0%	Gosford-Wyong	7.3%		
Brighton and Hove	3.1%	Lower Northern Sydney	7.2%		
Medway	3.1%	Blacktown	6.6%		
Southampton	2.7%	Eastern Suburbs	6.0%		
Milton Keynes	2.6%	Northern Beaches	5.6%		
Portsmouth	2.3%	Inner Western Sydney	4.1%		
Isle of Wight	1.7%	Outer South Western Sydney	3.0%		

Source: Population Estimates, Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Income

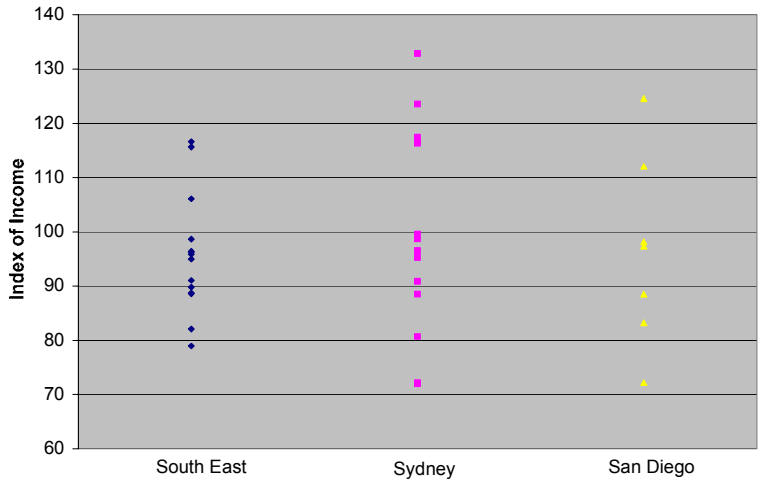
At the sub-regional level, income (as measured by the levels of earnings within each sub-region) is an important indicator of local economic development. It is clear that Sydney has the largest range of income levels across its sub-regions, as illustrated in figure 3.1 below. Note that the index values are calculated so that a figure of 100 represents the regional average for each region.

Table 3.3 Index of Income

South East England	2001 Index (South East = 100)	Sydney	2001 Index (Sydney = 100)	San Diego	2000 Index (San Diego = 100)
Berkshire	116.6	Lower Northern Sydney	132.9	North City	124.5
Surrey	115.7	Eastern Suburbs	123.5	North County	112.1
Buckinghamshire CC	106.1	Northern Beaches	117.4	East Suburban	98.1
Hampshire CC	98.6	Inner Sydney	116.6	North County East	97.4
Milton Keynes	96.4	Central Northern Sydney	116.3	South Suburban	88.5
Portsmouth	96.3	Geoge-Sutherland	99.6	East County	83.2
Oxfordshire	95.9	Inner Western Sydney	98.7	Central	72.2
West Sussex	95.0	Gosford-Wyong	96.6		
Southampton	91.1	Outer Western Sydney	95.2		
Medway	89.8	Outer South Western Sydney	90.9		
Brighton and Hove	88.7	Blacktown	88.5		
Kent CC	88.6	Central Western Sydney	80.7		
East Sussex CC	82.1	Canterbury-Bankstown	72.2		
Isle of Wight	78.9	Fairfield-Liverpool	72.0		

Source: New Earnings Survey, Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Figure 3.1 Index of Income



Economic Activity Rate

Economic activity rates are one of the main contributors towards economic output – the more people available within the labour market the more an area can produce. It is, therefore, interesting to look at differences across the sub-regions.

Within the study economic activity rates for Sydney are calculated on a slightly different basis to other two regions. For South East England and San Diego, we use economic activity rate for ages 16 and over, while for Sydney this rate is for ages 15 and over. This partly explains why Sydney's average activity ratio is lower than those of the South East and San Diego.

Although South East England has the highest level of economic activity, the disparities between its sub-regions are the greatest amongst the three. The rates vary from 75.0% in Milton Keynes to 56.8% in Isle of Wight, with an overall range of 18.2%. The ranges for Sydney and San Diego are 12.4% and 14.0% respectively. If we look at the standard deviation of the activity rates, the figures are 4.96%, 4.30% and 4.69% for the South East, Sydney and San Diego respectively. Again, the South East shows the highest intra-regional disparities.

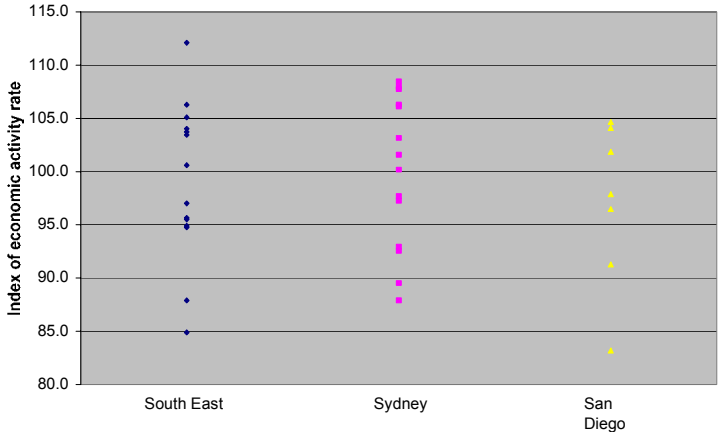
To eliminate the effects of different statistical definitions amongst the sub-regions an index of the economic activity rates was calculated with the average level of the individual regions as the base. Figure 3.2 clearly demonstrates that South East England displays the largest variation across its sub-regions.

Table 3.4 Index of Economic Activity Rate

South East England	2001 Index (16+) (South East = 100)	Sydney	2001 Index (15+) (Sydney =100)	San Diego	2000 Index (16+) (San Diego =100)
Milton Keynes	112.1	Central Northern Sydney	108.5	North County	104.7
Buckinghamshire CC	106.3	Outer Western Sydney	107.9	North City	104.1
Berkshire	105.1	Northern Beaches	107.7	North County East	101.9
Oxfordshire	104.0	Outer South Western Sydney	106.3	East Suburban	97.9
Hampshire CC	103.7	Lower Northern Sydney	106.1	South Suburban	96.5
Surrey	103.4	Geoge-Sutherland	103.2	Central	91.3
Medway	100.6	Blacktown	101.6	East County	83.2
Brighton and Hove	97.0	Eastern Suburbs	100.2		
Kent CC	95.7	Inner Western Sydney	97.7		
Southampton	95.5	Inner Sydney	97.2		
Portsmouth	94.9	Fairfield-Liverpool	92.9		
West Sussex	94.8	Central Western Sydney	92.6		
East Sussex CC	87.9	Gosford-Wyong	89.5		
Isle of Wight	84.9	Canterbury-Bankstown	87.9		

Source: Labour Force Survey, Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Figure 3.2: Index of economic activity rate



Unemployment

Unemployment is another important indicator of local economic prosperity. Healthy economies should be able to create enough jobs for the local workforce. Thanks to stability in the regional economy, South East England enjoys a relatively low unemployment rate. The lowest level of unemployment in any sub-region was to be found within Surrey, which recorded an unemployment rate of just 0.9% in 2001. However, full employment is not a characteristic shared by all sub-regions.

Table 3.5 Unemployment rate

South East England	2001 Unemployment rate (%)	Sydney	2001 Unemployment rate (%)	San Diego	2000 Unemployment rate (%)
Surrey	0.9	Northern Beaches	3.4	East County	3.3
Buckinghamshire CC	1.4	Central Northern Sydney	3.6	North City	4.1
Oxfordshire	1.5	Lower Northern Sydney	3.9	North County	4.5
West Sussex	1.5	Geoge-Sutherland	4.5	East Suburban	5.6
Hampshire CC	1.5	Eastern Suburbs	4.8	North County East	6.0
Berkshire	1.7	Inner Western Sydney	5.4	South Suburban	7.7
Milton Keynes	2.6	Outer Western Sydney	5.6	Central	7.9
East Sussex CC	3.2	Inner Sydney	6.2		
Kent CC	3.3	Outer South Western Sydney	7.0		
Medway	3.8	Blacktown	7.7		
Portsmouth	4.3	Central Western Sydney	8.1		
Southampton	4.3	Canterbury-Bankstown	8.4		
Isle of Wight	5.7	Gosford-Wyong	8.5		
Brighton and Hove	6.1	Fairfield-Liverpool	10.6		

Source: Eurostat; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

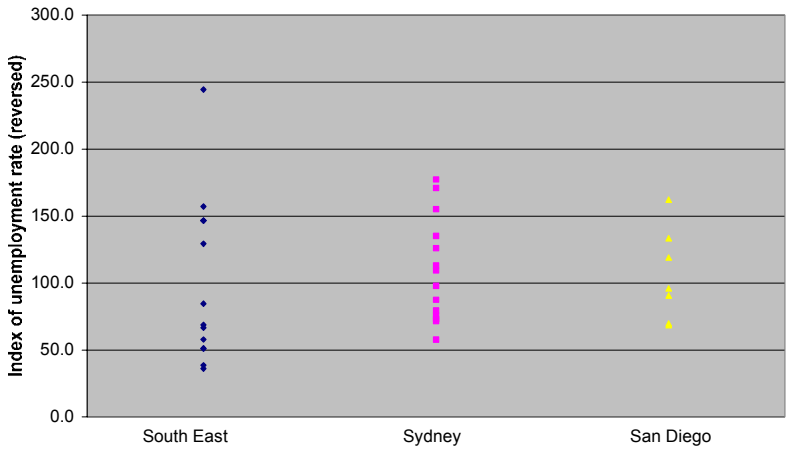
The index of unemployment illustrates more clearly the intra-regional disparities within each region. Although South East England has the lowest average level of unemployment, it also suffers the largest inequality. Its index of unemployment values values range from 244.4 to 36.1, comparing with Sydney (177.2 – 57.8) and San Diego (162.4 – 68.5). Indeed, the standard deviations for the indices of the South East, Sydney and San Diego are 60.9, 38.7 and 34.5 respectively.

Table 3.6 Index of unemployment rates

South East England	2001 Index (reversed, South East = 100)	Sydney	2001 Index (reversed, Sydney = 100)	San Diego	2000 Index (reversed, San Diego = 100)
Surrey	244.4	Northern Beaches	177.2	East County	162.4
Buckinghamshire CC	157.1	Central Northern Sydney	171.0	North City	133.5
Oxfordshire	146.7	Lower Northern Sydney	155.2	North County	119.0
West Sussex	146.7	Geoge-Sutherland	135.1	East Suburban	96.1
Hampshire CC	146.7	Eastern Suburbs	126.1	North County East	90.7
Berkshire	129.4	Inner Western Sydney	113.0	South Suburban	69.8
Milton Keynes	84.6	Outer Western Sydney	109.3	Central	68.5
East Sussex CC	68.8	Inner Sydney	97.9		
Kent CC	66.7	Outer South Western Sydney	87.5		
Medway	57.9	Blacktown	79.6		
Portsmouth	51.2	Central Western Sydney	75.7		
Southampton	51.2	Canterbury-Bankstown	73.1		
Isle of Wight	38.6	Gosford-Wyong	71.5		
Brighton and Hove	36.1	Fairfield-Liverpool	57.8		

Source: Eurostat; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Figure 3.3: Index of unemployment rates



Employment as a percentage of population

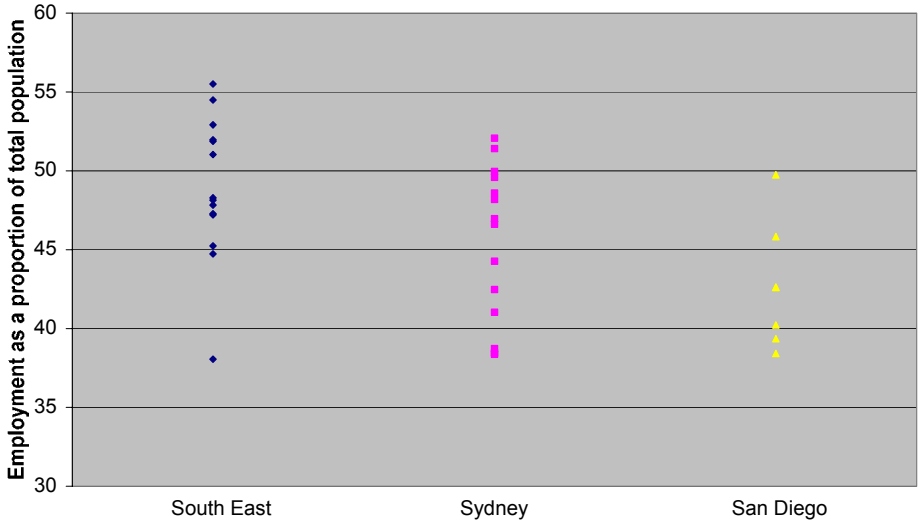
Employment as a percentage of population is a variable that measures the proportion of the population who are creating wealth within their corresponding area. Other things equal, the higher the ratio, the higher the local economic output.

Table 3.7: Employment as a proportion of total population

South East England	Employment/ Population 2000 (%)	Sydney	Employment/ Population 2001 (%)	San Diego	Employment/ Population 2000 (%)
Milton Keynes	55.5	Lower Northern Sydney	52.1	North City	49.8
Oxfordshire	54.5	Northern Beaches	51.4	East Suburban	45.8
Berkshire	52.9	Central Northern Sydney	50.0	North County	42.6
Surrey	52.0	Eastern Suburbs	49.6	North County East	42.6
Buckinghamshire CC	51.9	Inner Sydney	48.6	Central	40.2
Hampshire CC	51.0	Geoge-Sutherland	48.2	East County	39.4
Medway	48.3	Outer Western Sydney	47.0	South Suburban	38.4
Brighton and Hove	48.1	Inner Western Sydney	46.6		
West Sussex	47.8	Outer South Western Sydney	44.3		
Kent CC	47.3	Blacktown	42.5		
Portsmouth	47.2	Central Western Sydney	41.0		
Southampton	45.2	Gosford-Wyong	38.7		
East Sussex CC	44.7	Canterbury-Bankstown	38.5		
Isle of Wight	38.1	Fairfield-Liverpool	38.4		

Source: Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Figure 3.4: Employment as a proportion of total population



Again, the largest gaps are seen in the South East (55.5% to 38.1%), comparing Sydney (52.1% to 38.4%) and San Diego (49.8% to 38.4%).

Table 3.8: Index of employment as proportion of total population

South East England	2001 Index (South East = 100)	Sydney	2001 Index (Sydney = 100)	San Diego	2000 Index (San Diego = 100)
Milton Keynes	111.5	Lower Northern Sydney	111.4	North City	105.7
Oxfordshire	109.4	Northern Beaches	110.0	East Suburban	97.4
Berkshire	106.3	Central Northern Sydney	106.9	North County	90.6
Surrey	104.3	Eastern Suburbs	106.1	North County East	90.6
Buckinghamshire CC	104.2	Inner Sydney	104.0	Central	85.5
Hampshire CC	102.5	Geoge-Sutherland	103.1	East County	83.6
Medway	97.0	Outer Western Sydney	100.5	South Suburban	81.6
Brighton and Hove	96.7	Inner Western Sydney	99.7		
West Sussex	96.1	Outer South Western Sydney	94.7		
Kent CC	94.9	Blacktown	90.9		
Portsmouth	94.8	Central Western Sydney	87.8		
Southampton	90.9	Gosford-Wyong	82.8		
East Sussex CC	89.8	Canterbury-Bankstown	82.3		
Isle of Wight	76.4	Fairfield-Liverpool	82.0		

Source: Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

The index of employment ratio tells the story more clearly. The standard deviations of the indices for South East England, Sydney and San Diego are 9.1, 10.5 and 8.5 respectively.

Educational Achievement

All the three regions are important technology centres. High-tech industries require high calibre talents. Although all the regions attract and retain a large number of “knowledge workers”, they are not distributed equally across sub-regions.

Table 3.9: Percentage of residents with degree level qualifications

South East England	Percentage of residents with degree (2001)	Sydney	Percentage of residents with degree (2001)	San Diego	Percentage of residents with degree (2000)
South East	21.7	Sydney	13.4	San Diego	18.6
Brighton and Hove	28.7	Lower Northern Sydney	25.5	North City	31.2
Oxfordshire	27.7	Eastern Suburbs	22.7	North County	22.1
Surrey	27.2	Inner Sydney	20.9	Central	14.4

Berkshire	26.1	Central Northern Sydney	20.0	North County East	13.8
Buckinghamshire	25.9	Inner Western Sydney	18.0	East Suburban	12.8
Hampshire	20.7	Northern Beaches	15.3	East County	12.4
West Sussex	19.1	Geoge-Sutherland	11.4	South Suburban	10.9
Milton Keynes	18.9	Outer South Western Sydney	11.2		
Southampton	18.8	Central Western Sydney	10.6		
East Sussex	18.0	Outer Western Sydney	7.9		
Portsmouth	17.6	Canterbury-Bankstown	7.6		
Kent	16.8	Blacktown	7.2		
Isle of Wight	15.3	Gosford-Wyong	5.9		
Medway	12.0	Fairfield-Liverpool	5.4		

Source: Neighbourhood Statistics, UK Office of National Statistics; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

On average, South East England has the highest proportion of residents with degrees. At a sub-region level, North City MSA of San Diego has the highest percentage of degree holders at 31.2%. Gosford-Wyong SSD of Sydney has the lowest ratio at 5.9%. In this case the South East has the lowest standard deviation at 5.2%, comparing with Sydney (6.8%) and San Diego (7.3%).

Figure 3.5: Percentage of residents with degree level qualifications

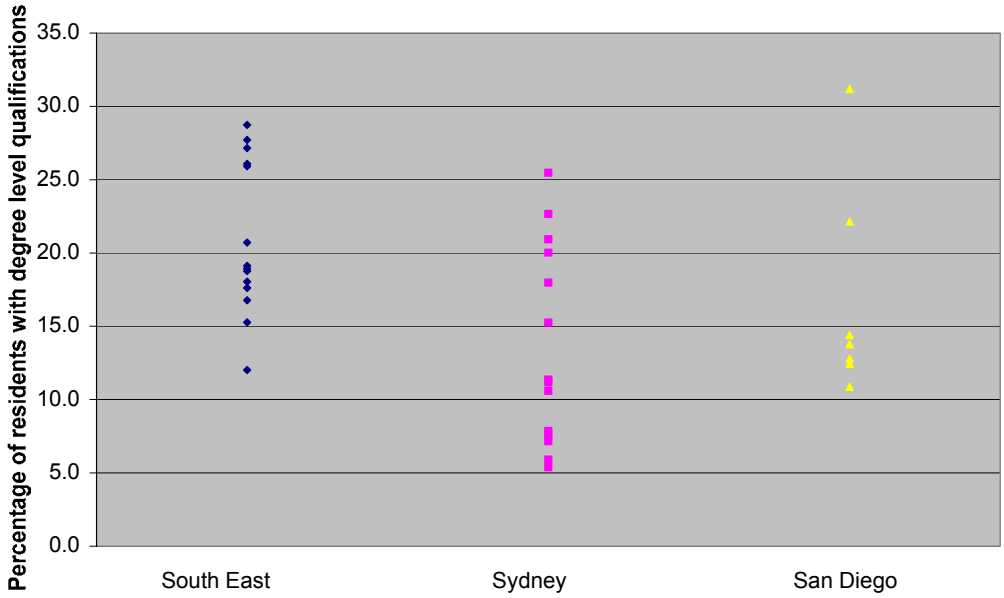


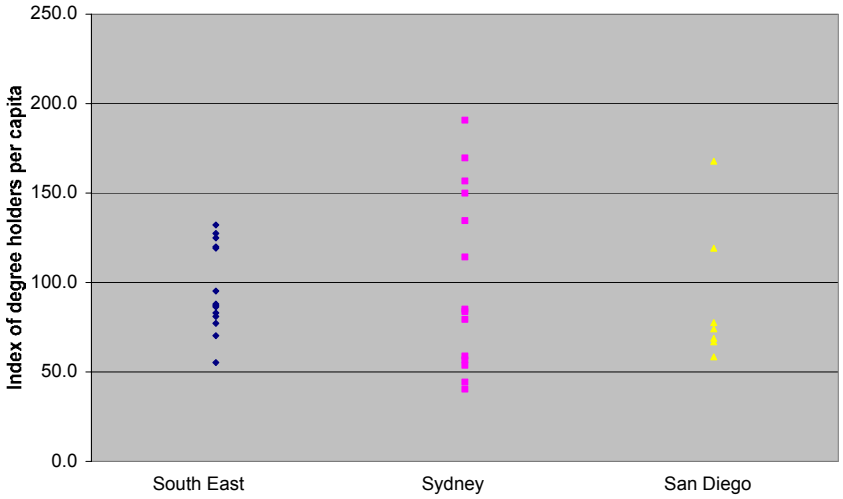
Table 3.10: Index of degree holders per capita

South East England	2001 Index (South East = 100)	Sydney	2001 Index (Sydney = 100)	San Diego	2000 Index (San Diego = 100)
Brighton and Hove	132.1	Lower Northern Sydney	190.7	North City	167.8
Oxfordshire	127.4	Eastern Suburbs	169.7	North County	119.1
Surrey	124.9	Inner Sydney	156.8	Central	77.5
Berkshire	119.9	Central Northern Sydney	149.9	North County East	74.1
Buckinghamshire	119.2	Inner Western Sydney	134.6	East Suburban	68.8
Hampshire	95.3	Northern Beaches	114.2	East County	66.9
West Sussex	87.9	Geoge-Sutherland	85.1	South Suburban	58.5
Milton Keynes	87.1	Outer South Western Sydney	83.8		
Southampton	86.3	Central Western Sydney	79.3		
East Sussex	82.9	Outer Western Sydney	58.9		
Portsmouth	81.0	Canterbury-Bankstown	56.7		
Kent	77.1	Blacktown	53.6		
Isle of Wight	70.2	Gosford-Wyong	44.3		
Medway	55.3	Fairfield-Liverpool	40.3		

Source: Neighbourhood Statistics, UK Office of National Statistics; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Due to different methods of defining educational attainment it is not always relevant to compare rates of achievement. The index of the ratio of degree holders more clearly demonstrates the pattern of talent concentration in San Diego and Sydney. In San Diego, while two sub-regions have considerably higher rates than the average, five other sub-regions are well below the average. The sub-regions of Sydney are scattered in a wide range from 190.7 to 40.3. In comparison, South East England's sub-regions are in a much smaller range from 132.1 to 55.3.

Figure 3.6: Index of degree holders per capita



Employment by industry

Employment in Manufacturing

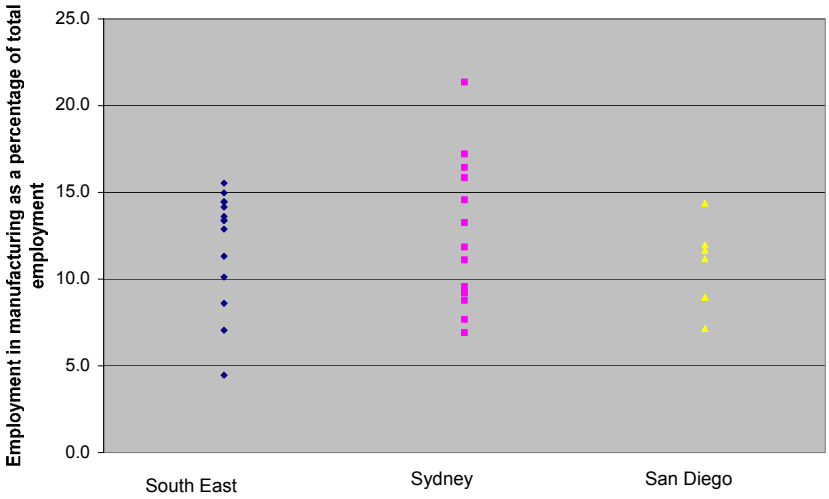
All the three regions within the study have a similar proportion employment in manufacturing on the regional scale. However, intra-regional differences are significant in all the three regions. Fairfiled-Liverpool SSD in Sydney has the highest proportion of manufacturing employment at 21.4%, while Brighton and Hove in South East England has the lowest ratio at 4.5%.

Table 3.11: Employment in manufacturing as a percentage of total employment

South East England	2000 (%)	Sydney	2001 (%)	San Diego	2000 (%)
Isle of Wight	15.5	Fairfield-Liverpool	21.4	North County East	14.4
Hampshire CC	15.0	Blacktown	17.2	North City	12.0
Buckinghamshire CC	14.5	Outer South Western Sydney	16.4	North County	11.7
Medway	14.4	Canterbury-Bankstown	15.9	South Suburban	11.2
Oxfordshire	14.2	Central Western Sydney	14.6	Central	9.0
East Sussex CC	13.6	Outer Western Sydney	13.3	East Suburban	8.9
Milton Keynes	13.4	Geoge-Sutherland	11.8	East County	7.2
Kent CC	13.4	Gosford-Wyong	11.1		
West Sussex	12.9	Northern Beaches	9.6		
Portsmouth	11.3	Central Northern Sydney	9.3		
Berkshire	10.1	Inner Western Sydney	9.2		
Southampton	8.6	Inner Sydney	8.8		
Surrey	7.0	Lower Northern Sydney	7.7		
Brighton and Hove	4.5	Eastern Suburbs	6.9		

Source: Annual Business Inquiry, Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Figure 3.7: Employment in manufacturing as a percentage of total employment



In terms of the index of manufacturing employment, Sydney has the largest range of index values at 118.8, San Diego has the smallest range of index values at 65.6, South East England has a range of 93.1. The standard deviations of the indices tell the same story. The South East sub-regions have a standard deviation of 27.8, compared to 34.8 for Sydney and 21.9 for San Diego.

Table 3.12: Index of employment in manufacturing as a percentage of total employment

South East England	2001 Index (South East = 100)	Sydney	2001 Index (Sydney = 100)	San Diego	2000 Index (San Diego = 100)
Isle of Wight	130.6	Fairfield-Liverpool	175.6	North County East	130.6
Hampshire CC	125.9	Blacktown	141.5	North City	108.7
Buckinghamshire CC	121.6	Outer South Western Sydney	135.2	North County	106.0
Medway	121.5	Canterbury-Bankstown	130.3	South Suburban	101.5
Oxfordshire	119.0	Central Western Sydney	119.8	Central	81.3
East Sussex CC	114.5	Outer Western Sydney	109.0	East Suburban	81.2
Milton Keynes	112.6	Geoge-Sutherland	97.4	East County	65.0
Kent CC	112.4	Gosford-Wyong	91.3		
West Sussex	108.3	Northern Beaches	78.7		
Portsmouth	95.1	Central Northern Sydney	76.1		
Berkshire	85.1	Inner Western Sydney	75.7		
Southampton	72.3	Inner Sydney	72.1		
Surrey	59.2	Lower Northern Sydney	63.1		
Brighton and Hove	37.5	Eastern Suburbs	56.8		

Source: Annual Business Inquiry, Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Employment in Services

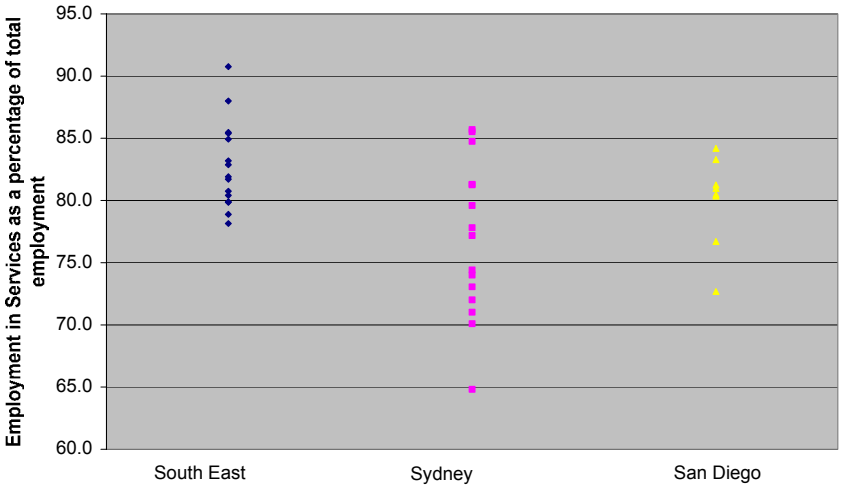
Not surprisingly, service activities are the main employers in all three regions, represented by the proportion of employment in services of 82.9%, 77.2% and 81.0% for the South East, Sydney and San Diego respectively. Within South East England, Brighton and Hove has the highest ratio at 90.8% and the Isle of Wight has the lowest ratio at 78.1%. Sydney's sub-region employment shares range from 85.7% in the Eastern Suburbs to 64.8% in Fairfield-Liverpool. In San Diego employment shares range from 84.2% in Central to 72.7% in North County East.

Table 3.13: Employment in services as a percentage of total employment

South East England	2001 (%)	Sydney	2001 (%)	San Diego	2000 (%)
South East	82.9	Sydney	77.2	San Diego	81.0
Brighton and Hove	90.8	Eastern Suburbs	85.7	Central	84.2
Surrey	88.0	Lower Northern Sydney	85.5	North City	83.3
Berkshire	85.5	Inner Sydney	84.8	South Suburban	81.2
Southampton	85.4	Inner Western Sydney	81.3	North County	80.5
Portsmouth	84.9	Central Northern Sydney	81.3	East Suburban	80.4
Milton Keynes	83.2	Northern Beaches	79.6	East County	76.7
Buckinghamshire CC	81.9	Geoge-Sutherland	77.8	North County East	72.7
West Sussex	81.7	Gosford-Wyong	74.4		
Kent CC	80.7	Central Western Sydney	74.0		
Oxfordshire	80.4	Outer Western Sydney	73.1		
East Sussex CC	79.9	Canterbury-Bankstown	72.0		
Medway	79.9	Blacktown	71.0		
Hampshire CC	78.9	Outer South Western Sydney	70.1		
Isle of Wight	78.1	Fairfield-Liverpool	64.8		

Source: Annual Business Inquiry, Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Figure 3.8: Employment in services as a percentage of total employment



Employment in High-Tech Services

High-technology services (represented in the study by communications services, incorporating telecommunications and ICT related industries) are an important part of any developed economy and this certainly holds for the three regions within this study. However, as figure 3.9 shows, high technology employment is not equally distributed within the regions. This is particularly the case for South East England and San Diego. In Sydney, however, sub-regions have more similar employment ratios in the communication services sector. The standard deviations of the indices are 52.8, 15.3 and 24.2 for South East England, Sydney and San Diego respectively.

Table 3.14: Employment in high-technology services as a percentage of total employment

South East England	2000 (%)	Sydney	2001 (%)	San Diego	2000 (%)
Berkshire	5.8	Lower Northern Sydney	3.0	North City	4.4
Milton Keynes	3.5	Blacktown	2.9	North County	3.6
Brighton and Hove	2.8	Canterbury-Bankstown	2.8	Central	3.4
Portsmouth	2.4	Inner Sydney	2.7	East Suburban	3.0
Southampton	2.2	Central Western Sydney	2.6	South Suburban	3.0
Hampshire CC	2.0	Inner Western Sydney	2.5	North County East	2.5
West Sussex	1.9	Fairfield-Liverpool	2.4	East County	1.8
Kent CC	1.8	Geoge-Sutherland	2.2		
Medway	1.6	Eastern Suburbs	2.1		
Oxfordshire	1.6	Central Northern Sydney	2.1		
Surrey	1.5	Northern Beaches	2.1		
Buckinghamshire CC	1.4	Outer South Western Sydney	2.0		
East Sussex CC	1.1	Gosford-Wyong	2.0		
Isle of Wight	0.9	Outer Western Sydney	1.9		

Source: Annual Business Inquiry, Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Figure 3.9 Employment in high-technology services as a percentage of total employment

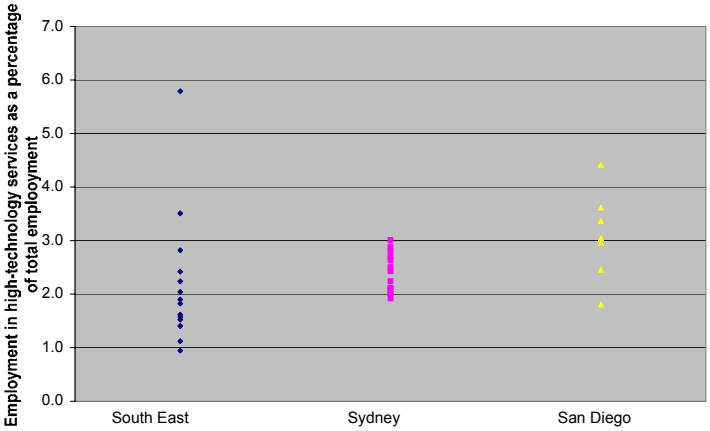


Table 3.15: Index of Employment in high-technology services as a percentage of total employed persons

South East England	2000 Index (South East = 100)	Sydney	2001 Index (Sydney = 100)	San Diego	2000 Index (San Diego = 100)
Berkshire	247.4	Lower Northern Sydney	126.4	North City	127.9
Milton Keynes	149.8	Blacktown	120.8	North County	104.7
Brighton and Hove	120.5	Canterbury-Bankstown	117.9	Central	97.5
Portsmouth	103.4	Inner Sydney	113.2	East Suburban	88.1
Southampton	95.7	Central Western Sydney	110.6	South Suburban	85.8
Hampshire CC	87.2	Inner Western Sydney	105.2	North County East	71.2
West Sussex	81.2	Fairfield-Liverpool	102.0	East County	52.3
Kent CC	77.9	Geoge-Sutherland	94.2		
Medway	69.1	Eastern Suburbs	89.1		
Oxfordshire	67.1	Central Northern Sydney	88.6		
Surrey	65.1	Northern Beaches	87.7		
Buckinghamshire CC	60.0	Outer South Western Sydney	84.5		
East Sussex CC	47.9	Gosford-Wyong	84.5		
Isle of Wight	40.4	Outer Western Sydney	80.7		

Source: Annual Business Inquiry, Nomis; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Housing

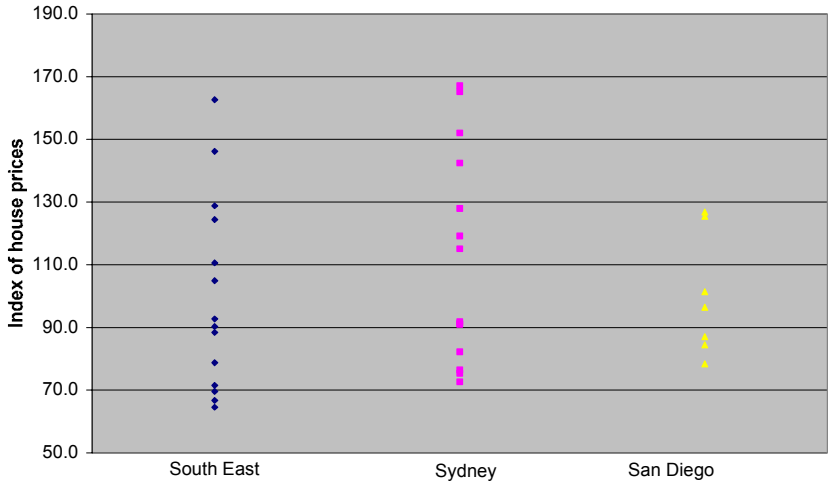
House prices reflect the vibrancy of local economies, and therefore, disparities in house prices are one of the most direct indicators of intra-regional disparities. As shown in figure 3.10, the dispersions of house prices are enormous in all three cases, especially in South East England and Sydney.

Table 3.15 Index of median house price

South East England	2001 Index (South East = 100)	Sydney	2002 Index (Sydney = 100)	San Diego	Index of House Price, 2000 (San Diego = 100)
Surrey	162.6	Northern Beaches	167.1	North City	126.8
Buckinghamshire	146.2	Eastern Suburbs	165.2	North County	125.5
Berkshire	128.8	Central Northern Sydney	152.1	North County East	101.4
Oxfordshire	124.4	Lower Northern Sydney	142.5	East Suburban	96.4
Hampshire	110.6	Inner Western Sydney	127.9	South Suburban	87.1
West Sussex	104.9	Inner Sydney	119.2	Central	84.5
Brighton and Hove	92.7	Geoge-Sutherland	115.1	East County	78.4
Kent	90.3	Central Western Sydney	91.8		
East Sussex	88.4	Blacktown	91.2		
Milton Keynes	78.7	Canterbury-Bankstown	91.0		
Southampton	71.5	Fairfield-Liverpool	82.2		
Isle of Wight	69.6	Gosford-Wyong	76.4		
Portsmouth	66.7	Outer Western Sydney	75.3		
Medway	64.5	Outer South Western Sydney	72.6		

Source: UK Office of National Statistics; Rent and Sales Report, New South Wales Department of Housing; Data Warehouse, San Diego Association of Governments

Figure 3.10 Index of median house price



Occupational Profile

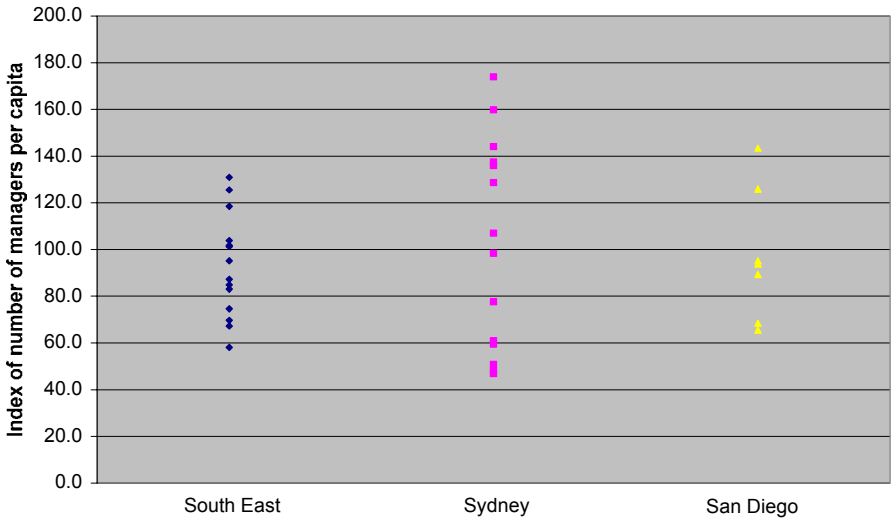
The existence of a large, highly skilled, professionally qualified workforce, particularly in the areas of science and technology, determine the future economic prosperity of regions. Workers with managerial responsibilities whose role it is to stimulate innovation with a firm also have a large influence on the economic prospects on an area. Hence, professionals and managers are often termed as "knowledge workers". Their spread across sub-regions, becomes an important factor in examining intra-regional disparities. As figure 3.11 shows, whilst South East England shows significant dispersions in the geographic locations of management positions, the dispersions in Sydney and San Diego are even larger.

Table 3.16 Index of number of managers per capita

South East England	2001 Index (South East = 100)	Sydney	2001 Index (Sydney = 100)	San Diego	2000 Index (San Diego = 100)
Buckinghamshire	130.9	Lower Northern Sydney	173.9	North City	143.5
Surrey	125.5	Central Northern Sydney	159.8	North County	125.9
Berkshire	118.5	Northern Beaches	144.1	East County	95.2
Oxfordshire	103.9	Outer South Western Sydney	137.4	East Suburban	93.8
Milton Keynes	101.7	Eastern Suburbs	135.9	North County East	89.4
Hampshire	101.3	Inner Sydney	128.6	South Suburban	68.5
West Sussex	95.2	Inner Western Sydney	107.0	Central	65.5
Brighton and Hove	87.2	Geoge-Sutherland	98.3		
Kent	84.9	Outer Western Sydney	77.6		
East Sussex	83.0	Gosford-Wyong	60.9		
Medway	74.6	Central Western Sydney	59.4		
Isle of Wight	69.7	Blacktown	50.8		
Portsmouth	67.3	Canterbury-Bankstown	48.1		
Southampton	58.1	Fairfield-Liverpool	46.9		

Source: UK Office of National Statistics; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Figure 3.11 Index of number of managers per capita



Professionals

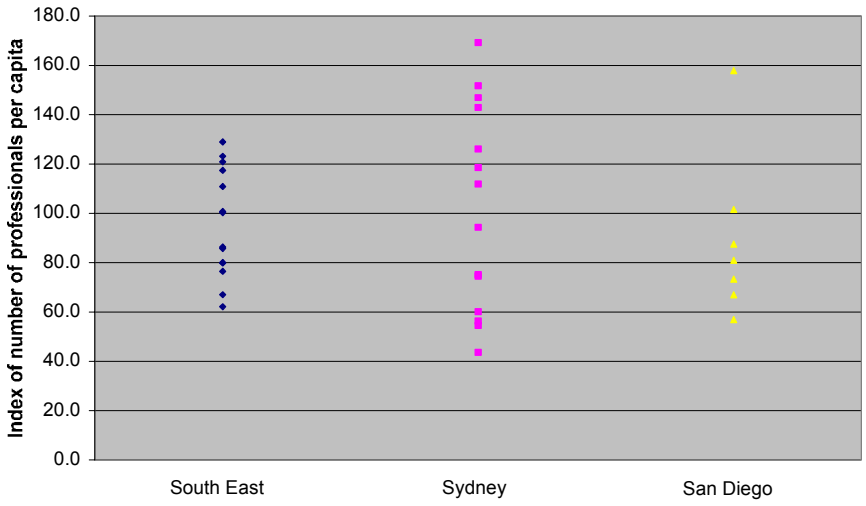
The index of number of professional occupations as a proportion of population tells a similar story. In terms of dispersion, Sydney, San Diego and South East England display sub-regional standard deviations of 41.8, 33.5 and 21.9 respectively in terms of their index of number of professionals per capita.

Table 3.17 Index of number of professionals per capita

South East England	2001 Index (South East = 100)	Sydney	2001 Index (Sydney =100)	San Diego	2000 Index (San Diego =100)
Oxfordshire	129.0	Lower Northern Sydney	169.3	North City	157.9
Berkshire	123.2	Eastern Suburbs	151.7	North County	101.6
Surrey	120.9	Inner Sydney	147.0	East Suburban	87.5
Brighton and Hove	117.5	Central Northern Sydney	142.9	Central	81.0
Buckinghamshire	110.9	Inner Western Sydney	126.1	North County East	73.3
Hampshire	100.7	Northern Beaches	118.5	South Suburban	66.9
Milton Keynes	100.2	Outer South Western Sydney	111.9	East County	57.0
West Sussex	86.3	Geoge-Sutherland	94.4		
Southampton	85.8	Central Western Sydney	75.2		
Portsmouth	80.1	Outer Western Sydney	74.5		
Kent	79.8	Gosford-Wyong	60.1		
East Sussex	76.5	Canterbury-Bankstown	56.3		
Medway	67.0	Blacktown	54.5		
Isle of Wight	62.1	Fairfield-Liverpool	43.6		

Source: UK Office of National Statistics; Basic Community Profiles, Australian Bureau of Statistics; Data Warehouse, San Diego Association of Governments

Figure 3.11 Index of number of professionals per capita



6. Summary of Findings

South East England has the lowest level of GDP per capita, earnings, population growth, output growth, employment in manufacturing, and employment in construction amongst the three regions of study.

However, South East England performs better in terms of unemployment (the South East has the lowest levels of unemployment amongst the three regions) and Finance and Business Employment – again the region has the highest proportion of employment within this sector in comparison with San Diego and Sydney.

The South East has particular disparities (in comparison with San Diego and Sydney) within

- Unemployment Rates
- Economic Activity
- Employment Rates
- Employment in High-Tech Services
- House Prices

7. San Diego and Sydney – Characteristics of the sub-regional economies

So far we have found significant variations amongst the sub-regional economies of South East England, San Diego and Sydney. This section of the report will seek to find out how the sub-regional economies of Sydney and San Diego operate, and what this means for economic development in South East England. The key question we need to ask is: What causes the variation in the sub-regional economies?

Skills and Qualifications

The relationship between a regions economic performance and the skill and education level of its workforce is well known - the higher the skills the richer the region. It is more difficult to assume that the same is true for a sub-region, due to the smaller geographical area covered by a sub-region. However, as illustrated in figure 4.1 below we find that there is a significant relationship between the levels of skills and income growth.

Figure 4.1 Relationship between income growth and number of degree holders, San Diego

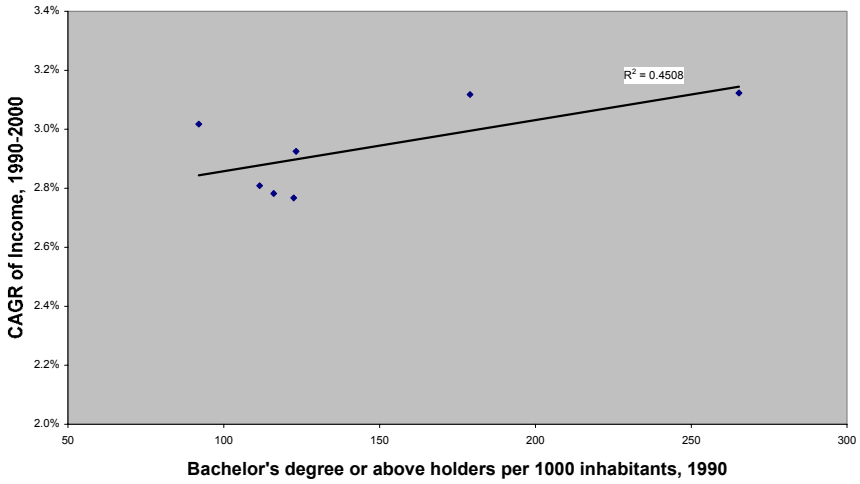
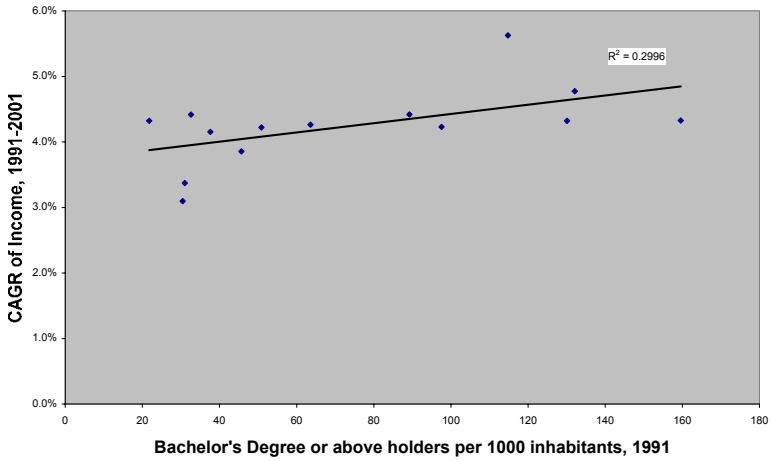


Figure 4.2 Relationship between income growth and number of degree holders, Sydney



As centres of high-tech employment in the US and Australia, San Diego and Sydney both attract and maintain a highly qualified workforce. However, the distribution of the population holding a degree or equivalent qualification is not spread equally across sub-regions of Sydney and San Diego. Within San Diego we can see that North City, which enjoys the highest income growth, is also the sub-region with the highest density of Bachelor's degree holders. Notably, we find significant positive associations between income growth and number of degree holders in both San Diego and Sydney.

The San Diego region has seen the technology and biotechnology sectors flourish. Since 1990, these industries have been among the most important drivers of the San Diego economy. According to a report by San Diego Economic Development Corporation, the biotechnology and pharmaceutical cluster has increased from 11,267 jobs to 22,999 within the metropolitan boundaries of the city between the years 1990 and 2000. The communications, computer and electronics, and software industries have also seen spectacular growth, adding more than 20,000 net new jobs between 1990 and 1998. It is important to note that these fast growing sectors are reliant on a highly education and skilled workforce, and as a result the sub-regional endowment of skills and qualifications has a significant effect on the sub-regional economies of San Diego and Sydney.

From this perspective, the level of workforce education is the one of the most important components of the knowledge base of the sub-regional economies of San Diego and Sydney.

Employment

The proportion of professional occupations within a workforce is another factor that contributes towards the intra-regional disparities of San Diego and Sydney. As illustrated in figure 4.3, the number of professionals per 1000 inhabitants varies considerably across San Diego and Sydney. Moreover, there is a significant and positive relationship between income growth and proportion of professional occupations within a workforce. Furthermore, the number of professionals increased dramatically in the 1990's for all sub-regions, as a result of changes in sub-regional sectoral composition. We also find strong link between income growth and the number of managers across San Diego sub-regions as showed in figure 4.5 below.

Figure 4.3 Relationship between income growth and no of professionals, San Diego

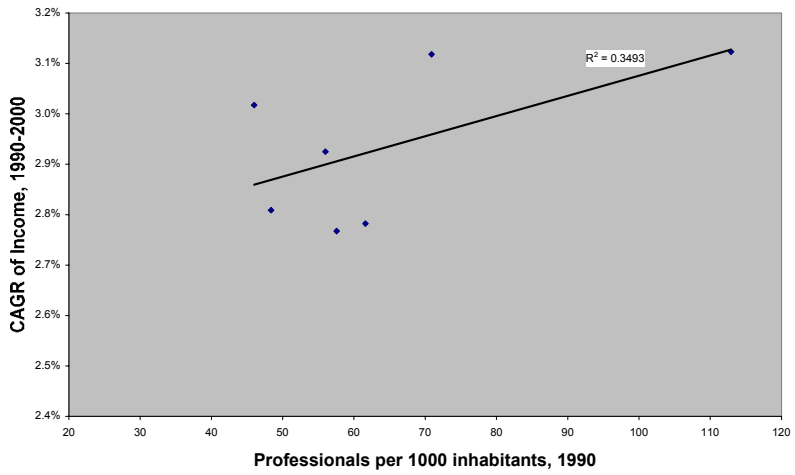


Figure 4.4 Relationship between income growth and number of professionals, Sydney

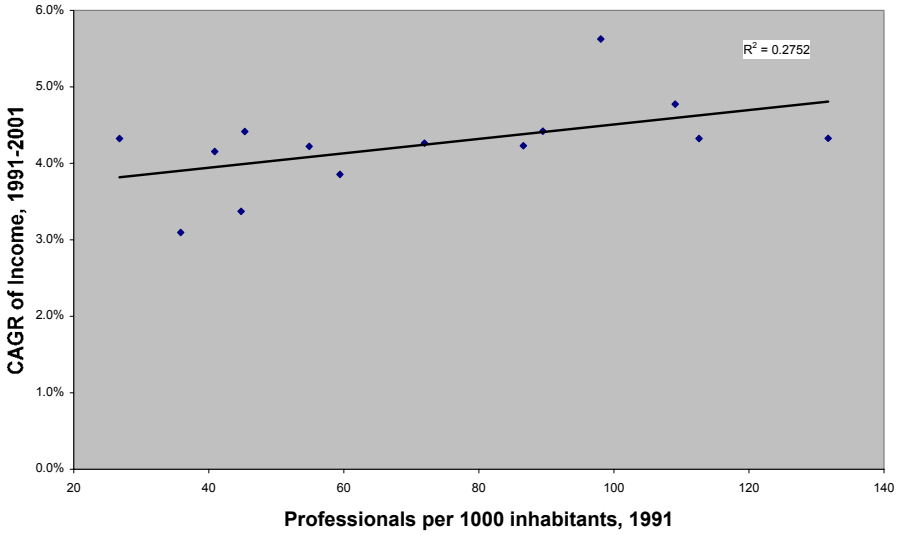


Figure 4.5 Relationship between income growth and number of managers, San Diego

Figure 4.6 shows the employment in finance, insurance and real estate across San Diego's sub-regions. Interestingly, North City which enjoys the highest income growth, has the largest proportion

of employees in this industry, while East Suburban and East County which have the lowest growth rates, also possess smallest percentage of Finance employees.

Thanks to the boosting tourism industry, employment in accommodation, cafes, and restaurants increased quickly from 1991 to 2001 in the sub-regional economies of Sydney (as illustrated in figure 4.7 below), becoming a driver of economic growth in the city. Interestingly, employment in cultural and recreational services is also seen to be highly correlated with income growth, indicating that this sector has also become an important economic driver across Sydney sub-regions.

Figure 4.6 Relationship between income growth and employment in finance, insurance and real estate per 1000 residents, San Diego

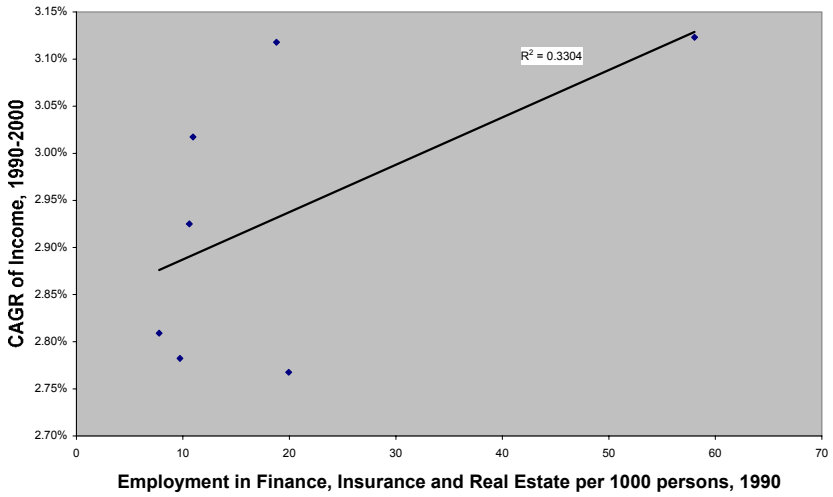


Figure 4.7: Relationship between income growth and employment in tourist activities per 1000 residents, Sydney

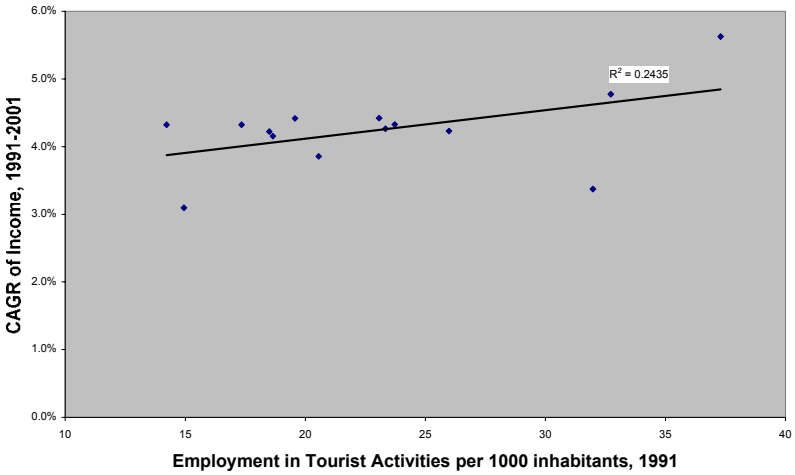
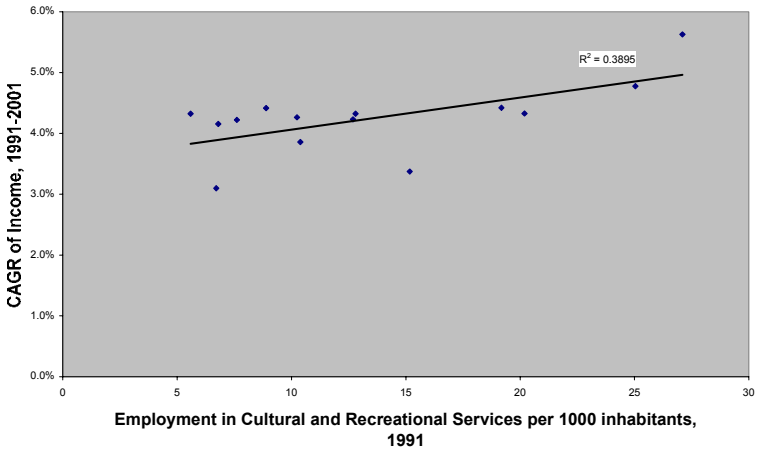


Figure 4.8: Relationship between Employment in Cultural and Recreational Services and Income Growth, Sydney

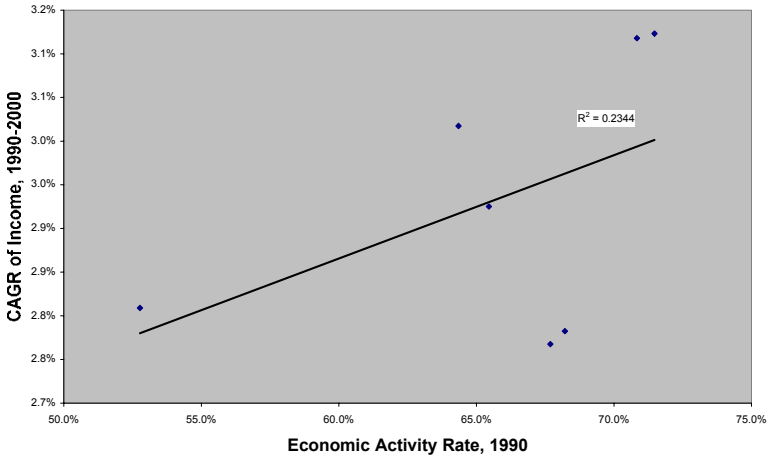


Labour Market

Economic activity rate, which is the labour force as a proportion of the working age population, displays a significant relationship with income growth. For both regions, significant differentials exist in terms of economic activity, suggesting that sub-regions have very different demographic natures across San Diego and Sydney.

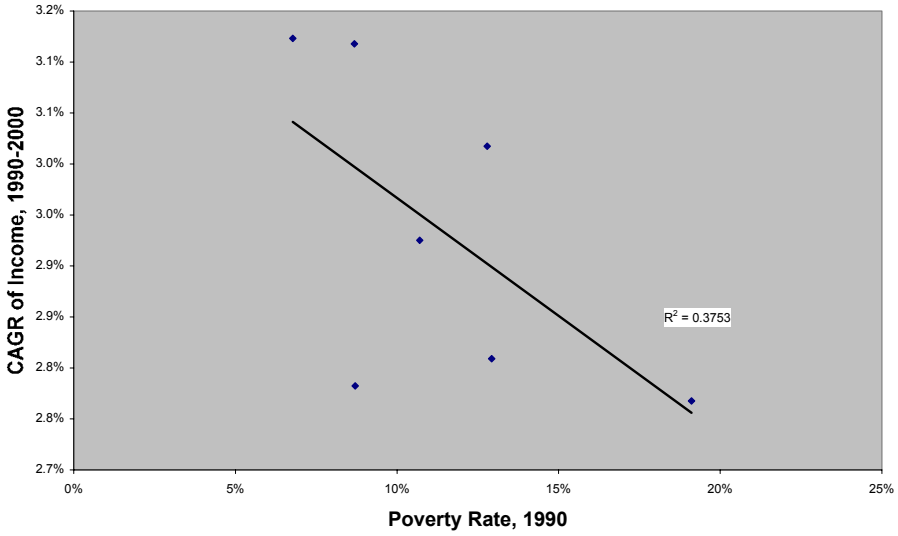
Interestingly, a strong positive link is seen between income growth and economic activity rate in San Diego, with a high R-square value of 0.6014, indicating that labour force characteristics are highly associated with economic growth in this area. However, we cannot find such significant relationship in the case of Sydney.

Figure 4.9 Relationship between income growth and economic activity rate, San Diego



Poverty is a barrier to economic growth. Even in as prosperous a region as San Diego, poverty is still a critical issue. In 2000, poverty rates ranged from 8% to 21% across the San Diego sub-regions, indicating a large disparity. Furthermore, the increase in poverty rates from 1990 to 2000 in all localities suggests that inequality of income distribution worsened over the ten years. Despite a decade of continuous economic growth, a significant proportion of population has been unable to share the benefits. Figure 4.10 illustrates the negative association between income growth and poverty. The sub-regions with higher poverty rates suffered lower growth rates

Figure 4.10 Relationship between income growth and poverty, San Diego



8.Summary of San Diego and Sydney's sub-regional economies

Within Sydney and San Diego we have found that:

- Significant intra-regional disparities are found in both in San Diego and Sydney.
- Income growth is closely linked to the qualification levels of local residents. The higher the quality of the available workforce, the faster its income growth is likely to be.
- Income growth is significantly associated with the concentration of certain occupations, especially professionals and managers.
- Income growth is also associated with the clustering of specific sectoral activity, particularly the finance industry.

These characteristics (as documented within the RHA regional growth model) are broadly similar to those of South East England. It is clear that there are common issues driving forward the world's top performing regional economies and that skills and education lie at the heart of these issues. Furthermore, employment within knowledge-based businesses is also key to the development of a sub-regional economy. However, and somewhat surprisingly, we have found that tourism related activities are closely linked with increases in income for the Sydney's sub-regional economies.

Figures 4.12 and 4.13 below illustrate diagrammatically the drivers of disparities amongst the sub-regional economies of San Diego and Sydney.

Figure 4.12: Mechanism of intra-regional disparities, San Diego

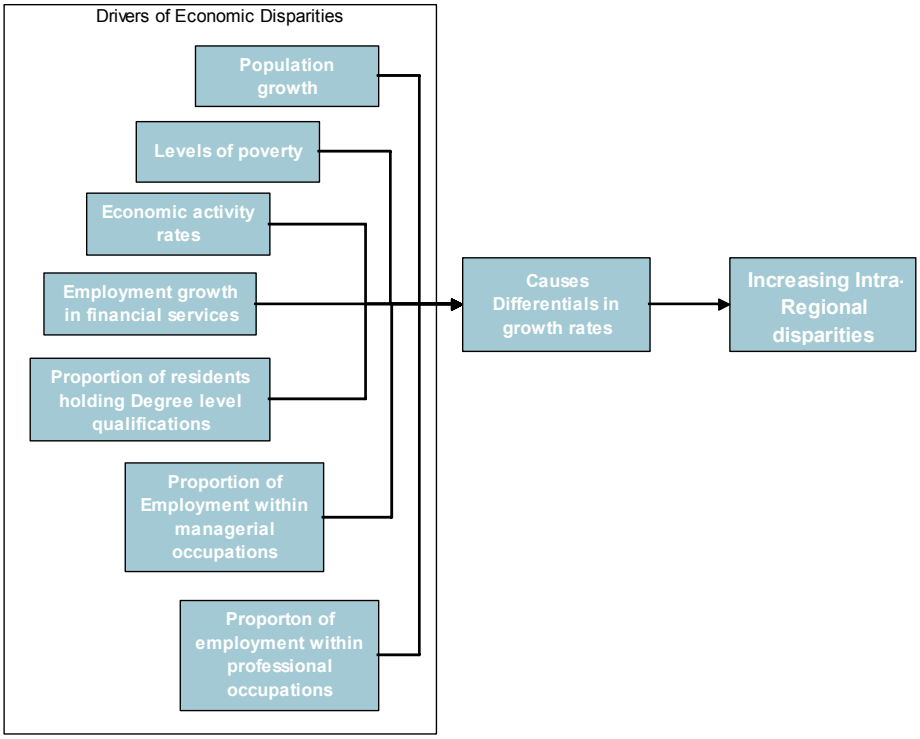
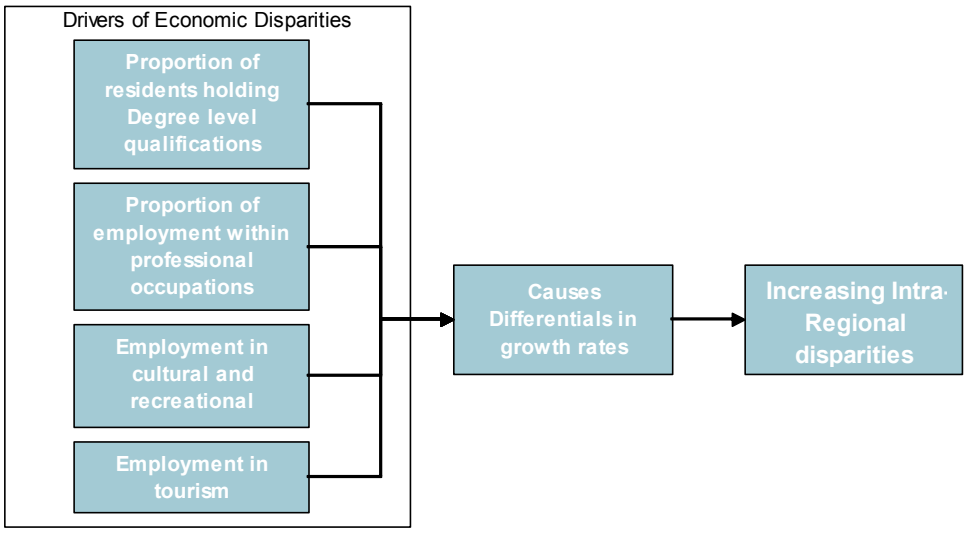


Figure 4.13: Mechanism of intra-regional disparities, Sydney



9.Conclusions

It is necessary to put the empirical study of the regions in the context of economic development. Developed economies have entered what has been labelled a 'post-industrial' era. The structures of modern economies and the way in which growth is achieved is remarkably different now than it was fifty years ago. Just as the shift to an industrialised economy required structural shifts from agricultural to manufacturing functions, the 'post-industrial' economy is characterised by shifts towards tertiary and business services activities.

San Diego, Sydney and South East England are all in this category. They may be diverse in many ways but all three have undergone similar processes and similar structural shifts. One of the interesting facets of the empirical analysis is the similarity in the employment structures of the three regions:

- All three are dominated by service activity.
- All three have larger business and finance sectors than manufacturing sectors.
- As we have seen diversity lies not across the regions but within them.

The first and second industrial revolutions are as much technological revolutions as anything else. The unique nature of the modern economy is the role played by knowledge in the production process. Technological developments have been evident in the information revolution and the digital age. In addition, knowledge creation and innovation is now seen as vital for commercial success. Business success is a driver of positive economic outcomes. As a result, within the knowledge economy the labour force is key. Its importance is both in its bulk and perhaps more importantly its quality. A greater proportion of occupations are involved in high technology sectors and a greater proportion of occupations can be described as professional or managerial. There has been a significant shift from manual labour to screen based and, more often than not, knowledge-based activity. Structural shifts take place when economies are able to take advantage of growth potentialities within new sectors. It is desirable and profitable therefore for shifts in structure towards high value added sectors. High technology and high skill sectors are undoubtedly high value added sectors. Growth potentialities exist in these areas. Taking advantage of these potentialities depends on the existence of a relevant skills based and the ability to organise these skills into these areas.

Knowledge creation is the realm of human capital. In this study innovation is represented by research and development and patent activity. The maintenance of a highly skilled workforce is necessary to translate this 'knowledge capital' into economic outcomes. Evolution of economic theory has reflected these real world developments. Growth strategies are no longer based on building a greater and greater capital and labour stocks. This 'growth accounting' approach has been superseded by the new growth theory of Romer et al. The emphasis is now on 'human capital', reflecting the quality of labour. Supply side economics has embraced the importance of education, skills of the labour force.

The economics of Barro is also relevant here. Barro's concept of social capital provides a broader view of wealth creation. Barro's work focussed on reasons why developing economies failed to take advantage of catch up potential despite the mobility of capital. Its application here is in the economic effects of a high quality business environment, a highly 'liveable' environment and a high degree of social inclusion. In the context of a developed region the key is the creation of a fertile business environment providing the basis for long term, inclusive growth. The broader concept is one of sustainability.

All three of our regions on the wider scale achieved at least a respectable growth rate over the sample period. However analysis of the sub-regions has shown that significant disparities exist both in income levels and in growth rates. Inequality of economic outcomes is itself an area of concern. In addition these inequalities inflict on growth prospects for the whole region. Analysis of San Diego and Sydney show that richer sub-regions have tended to grow faster than poorer sub-regions. This suggests that disparities are widening. At the regional level while San Diego and Sydney have higher overall levels of GDP per capita than the South East, they have also have experienced higher growth rates. The neo-classical view that income levels are negatively correlated with growth rates seems invalid for these developed regional economies.

The need for sub-regional analysis is clear. The extent of sub-regional disparities shows that regional quality of life indicators do not give the full picture. The current situation in South East England is unsustainable due to high levels of economic disparity. Unemployment levels in certain sub-regions are high despite low overall levels. Poverty levels in certain regions are also significantly higher than average. High paid occupations are clustered in certain areas. The geographic bias of economic outcomes is clear. Living costs are fairly high in the region as demonstrated by house prices.

The way forward for the South East is in promoting growth across the board. The drivers of such growth will be largely the quality of knowledge inputs and the successful transfer of inputs into commercial success in the private sector and productivity improvements in the public sector.

The South East currently has a fairly high quality skills base amongst its workforce. The proportion of residents with degree level qualifications is higher than both Sydney and San Diego. In addition the standard deviation of degree holders across regions was lower than in the South East. These facts suggest a lack of transfer of such a knowledge base into wide ranging success. The more concerning aspects of this report is the lack of research and development and patent activity and the significant clustering of high value added industry and occupations.

The South East must retain talented workers and provide an environment in which the labour force has every opportunity to take advantage of potential areas of growth. The South East must avoid as far as possible a geographic bias in the location of high value added business that furthers disparities in economic outcomes.

Regional and Sub-regional economic growth is a two-way relationship. Fostering inclusive outcome and evenly spread success provides the best possible environment for regional growth. Higher growth allows policy makers to institute economically inclusive measures. The current situation of sub-regional disparity in the South East endangers future performance.