

World Knowledge Competitiveness Index 2005



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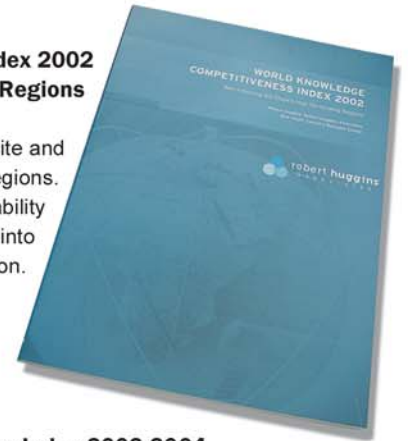
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The World Knowledge Competitiveness Index 2002 Benchmarking the Globe's High Performing Regions

The World Knowledge Competitiveness Index 2002 is the first composite and relative measure of the knowledge economies of the globe's best performing regions. It represents an integrated and overall benchmark of the knowledge capacity, capability and sustainability of each region and the extent to which this knowledge is translated into economic value and transferred into the wealth of the citizens of each region.



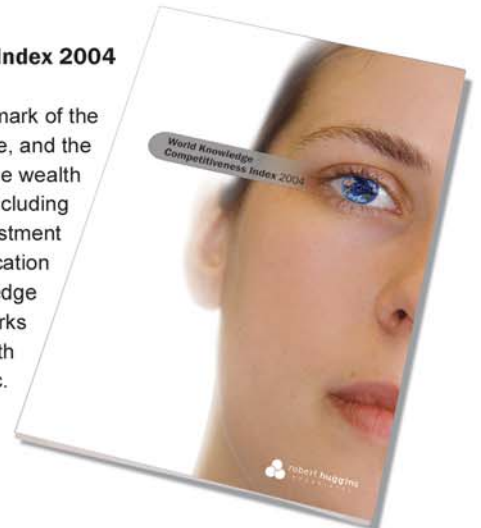
The World Knowledge Competitiveness Index 2003-2004

The World Knowledge Competitiveness Index 2003-2004 is the most up-to-date measure of the knowledge-based development taking place across the world's leading regions. This new report represents the second annual publication of the World Knowledge Competitiveness Index, the first composite and relative measure of the knowledge capacity, capability and sustainability of each region, and the extent to which this knowledge is translated into economic value, and transferred into the wealth of the citizens of each region.



The World Knowledge Competitiveness Index 2004

The World Knowledge Competitiveness Index 2004 is an integrated and overall benchmark of the knowledge capacity, capability and sustainability of 125 regions across the globe, and the extent to which this knowledge is translated into economic value, and transferred into the wealth of the citizens of these regions, utilising 19 knowledge economy benchmarks, including employment levels in the knowledge economy, patent registrations, R&D investment by the private and public sector, education expenditure, information and communication technology infrastructure, and access to private equity. The World Knowledge Competitiveness Index 2004 is the only existing instrument that benchmarks such regional performance at a global level, with index comprising of 55 North American regions, 45 from Europe and 25 from Asia-Pacific.



The European Competitiveness Index 2004

This report, and its accompanying searchable bench-marking CD-ROM, represents the inaugural annual edition of the European Competitiveness Index, produced and published by Robert Huggins Associates. As the founders of the World Knowledge Competitiveness Index and the UK Competitiveness Index, we have an unrivalled record for developing competitiveness indices and benchmarking instruments that proactively inform both policymaking and investment decision-making.



The UK Competitiveness Index 2005 The Changing State of the Nation 1997 - 2005

The UK Competitiveness Index 2005 report represents the most up-to-date, thorough and authoritative benchmarking of the competitiveness of the UK's regions and localities, as well as setting UK competitiveness within an international context.

Since the UK Competitiveness Index was first introduced in 2000, the number of indicators and variables constituting the UK Regional and Local Competitiveness Indices has expanded. However, the fundamental methodology underlying them has remained the same. In this report we publish indices for 2005 (incorporating the most up-to-date data available) and retrospectively for 1997. This enables an examination of the changing competitiveness of the UK economy since 1997.



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This report represents the fourth annual publication of the World Knowledge Competitiveness Index (WKCI), the first composite and relative measure of the knowledge economies of the world's leading regions. The WKCI is an integrated and overall benchmark of the knowledge capacity, capability and sustainability of each region, and the extent to which this knowledge is translated into economic value, and transferred into the wealth of the citizens of each region. The WKCI compares 125 regions across 19 knowledge economy benchmarks. The results of this research are combined to produce a composite index of knowledge competitiveness.

San Jose in California heads the WKCI 2005, followed by the US regions of Boston, San Francisco and Hartford. Seattle takes fifth place with Grand-Rapids in sixth position. The highest ranked non-US region is Stockholm in Sweden, which climbs seven places up to eighth position. Tokyo (23rd) is the highest ranked region outside of North America and Europe.

The driving force behind San Jose's strength comes largely from the private sector - business R&D and private equity are very strong in the region. This is also supported by high quality research facilities (for example, Stanford University), which boosts the regions patents score, and heavy government investment in R&D (for example, NASA). This translates into a highly developed and concentrated knowledge economy, as demonstrated by the high levels of productivity, high earnings and very high employment in sectors such as the IT and instrumentation manufacturing industries.

Second placed Boston thrives on high levels of intellectual and financial capital. In recent times Boston has been in a period of uncertainty due to increased competition, the market value decline of many of its largest companies, and a state-level fiscal crisis. Despite such uncertainties, the region continues to show up well on most indicators. The Boston economy remains strong and has fundamental advantages that limit its vulnerability to economic shocks.

As well as Stockholm's significant rise, the Nordic regions in our rankings have almost all improved their rankings for the second year in a row. Both West Sweden (37th) and South Sweden (46th) move up, and are now competitive with the majority of US regions, while Denmark (up eleven places) and Norway (up two places) also perform strongly, and are now both only just outside the top fifty. Uusimaa (Helsinki) consolidates its phenomenal growth in recent years, falling just one place to 21st. This ranking is based on very high levels of knowledge-based employment and high levels of research and innovation.

At the bottom of the WKCI rankings we continue to find the Chinese, Indian and Eastern European regions - the lowest ranked being Bangalore (125th), Mumbai (124th) and Hyderabad (123rd). It is worth noting that the index scores for both Bangalore and Mumbai, although still very low, have once again increased this year. Amongst the lower ranking regions, Shanghai has certainly performed the best, more than doubling its index score this year.

This report represents the fourth annual publication of the World Knowledge Competitiveness Index (WKCI), the first composite and relative measure of the knowledge economies of the world's leading regions. The WKCI is an integrated and overall benchmark of the knowledge capacity, capability and sustainability of each region, and the extent to which this knowledge is translated into economic value, and transferred into the wealth of the citizens of each region. It has now become clear that 'knowledge' is the key ingredient underlying the competitiveness of regions, nations, sectors or firms across the globe.

The WKCI compares 125 regions across 19 knowledge economy benchmarks. This was expanded last year to include both private equity capital and broadband access statistics, and both of these indicators are again used this year. The results of this research are combined to produce a composite index of knowledge competitiveness. The series of benchmarks we establish identify the relative strengths and weaknesses of regional economies in terms of their knowledge capacity, capability and utilisation. The focus on the global benchmarking of regions is highly relevant, since there is an increasing appreciation that it is regions, rather than whole nations, that are competing in the global knowledge-based economy. Here we define the knowledge-base of an economy as:

'the capacity and capability to create and innovate new ideas, thoughts, processes and products, and to translate these into economic value and wealth.'

Conceptualising the Knowledge Economy

The conceptual model we employ to analyse regional knowledge economies, as illustrated by Figure 1.1, is a multi-linked cycle model representing knowledge creation and utilisation as well as capacity building. The model reflects the

latest thinking on the innovation process, which sees it as a process whereby agents in different domains (e.g. departments/divisions of private firms, universities, research laboratories and governments) interact with one another through feedback loops. We extend this thinking to the regional level and add a component that reproduces and sustains the whole system's innovative capacity.

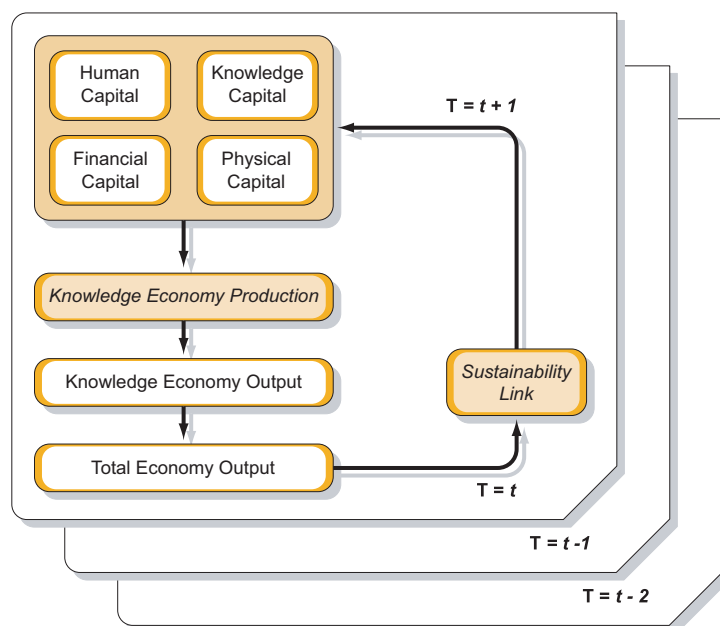
The model consists of four key components: (1) Capital Inputs; (2) Knowledge Economy Production; (3) Regional Economy Outputs (including Knowledge Economy Outputs); and (4) the Sustainability Link. Each of these components, with the exception of Knowledge Economy Production, has representative variables, while Knowledge Economy Production is regarded as a production function that transforms Capital Inputs into Regional Economy Outputs.

Capital Inputs consist of four groups: Knowledge Capital, Human Capital, Financial Capital, and Physical Capital. Until recently, economists tended to account for economic outputs, or growth, of geographic areas via measurements of 'capital' and 'labour'. 'Capital' refers to physical units of, or fixed investments in, production such as land, plants, machinery and equipment, while 'labour' is defined by the number of 'heads' in employment (or working population). Under this framework, a residual that cannot be explained by these two factors is often seen as an indicator of technical change.

This traditional accounting model has given way to new models, due to two key developments in economic theory: human capital theory and endogenous models of economic growth. Human capital theory recognises skills and expertise gained through education and training as investment made by, and embodied in, individuals. This is a departure from the traditional models of economic growth that do not distinguish any differences between individuals. Endogenous economic growth theory views the accumulation of knowledge as a key source of long-run economic growth, and acknowledges the creation of knowledge by private-sector firms, through a

Conceptualising the Regional Knowledge Economy

figure 1.1



Schumpeterian competition (i.e. temporary monopoly of economic gains deriving from new knowledge by its inventor), as an internal (i.e. endogenous) factor.

The four groups of Capital Inputs in our model incorporate these developments in economic theory. While Physical Capital refers to capital in the traditional parlance of economics, Financial Capital emphasises the liquidity of financial resources mobilised into new areas of growth and knowledge (e.g. products, sectors, industries) through sources such as venture capital. Knowledge Capital is the raw material of the knowledge economy, referring to the region's capacity for, or its resources aimed at, creating new ideas. Ideas in this realm are not necessarily created with consideration for commercial applications, with the sources of such new ideas ranging from universities and research establishments to firms, individuals and other organisations. Included as a form of Knowledge Capital is the intermediary throughput, produced during the course of converting knowledge into commercial values. Finally, Human Capital indicates the capacity of individuals in a region to create, understand and utilise knowledge for the creation of commercial values.

The combination of the four types of capital within the region results in the production of knowledge-based goods and services containing high value-added. These knowledge-based goods and services, which we term Knowledge Economy Outputs, form part of the total outputs of the region's economic activity, Regional Economy Outputs. The distinction between Knowledge Economy Outputs and Regional Economy Outputs signifies our assumption that innovative knowledge outputs embodied in goods and services are not always translated evenly into the wealth the region's inhabitants will enjoy.

The cycle is completed by the requirement for Knowledge Sustainability. Unless part of the wealth created is re-invested into Capital Inputs, and particularly Knowledge Capital and Human Capital, to support their reproduction and further development, the medium to long-term prosperity of the regional economy will be undermined.

Research Design

The key factor underlying the selection of regions for benchmarking is their relative gross domestic product (GDP) per capita. In the main, the regions included are those that have achieved the highest output per capita across the globe during the recent period. However, there are a number of exceptions in the case of Asian regions, which although they do not currently have a GDP per capita as high as many of their North American and European counterparts, they have experienced a level of output growth that can be said to merit their inclusion. Of the 125 regions contained in the index there are 55 representatives from North America, 45 from Europe and 25 from Asia and Oceania.

European Regions

Brussels, Belgium
Vlaams Gewest, Belgium
Denmark
Baden-Württemberg, Germany
Bayern, Germany
Berlin, Germany
Bremen, Germany
Hamburg, Germany
Hessen, Germany
Niedersachsen, Germany
Nordrhein-Westfalen, Germany

Saarland, Germany
Schleswig-Holstein, Germany
Comunidad de Madrid, Spain
Noreste, Spain
Île de France, France
Centre-est, France
Ireland
Central, Italy
Emilia-Romagna, Italy
Lazio, Italy
Lombardia, Italy
North East, Italy
North West, Italy
Luxembourg
North, Netherlands
West, Netherlands
South, Netherlands
East, Austria
West, Austria
Uusimaa, Finland
Smaland Medoarna, Sweden
Stockholm, Sweden
South, Sweden
West, Sweden
Eastern, UK
London, UK
Scotland, UK
South East, UK
Norway
Switzerland
Bratislava, Slovak Republic
Budapest, Hungary
Prague, Czech Republic
Israel

North American Regions

Atlanta, US
Austin, US
Baltimore, US
Boston, US
Buffalo-Niagra Falls, US
Charlotte, US
Chicago, US
Cincinnati, US
Cleveland, US
Columbus, US
Dallas, US
Denver, US
Detroit, US
Grand Rapids, US
Greensboro-High Point, US
Hartford, US
Houston, US
Indianapolis, US
Jacksonville, US
Kansas city, US
Las Vegas, US
Los Angeles, US
Louisville, US
Memphis, US
Miami, US
Milwaukee, US
Minneapolis-St Paul, US
Nashville, US
New York, US
Orlando, US
Philadelphia, US
Phoenix, US
Pittsburgh, US
Portland, US
Raleigh-Cary, US

Riverside-San Bernardino, US
 Rochester, US
 Sacramento, US
 Salt Lake City, US
 San Antonio, US
 San Diego, US
 San Francisco, US
 San Jose, US
 Seattle, US
 St Louis, US
 Tampa, US
 Virginia, US
 Washington, US
 Alberta, Canada
 British Columbia, Canada
 Manitoba, Canada
 Ontario, Canada
 Quebec, Canada
 Saskatchewan, Canada

Asia/Oceania Regions

New South Wales, Australia
 Victoria, Australia
 Western Australia
 New Zealand
 Aichi, Japan
 Kanagawa, Japan
 Kyoto, Japan
 Osaka, Japan
 Shiga, Japan
 Shizuoka, Japan
 Tochigi, Japan
 Tokyo, Japan
 Toyama, Japan
 Seoul, Korea
 Ulsan, Korea
 Hong Kong
 Singapore
 Taiwan
 Beijing, China
 Pearl River Delta, China
 Shanghai, China
 Tianjin, China
 Bangalore, India
 Hyderabad, India
 Mumbai, India

The majority of European regions are based on the European Union's definition of regional units, NUTS-1. Due to this definition, some nations are included as regions (i.e. Denmark, Ireland, Luxembourg). Further, regions in Finland and Sweden are based on NUTS-2, a lower level of units. In addition, three non-EU member countries, Israel, Switzerland and Norway are included in the analysis. As with Denmark, Ireland and Luxembourg, these small nations are treated as regions. Also included are three regions from the European Union's new nations: Bratislava in the Slovak Republic; Budapest in Hungary and Prague in the Czech Republic

In previous reports, US regions have been based on the units called consolidated metropolitan statistical areas (CMSAs) and metropolitan statistical areas (MSAs). However, due to a major reclassification of the MSA system by US authorities, the CMSA classification has been dropped and all regions in this year's WKCI are classified as MSAs which, as defined by the US Census Bureau, consist of an area with a substantial population centre and adjacent counties having a high degree of economic homogeneity. Compared with counties, cities and states, the MSAs analysed in this study are more robust regional units for economic analysis as they reflect the boundaries of clusters of firms in related industries.

This reclassification of the MSA system has in turn led to a significant change in the population areas of the US regions analysed in this year's index, and it is important to take these changes into account when looking at changes in any US region's performance this year. Of particular note is the subdivision of some of the larger MSAs: San Francisco, the leading region for the last two years, has been subdivided into San Francisco and San Jose; Washington is now separated into Washington and Baltimore; Los Angeles into Los Angeles and Riverside-San Bernardino; and Cleveland into Cleveland and Akron (the later dropping out this year). Raleigh-Durham and Greensboro have also become significantly smaller, now being defined as Raleigh-Cary and Greensboro-High Point respectively. Akron, Durham, Oklahoma, New Orleans and Winston-Salem have dropped out to make way for the new regions. The remaining MSAs have retained their original names, although there has been a general downsizing in MSA size definitions. This has affected most MSAs to some extent, but in terms of gross population the changes have had a particular impact on New York (population reduced by 4 million), Boston (1.4 million), Detroit (1 million), Seattle and Philadelphia (both 0.5 million).

The Canadian regions are based on their defined provincial units. The Asian/Oceanic regions consist of prefectures in Japan and defined city boundaries for most other nations, as well as the inclusion of Taiwan, Singapore and New Zealand as region-states.

The variables selected for analysis are as follows:

Human Capital Components

- Economic Activity Rate
- Number of Managers per 1,000 inhabitants
- Employment in IT and Computer Manufacturing per 1,000 inhabitants
- Employment in Biotechnology and Chemicals per 1,000 inhabitants
- Employment in Automotive and Mechanical Engineering per 1,000 inhabitants
- Employment in Instrumentation and Electrical Machinery per 1,000 inhabitants
- Employment in High-Tech Services per 1,000 inhabitants

Financial Capital Components

- Per Capita Private Equity Investment

Knowledge Capital Components

- Per Capita Expenditures on R&D performed by Government
- Per Capita Expenditures on R&D performed by Business
- Number of Patents Registered per one million inhabitants

Regional Economy Outputs

- Labour Productivity
- Mean Gross Monthly Earnings
- Unemployment Rates

Knowledge Sustainability

- Per Capita Public Expenditures on Primary and Secondary Education
- Per Capita Public Expenditures on Higher Education
- Secure Servers per one million inhabitants
- Internet Hosts per 1,000 inhabitants
- Broadband Access per 1,000 inhabitants

Creating the Composite World Knowledge Competitiveness Index

In order to create the composite World Knowledge Competitiveness Index all data are first converted so that the mean and variance of each variable is set at zero and one respectively. After the standardisation, a multivariate data reduction technique called factor analysis is applied to the data set. 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 together the seemingly unrelated variables, and consequently provide insight into the underlying structure of the data. In general, those dimensions are uncorrelated with one another.

To extract the common part of variations among the original variables (i.e. commonalities), an extraction method called image factoring is employed. The dimensions obtained are then rotated. A rotation method called varimax is used with Kaiser normalisation. While identifying common dimensions of the underlying structure, factor analysis also shows the location of each case (i.e. region in this study) within the underlying structure, by providing the case's scores for the dimensions identified. We use these scores for the dimensions as sub-composite indices.

Subsequently, we aggregate these sub-composite indices with a view to obtaining a single composite. A quantitative analytical technique called Data Envelopment Analysis (DEA) is used to obtain a single composite index from the above sub-composite indices. DEA is a linear programming technique originally developed for the estimation of the relative efficiency of a set of units (called decision making units, DMUs) producing a set of outputs from common inputs. It neither assigns weights to variables with any dependent variable chosen a priori, nor assigns weights set a priori. Instead, it seeks a set of weights for each unit that maximises a weighted sum of variables, with the constraint that no units have a weighted sum larger than one. As a result, each unit receives a score between 0 and 1. This process is repeated for all units in the data set, giving each unit a score unique to each iteration. Finally a geometric mean of all the scores is taken for each unit, providing a DEA score.

The DEA model can be stated as follows. Let x_{ij} be the score of i -th sub-composite index ($i=1, \dots, m$) for region j ($j=1, \dots, n$). A composite score of region j , denoted here as C_j , is then maximised as:

$$\text{Max } C_j = (V_1 * x_{1j} + \dots + V_m * x_{mj})$$

subject to:

$$(V_1 * x_{1j} + \dots + V_m * x_{mj}) < 1, \quad j = 1, \dots, n.$$

$$V_i > 0 \text{ for all } i.$$

Let us denote the maximised composite score for region j as $C_j(\text{max } j)$. While $C_j(\text{max } j)$ is obtained for region j , other regions also gain composite scores under the weights V_1, \dots, V_m that are set to maximise the region j 's score. They can be denoted as $C_1(\text{max } j), C_2(\text{max } j), \dots, C_n(\text{max } j)$.

This maximisation process is undertaken for all regions in the data set. As a result, each region receives n composite scores, one of which is obtained from maximisation of its own composite score. Finally a geometric mean of $C_j(\text{max } 1), C_j(\text{max } 2), \dots, C_j(\text{max } j), \dots, C_j(\text{max } n)$ is taken for region j , providing a DEA score of region j ($j=1, \dots, n$).

As noted above, DEA scores range from zero to one. To facilitate a more intuitive understanding, we convert DEA scores to ones whose average is 100 with a variance similar to variances of the original variables. For this, we first convert original variables so that their averages become 100 (i.e. divide the scores of regions for each variable by its average and then multiply them by 100). We then take a geometric mean of the variances of the converted variables, which we denote by $(\text{variance})_{\text{original}}$. Finally, we standardise DEA scores for regions 1 to n , multiply them by $(\text{variance})_{\text{original}}$, and add 100. The obtained scores, whose average equals 100, still maintain relative distance between regions but have a variance similar to the original variables.

In the following analysis and data presentation all scores are converted into the figures whose average is 100, facilitating an intuitive understanding of the regions' positions in our league table. Also, please note the abbreviation n/a refers to a lack of relevant data.

In order to capture the most accurate and reliable benchmarks for the WKCI regions, our data sources are constantly updated and adapted to ensure the most reliable indicators are utilised. Regions for which we have new data sources this year are the Pearl River Delta, Israel, Hong Kong, as well as those in Canada and Japan. A ranking change followed by * indicates a change in data source or methodology that we now consider to be more reliable than that adopted in previous years.



The scores and ranks for the World Knowledge Competitiveness Index (WKCI) 2005 are shown by Table 2.1, which also highlights the change in ranks from the 2004 indices. The WKCI represents the overall picture in 2005 for the benchmarked regions, and the trends taking place across these regions between 2004 and 2005.

As noted earlier, changes to the MSA classification system in the US have affected the US regions used in this year's index. As Table 2.1 shows, these changes have led to a new region at the top of our list of the world's most knowledge competitive regions this year. In previous years the MSA classification system incorporated San Jose within the San Francisco metropolitan area, but with San Jose, the home of Silicon Valley, now classified separately, this region has become the new leader in the WKCI rankings. Meanwhile, San Francisco, the leader of the WKCI for the previous two years, slips down to third position, emphasising the fact that the knowledge-intensity within the region is heavily concentrated within the core of Silicon Valley. However, it will also be interesting to follow the performance of San Jose in the future, as recent attention has been focused on the problems faced by Silicon Valley in the aftermath of the dot com bubble, which precipitated a sizeable decline in investment activity and employment within the region.

These two Californian regions are separated by Boston, which holds on to the second place it gained last year. Hartford moves up to fourth, its score boosted by very strong results in both R&D spending and private equity investment, which have also translated into a very strong productivity score: Hartford now has the highest level of productivity among the US regions in our rankings. Seattle takes fifth place while Grand-Rapids slips back to sixth, which is likely to be a result of a significant change in the size of the region under the new classification system. This change has strengthened Grand Rapids score in automotive employment, but reduced it across most of the other employment sectors measured in the WKCI.

Last year the top fourteen positions on the WKCI were taken by US regions, while this year that figure has been reduced to the top seven due to the strong performance of Stockholm, which climbs seven places up to eighth position. This rise has been the result of improvements across a range of indicators - in particular, business R&D spending, biotechnology and chemical sector employment and higher education spending - but also due to the availability of private equity statistics at the regional level. These new figures showed that private equity in Sweden is heavily concentrated, with just over 50 percent of total national investment emanating in the Stockholm area.

However, despite a few notable improvements such as Stockholm, and also Tokyo (which rises 16 places this year), US regions continue to dominate the overall composition of the index. This year only eight non-US regions make it into the top fifty, while the lowest ranked US region is Miami, which comes in at 70th. The UK regions of London and South East slip out of the top 50: in both regions the fall was mainly a result of a decline in scores for both managers and private equity. Scores for the latter indicator still remain very high, but the regions suffered from the increase in private equity results in other regions.

The success of San Jose reflects an economy within which knowledge is an integral part of production. The ratio of knowledge intensity - see Table 2.2 - shows the extent to which knowledge factors are a driver of economic performance within the benchmarked regions, with San Jose also moving straight into first place in our *Knowledge Intensity* index in 2005. As in the main index, classifying San Jose separately has isolated the knowledge intensity found in the Silicon Valley area. The driving force behind the region's strength comes largely from the private sector - business R&D and private equity are very strong in the region. However this is also supported by high quality research facilities (for example, Stanford University), which boosts the regions patents score, and heavy government investment in R&D (for example, NASA). This all translates into a highly developed and concentrated knowledge economy, as demonstrated by the high levels of productivity, high earnings and very high employment in sectors such as the IT and instrumentation manufacturing industries.

If there is a criticism to be made of San Jose, it is that the region is too heavily dependent on its cluster of IT industries. For example, the vulnerability of the region in this sense was exposed by the increases in unemployment following the bursting of the dot.com bubble. However, the region is diversifying around the increasingly fuzzy boundaries between ICT and biotechnology/life sciences.

Second placed Boston thrives on high levels of intellectual and financial capital. In recent times Boston has been in a period of uncertainty due to increased competition, the market value decline of many of its largest companies, and a state-level fiscal crisis. Despite such uncertainties, the region continues to show up well on most indicators. The Boston economy remains strong and has fundamental advantages that limit its vulnerability to economic shocks.

Boston is built around its higher education sector and is home to eight research universities including Harvard and the Massachusetts Institute for Technology. It is estimated that the direct impact of these universities adds an extra US\$7.4bn to regional economic output. The indirect impacts in terms of skills, innovation and interaction with business are less easy to quantify, but are evident in the region's high ranking for research and development activity and patent registration. High skill levels combine with significant equity capital to produce the third highest level of labour productivity amongst the WKCI regions.

Although the US regions have in general performed strongly once again, there have been some notable relative changes between regions. Rochester, for example, was fourth in 2003 but slips again this year, and now occupies ninth position. Austin has slipped further still: it began in second place back in 2003, but falls another ten places this year to 19th. Both regions have suffered significant increases in unemployment recently resulting in a worsening of performance, and this seems to be indicative of the high level of competition throughout the US. Rochester in particular has experienced a large number of job losses in the so-called 'telecomm alley', while Eastman Kodak has also significantly downsized its operations.

World Knowledge Competitiveness Index 2005

Table 2.1

Rank in 2005	Region	Knowledge Competitiveness Index 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Knowledge Competitiveness Index 2005	Rank in 2004	Change in Rank
1	San Jose, US	295.8	-	-	64	Tampa, US	94.1	61	-3
2	Boston, US	244.3	2	0	65	Bayern, Germany	94.1	70	5
3	San Francisco, US	239.1	1	-2	66	Ontario, Canada	92.9	63	-3
4	Hartford, US	224.7	5	1	67	Hessen, Germany	92.7	71	4
5	Seattle, US	205.7	4	-1	68	Las Vegas, US	90.6	72	4
6	Grand Rapids, US	195.4	3	-3	69	Miami, US	89.6	67	-2
7	San Diego, US	193.5	6	-1	70	East, Austria	88.2	76	6
8	Stockholm, Sweden	190.8	15	7	71	Shizuoka, Japan	87.2	57	-14
9	Rochester, US	176.3	7	-2	72	Osaka, Japan	86.8	81	9
10	Los Angeles, US	173.5	11	1	73	Tochigi, Japan	86.7	58	-15
11	Sacramento, US	172.9	8	-3	74	Ireland	84.9	91	17
12	New York, US	172.2	13	1	75	Aichi, Japan	83.4	60	-15
13	Minneapolis-St. Paul, US	167.0	10	-3	76	Hamburg, Germany	82.5	75	-1
14	Denver, US	167.0	14	0	77	West, Netherlands	81.3	84	7
15	Detroit, US	161.5	12	-3	78	Singapore	77.4	74	-4
16	Riverside-San Bernardino, US	155.7	-	-	79	Vlaams Gewest, Belgium	77.2	90	11
17	Philadelphia, US	153.5	16	-1	80	Toyama, Japan	76.3	66	-14
18	Portland, US	153.1	20	2	81	Kanagawa, Japan	75.7	77	-4
19	Austin, US	150.9	9	-10	82	Centre-est, France	75.4	82	0
20	Uusimaa, Finland	148.2	19	-1	83	Scotland, UK	75.0	89	6
21	Dallas, US	146.7	21	0	84	Lombardia, Italy	74.7	93	9
22	Tokyo, Japan	143.4	38	16	85	Quebec, Canada	72.7	78	-7
23	Washington, US	142.4	23	0	86	Israel	72.2	86	0
24	Milwaukee, US	139.3	27	3	87	Berlin, Germany	71.1	87	0
25	Buffalo-Niagara Falls, US	137.8	28	3	88	Victoria, Australia	71.0	79	-9
26	Houston, US	136.9	25	-1	89	North, Netherlands	70.8	103	14
27	Baltimore, US	136.7	-	-	90	West, Austria	70.8	95	5
28	Chicago, US	136.6	17	-11	91	New South Wales, Australia	68.2	83	-8
29	Île de France, France	136.3	34	5	92	Comunidad de Madrid, Spain	67.6	99	7
30	Columbus, US	133.1	29	-1	93	Western Australia	66.5	85	-8
31	Raleigh-Cary, US	132.9	22	-9	94	Nordrhein-Westfalen, Germany	64.8	97	3
32	Indianapolis, US	132.7	26	-6	95	Bremen, Germany	64.7	98	3
33	Richmond, US	130.8	37	4	96	Kyoto, Japan	63.2	94	-2
34	Salt Lake City, US	129.9	24	-10	97	Smaland Medoarna, Sweden	63.0	88	-9
35	Atlanta, US	129.3	31	-4	98	Alberta, Canada	62.0	80	-18
36	Cincinnati, US	128.4	18	-18	99	Taiwan	61.3	102	3
37	West, Sweden	128.0	44	7	100	Manitoba, Canada	61.2	92	-8
38	Phoenix, US	127.6	30	-8	101	North West, Italy	59.4	104	3
39	Cleveland, US	127.2	33	-6	102	Emilia-Romagna, Italy	57.3	107	5
40	Greensboro-High Point, US	127.1	41	1	103	Niedersachsen, Germany	55.6	105	2
41	Charlotte, US	126.3	36	-5	104	Saskatchewan, Canada	54.3	100	-4
42	Kansas City, US	124.6	32	-10	105	British Columbia, Canada	52.0	96	-9
43	Pittsburgh, US	124.5	35	-8	106	Lazio, Italy	48.9	110	4
44	Switzerland	122.6	45	1	107	North East, Italy	46.8	114	7
45	Brussels, Belgium	118.9	51	6	108	Noreste, Spain	46.0	115	7
46	South, Sweden	117.2	52	6	109	Schleswig-Holstein, Germany	45.4	111	2
47	San Antonio, US	116.9	43	-4	110	New Zealand	42.1	108	-2
48	Virginia Beachs, US	116.8	48	0	111	Saarland, Germany	41.8	113	2
49	St. Louis, US	116.0	42	-7	112	Shanghai, China	40.2	119	7
50	South Netherlands	113.1	68	18	113	Ulsan, Korea	37.7	101	-12
51	Denmark	110.6	62	11	114	Central, Italy	35.6	116	2
52	Norway	110.3	54	2	115	Pearl River Delta, China	32.9	118	3
53	Louisville, US	109.4	49	-4	116	Prague, Czech Republic	28.7	112	-4
54	Baden-Württemberg, Germany	108.2	55	1	117	Bratislavský, Slovak Republic	28.3	120	3
55	South East, UK	106.1	40	-15	118	Hong Kong	27.7	106	-12
56	London, UK	105.8	46	-10	119	Beijing, China	27.7	117	-2
57	Shiga, Japan	104.8	39	-18	120	Seoul, Korea	26.6	109	-11
58	Luxembourg	103.3	65	7	121	Budapest, Hungary	17.2	122	1
59	Nashville, US	100.8	47	-12	122	Tianjin, China	15.7	121	-1
60	Orlando, US	97.9	56	-4	123	Mumbai, India	8.6	123	0
61	Memphis, US	97.4	53	-8	124	Bangalore, India	7.2	124	0
62	Eastern, UK	96.8	50	-12	125	Hyderabad, India	5.4	125	0
63	Jacksonville, US	95.9	59	-4					

Also, while the US continues to dominate the top of the rankings, as mentioned earlier, it is hard to find too many US regions that have risen by more than a few places, which suggests that the gap with Europe and Asia may be beginning to narrow. As well as Stockholm's significant rise already mentioned, the Nordic regions in our rankings have almost all improved their rankings for the second year in a row. Both West Sweden (37th) and South Sweden (46th) move up, and are now competitive with the majority of US regions, while Denmark (up eleven places) and Norway (up two places) also perform strongly, and are now both only just outside the top fifty. Uusimaa (Helsinki) consolidates its phenomenal growth in recent years, falling just one place to 21st. This ranking is based on very high levels of knowledge-based employment and high levels of research and innovation.

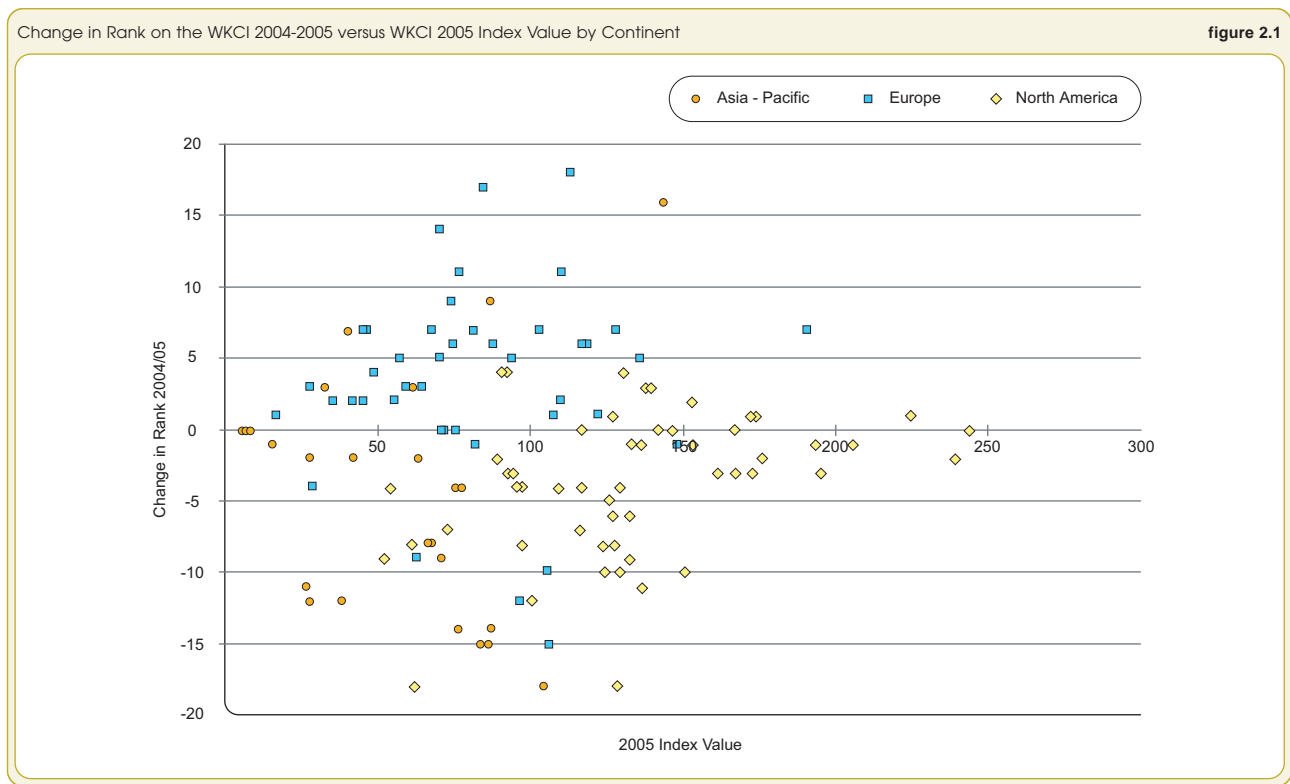
Outside of the Nordic area, the picture for the European regions is more mixed. Ile de France (Paris) has moved up five places to 30th, and all the regions within the Netherlands have improved, thanks mainly to increased investment in education and ICT infrastructure at the national level. Ireland also shows one the highest increases in the rankings, moving up 17 places. This is a pleasing result, given the amount of attention paid to Ireland's impressive growth, and shows that that this growth has been correlated with a similar expansion of the country's knowledge base. Aside from these few regions it is hard to see any discernible change in trends within Europe - the majority have maintained quite similar performances to last year. In general the location of high technology clusters in Europe continues to be concentrated in a few regions while many regions suffer from a lack of knowledge economy-specific government policies, and therefore investment in knowledge capital is limited.

Once again, Tokyo (23rd) is the highest ranked region outside of North America and Europe. All the Japanese regions have been affected this year by the use of more accurate statistics for R&D expenditures and patents, and indeed Tokyo's rise can be attributed largely to these factors. However, strong employment figures for high-tech services along with improved national ICT results have also contributed to Tokyo's rise. Given that the current rankings are considered

more accurate, the lowly position of a number of the Japanese regions - for example, Kyoto is now down in 97th - do not paint such a promising picture for the Japanese economy at the regional level. Government investment, so closely tied to business in Japan, remains concentrated around the Tokyo region, and this uneven distribution is certainly reflected in our rankings.

At the bottom of the WKCI rankings we continue to find the Chinese, Indian and Eastern European regions - the lowest ranked being Bangalore (125th), Mumbai (124th) and Hyderabad (123rd). It is worth noting that the index scores for both Bangalore and Mumbai, although still very low, have once again increased this year. Amongst the lower ranking regions, Shanghai has certainly performed the best, more than doubling its index score this year. However, the fact that this represents a rise of only seven places shows how large the gaps are at the bottom end of the index. Thus, the WKCI demonstrates that while catch-up in terms of GDP per capita within emerging regions and nations is being achieved through the use of liberal economic policies, the transfer from a labour-intensive to a knowledge-intensive economy is a much more long-term process. Nevertheless, Shanghai is now ahead of Central Italy and only a short way behind New Zealand, which shows how far the most developed amongst the Chinese regions have come in recent years. It is also worth noting the size of the economies this relates to, e.g. the Shanghai population is now over 20 million people. Thus, the advances in absolute terms we are seeing are very significant.

Figure 2.1 is a representation of how each region benchmarked by WKCI performs in terms of overall index value and change in rank between 2004 and 2005, with the regions grouped by their broad continent. This chart paints a better picture for the European regions. Of those regions that improved their ranking by more than five positions, the vast majority are European regions, along with three from Asia-Pacific. No US region has improved by more than five places, although this does reflect the fact that a lot of US regions are already very high in the rankings. Those regions falling in the rankings by more than ten positions are mainly Asia-Pacific



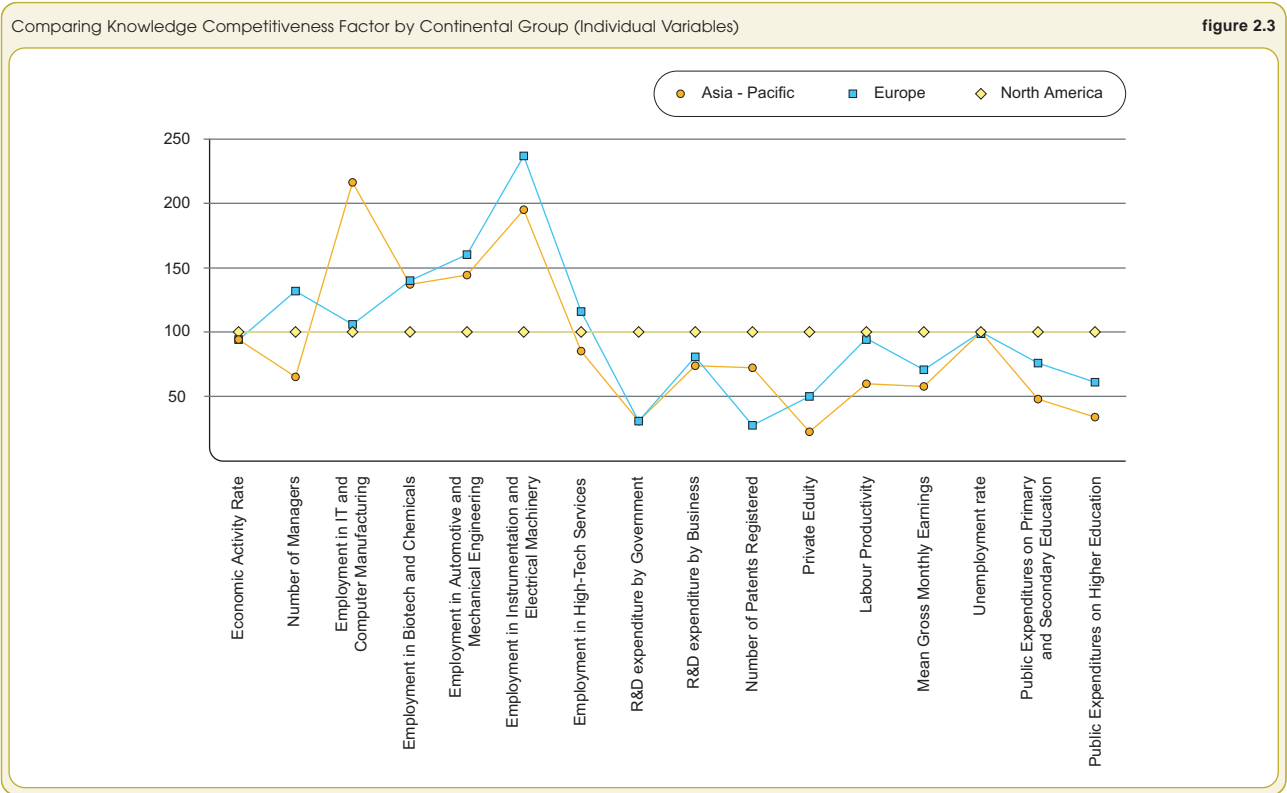
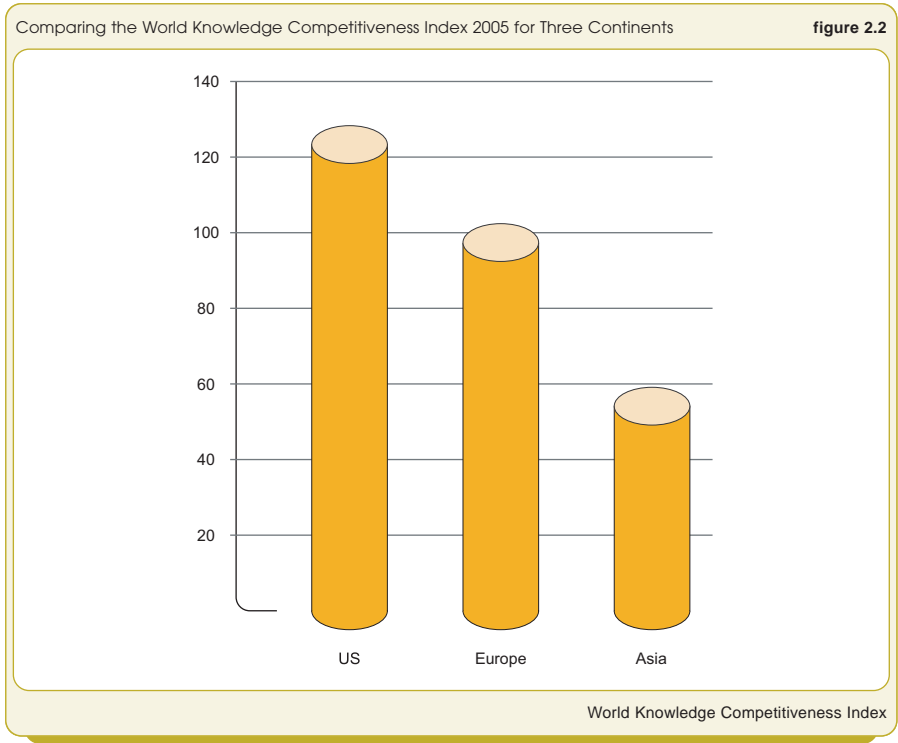
regions, with a few North American and European regions amongst them. The most desirable quadrant of Figure 2.1 to be situated is the top right - with a WKCI score above average and a rising change in rank - Stockholm is the region that clearly stands out in this quadrant this year.

The average continental scores of regions comprising the WKCI 2005 are illustrated by Figure 2.2, which shows that the North American regions are the most competitive, while Europe slightly outrivals Asia-Pacific. Nevertheless, taking into account the fact that Asia-Pacific excels in human and knowledge capital inputs, coupled with the lag effect of inputs and outputs, we would expect that some Asian-Pacific regions will catch up with their Europe counterparts on the WKCI.

It is clear that at a regional level there are significant variations in the economic development models at work across the globe. The US regional development framework is far more reliant upon its investments in knowledge sustainability, in the form of educational expenditure and ICT infrastructure. Asian-Pacific regions tend to place a greater emphasis on mobilising human capital already within the workforce and investment in business-based innovation. Europe's model appears to be an

under-performing version of that operating within the North American regions.

Figure 2.3 breaks down further the inter-continental scores for the 16 variables where data is available at the regional level. It highlights that both European and Asian-Pacific regions perform strongly across employment in high-tech sectors. Asia-Pacific is particularly strong in IT and Computer Manufacturing, while both continents score significantly higher than North America in Instrumentation and Electrical Machinery. North America's strength comes from its spending on R&D and education, which is also emphasised by its higher patenting levels. Higher levels of Private equity are also a North American advantage. In terms of economic output, Asia-Pacific attains lower scores than North America and Europe for labour productivity and earnings, indicating a lower degree of economic development. Asia-Pacific also lags behind North America and Europe in education expenditure.



Although North American regions do not show particular strength in input factors, they have the highest scores for economic output and knowledge sustainability factors, indicating their higher capability of transferring knowledge inputs into outputs, and the ability to establish sustainable growth. National level statistics also show that North America is the leading continent in terms of ICT infrastructure, providing excellent support for moving knowledge effectively and efficiently within and across regions.

Time Equivalent (FTE) employment data for calculating labour productivity, resulting in more accurate rankings on a variable by variable basis.

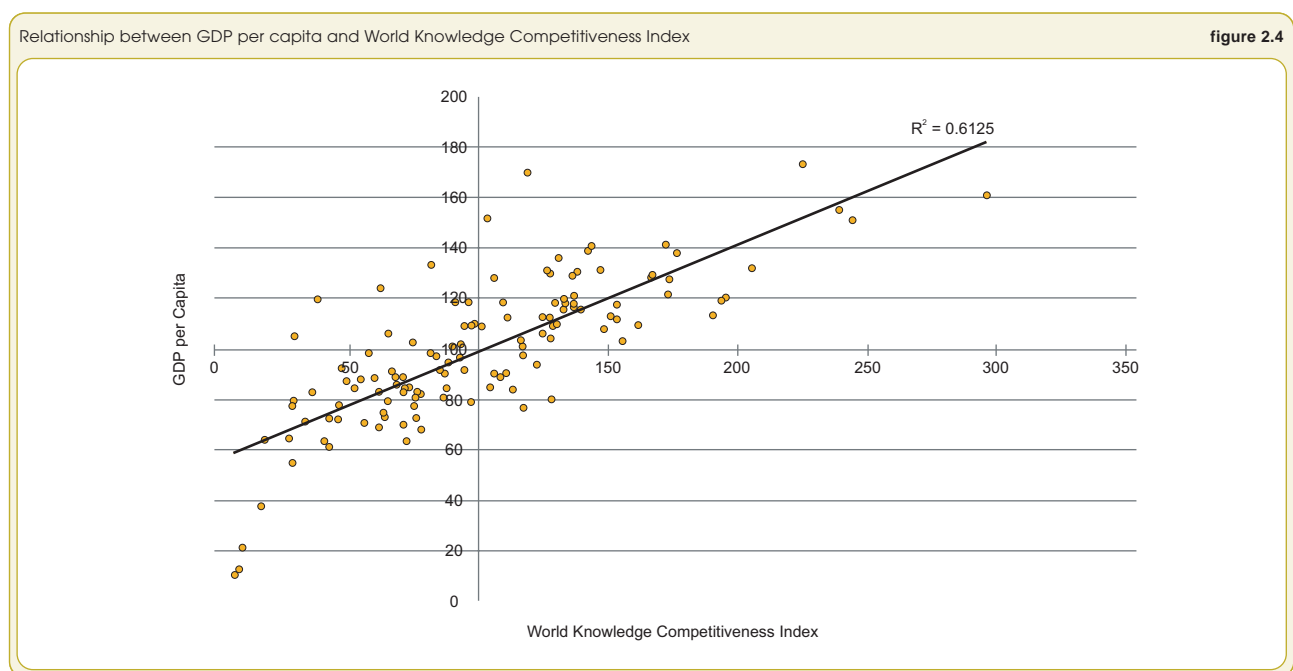
Figure 2.4 highlights the association between GDP per capita and the World Knowledge Competitiveness Index across the 125 regions. The high r-square correlation figure of 0.61 indicates the importance of knowledge competitiveness to achieving the wealth and prosperity of regions.

Knowledge Intensity

The World Knowledge Competitiveness Index allows us to understand the relative means by which regions are able to compete in terms of their overall knowledge capacity, capability and utilisation. However, it does not tell how influential these factors are compared with the overall economic performance and capacity of each region. In order to go somewhat towards analysing this influence we have established the Regional Ratio of Knowledge Intensity, which is calculated on the basis of each region's World Knowledge Competitiveness Index score relative to its index of GDP per capita.

Such a measure is the best available derivative of the relative importance of knowledge and knowledge-based activities to the overall economic performance and structure of each region. As shown by Table 2.2, the highest Ratio of Knowledge Intensity is found in San Jose (1.84), followed by Stockholm (1.69) and San Diego (1.62). Among the top 20 knowledge-intensive regions, the US accounts for 14 places, the rest being filled by European regions. Sweden is especially well represented, with three regions in the top 10.

The following chapters unpack the scores for the leading and lagging regions for the variables constituting the WKCI. There have been significant improvements in the robustness of data this year for certain regions, particularly relating to patent registrations, R&D expenditures and the use of Full



Regional Ratio of Knowledge Intensity in 2005

Table 2.2

Rank in 2005	Region	Knowledge Intensity Ratio	Rank in 2004	Change in Rank	Rank in 2005	Region	Knowledge Intensity Ratio	Rank in 2004	Change in Rank
1	San Jose, US	1.84	-	-	64	Richmond, US	0.96	70	6
2	Stockholm, Sweden	1.69	7	5	65	Hessen, Germany	0.96	68	3
3	San Diego, US	1.62	4	1	66	Centre-est, France	0.94	65	-1
4	Grand Rapids, US	1.62	3	-1	67	Vlaams Gewest, Belgium	0.94	84	17
5	Boston, US	1.62	33	28	68	East, Austria	0.93	80	12
6	West, Sweden	1.60	11	5	69	Nashville, US	0.93	64	-5
7	Seattle, US	1.56	10	3	70	Ireland	0.93	94	24
8	San Francisco, US	1.54	1	-7	71	Louisville, US	0.92	66	-5
9	South, Sweden	1.53	17	8	72	Toyama, Japan	0.92	28	-44
10	Riverside-San Bernardino, US	1.51	-	-	73	Ontario, Canada	0.91	40	-33
11	Detroit, US	1.48	2	-9	74	Orlando, US	0.89	72	-2
12	Sacramento, US	1.42	13	1	75	Memphis, US	0.89	62	-13
13	Uusimaa, Finland	1.37	14	1	76	Miami, US	0.89	61	-15
14	Portland, US	1.37	19	5	77	Taiwan	0.89	83	6
15	Los Angeles, US	1.36	8	-7	78	Kyoto, Japan	0.86	69	-9
16	South Netherlands	1.35	37	21	79	Tampa, US	0.86	73	-6
17	Austin, US	1.33	5	-12	80	Aichi, Japan	0.86	42	-38
18	Switzerland	1.31	32	14	81	Quebec, Canada	0.86	105	24
19	Philadelphia, US	1.31	20	1	82	North, Netherlands	0.86	96	14
20	Minneapolis-St. Paul, US	1.30	16	-4	83	Smaland Medoarna, Sweden	0.84	74	-9
21	Hartford, US	1.30	44	23	84	Victoria, Australia	0.84	77	-7
22	Denver, US	1.30	25	3	85	West, Netherlands	0.83	91	6
23	Rochester, US	1.28	9	-14	86	London, UK	0.83	56	-30
24	Shiga, Japan	1.23	6	-18	87	Nordrhein-Westfalen, Germany	0.82	90	3
25	Denmark	1.23	50	25	88	Jacksonville, US	0.81	85	-3
26	Eastern, UK	1.23	21	-5	89	New South Wales, Australia	0.80	82	-7
27	Phoenix, US	1.22	35	8	90	West, Austria	0.80	95	5
28	New York, US	1.22	36	8	91	Niedersachsen, Germany	0.78	93	2
29	Baden-Württemberg, Germany	1.21	46	17	92	Las Vegas, US	0.76	86	-6
30	Milwaukee, US	1.20	26	-4	93	Comunidad de Madrid, Spain	0.76	97	4
31	San Antonio, US	1.20	53	22	94	Manitoba, Canada	0.74	89	-5
32	Salt Lake City, US	1.19	30	-2	95	Lombardia, Italy	0.73	102	7
33	South East, UK	1.18	15	-18	96	Western Australia	0.73	92	-4
34	Cincinnati, US	1.18	12	-22	97	Brussels, Belgium	0.70	100	3
35	Pittsburgh, US	1.17	31	-4	98	New Zealand	0.69	88	-10
36	Houston, US	1.17	43	7	99	Luxembourg	0.68	101	2
37	Baltimore, US	1.16	-	-	100	North West, Italy	0.67	104	4
38	Virginia Beach, US	1.16	63	25	101	Shanghai, China	0.63	122	21
39	Raleigh-Cary, US	1.15	24	-15	102	Schleswig-Holstein, Germany	0.63	103	1
40	Singapore	1.14	34	-6	103	Hamburg, Germany	0.62	106	3
41	Israel	1.13	51	10	104	British Columbia, Canada	0.62	98	-6
42	Greensboro-High Point, US	1.13	59	17	105	Saskatchewan, Canada	0.62	110	5
43	Columbus, US	1.13	41	-2	106	Bremen, Germany	0.61	108	2
44	Chicago, US	1.13	23	-21	107	Noreste, Spain	0.59	116	9
45	St. Louis, US	1.12	49	4	108	Emilia-Romagna, Italy	0.58	115	7
46	Dallas, US	1.12	45	-1	109	Saarland, Germany	0.58	107	-2
47	Kansas City, US	1.11	39	-8	110	Bangalore, India	0.57	109	-1
48	Indianapolis, US	1.11	27	-21	111	Lazio, Italy	0.56	113	2
49	Atlanta, US	1.09	54	5	112	Hyderabad, India	0.51	112	0
50	Tochigi, Japan	1.07	22	-28	113	North East, Italy	0.51	118	5
51	Île de France, France	1.06	47	-4	114	Beijing, China	0.51	111	-3
52	Buffalo-Niagara Falls, US	1.06	52	0	115	Alberta, Canada	0.50	78	-37
53	Kanagawa, Japan	1.04	38	-15	116	Pearl River Delta, China	0.46	121	5
54	Shizuoka, Japan	1.04	18	-36	117	Central, Italy	0.43	120	3
55	Bayern, Germany	1.03	57	2	118	Tianjin, China	0.42	123	5
56	Washington, US	1.02	48	-8	119	Seoul, Korea	0.41	75	-44
57	Tokyo, Japan	1.02	71	14	120	Mumbai, India	0.40	119	-1
58	Berlin, Germany	1.01	67	9	121	Hong Kong	0.36	99	-22
59	Cleveland, US	0.98	29	-30	122	Bratislavský, Slovak Republic	0.36	124	2
60	Norway	0.98	87	27	123	Ulsan, Korea	0.31	114	-9
61	Scotland, UK	0.97	76	15	124	Prague, Czech Republic	0.27	117	-7
62	Osaka, Japan	0.96	79	17	125	Budapest, Hungary	0.27	125	0
63	Charlotte, US	0.96	60	-3					



Economic activity, or participation rates measure the availability of human capital in an economy. A healthy level of human capital input is necessary for a high level of knowledge production and provides a basis for further knowledge investment. In addition, high levels of activity suggest that the benefits of the production process are spread widely across the population. High participation, therefore, is necessary not only for knowledge economy production, but also for a vibrant and cohesive society. A low level of activity suggests a lack of social and economic inclusion, and a high economic dependency burden across society as a whole.

While demographic factors are particularly important, the level of activity is also determined by the openness and flexibility of the labour market, the effects of the social security and welfare systems, and a mix of demographic and cultural factors. Effective labour market and welfare systems allow the greatest possible freedom and opportunity for people to be economically active, and take full advantage of the demographic context.

Top of the economic activity rankings are the two Chinese regions of Pearl River Delta (129.3) and Beijing (127.0), both of which have economic activity rates registered at over 75 percent of the population. In third place is Salt Lake City (124.5), the first of ten US regions in the top twenty. The Canadian regions also perform well in this index, with Alberta leading the way in fourth, while Norway shows one of the

largest gains, moving up 17 places to fifth.

At the bottom of the rankings, Riverside-San Bernadino (69.1) enters the index in last place. Japanese regions have all shown a downward trend, and the Italian regions still perform particularly poorly, showing little sign of overcoming the problems of an ageing population. Three German regions also figure in the bottom twenty, perhaps highlighting the underlying cause of the welfare reform debate surrounding this year's election.

Index of Economic Activity
Top twenty regions in 2005

Table 3.1

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Pearl River Delta, China	129.3	2	1	11	Columbus, US	113.7	8	-3
2	Beijing, China	127.0	3	1	12	Manitoba, Canada	113.6	34	22
3	Salt Lake City, US	124.5	4	1	13	Indianapolis, US	112.8	17	4
4	Alberta, Canada	120.9	11	7	14	San Jose, US	112.8	-	-
5	Norway	119.4	22	17	15	Ontario, Canada	112.6	36	21
6	Minneapolis-St. Paul, US	117.5	1	-5	16	Saskatchewan, Canada	112.3	38	22
7	Stockholm, Sweden	115.8	30	23	17	Cleveland, US	112.0	50	33
8	Milwaukee, US	115.4	28	20	18	Switzerland	111.7	42	24
9	Charlotte, US	114.6	19	10	19	Boston, US	110.4	15	-4
10	Washington, US	114.0	18	8	20	Denver, US	110.2	14	-6

(Labour Force as a percentage of working age population)

Index of Economic Activity
Bottom twenty regions in 2005

Table 3.2

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
106	Tochigi, Japan	88.9	71	-35	116	Shiga, Japan	85.6	82	-34
107	Nordrhein-Westfalen, Germany	88.9	111	4	117	Brussels, Belgium	84.6	121	4
108	Noreste, Spain	88.9	120	12	118	Kyoto, Japan	83.7	100	-18
109	Bremen, Germany	88.4	114	5	119	Osaka, Japan	83.7	99	-20
110	Lombardia, Italy	88.3	115	5	120	Saarland, Germany	83.2	119	-1
111	Kanagawa, Japan	87.7	85	-26	121	North West, Italy	83.0	122	1
112	Vlaams Gewest, Belgium	87.4	117	5	122	Central, Italy	82.4	123	1
113	North East, Italy	87.4	117	4	123	Lazio, Italy	81.5	124	1
114	Budapest, Hungary	87.0	113	-1	124	Hyderabad, India	71.9	125	1
115	Miami, US	86.9	74	-41	125	Riverside-San Bernardino, US	69.1	-	-

(Labour Force as a percentage of working age population)

The number of managers per 1000 inhabitants indicates the concentration of knowledge workers in an economy. Managers, professionals and high-end technical workers are a vital part of the knowledge production process. There is increasing recognition of the role played by these workers as a source of innovation and whose responsibility it is to stimulate investment and growth. These workers include the 'creative class' of employees whose value is specifically their intelligence. Although knowledge workers have a role to play in all industries, clusters are usually found in new industries and highly knowledge-intensive industries and services. Managers are usually the individuals that find efficient ways of working with new technology, and are a vital stimulus in the diffusion of such technologies. Their importance is recognised by the fact these workers not only provide the highest value-added to an economy but also receive the highest level of financial remuneration.

either table, suggesting a pattern of distribution close to the sample mean for manager-to-population ratios in US metropolitan areas.

Table 3.3 shows that the South-Eastern regions of the UK remain high on this year's index, with the UK's three most economically productive regions - the South East, London and Eastern - all remaining in the top five. However, the availability of more accurate statistics for a number of European regions has also led to some significant changes at the top. South Netherlands (334.5) is this year's new leader, with Ireland also rising significantly to be placed in 3rd (244.9). Bratislavský, the region containing the wealthy Slovakian capital of Bratislava, enters very strongly in 6th. Outside of Europe, Singapore remains the highest ranked region, continuing to benefit from an inflow of managerial workers from abroad.

The bottom twenty is dominated by Asian regions, with particularly low ratios of managerial occupations to be found in China. Meanwhile US regions are noticeable for their absence: only San Bernardino-Riverside in 111th place makes

Index of Number of Managers Table 3.3
Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	South Netherlands	334.5	59	58*	11	Prague, Czech Republic	189.3	10	-1
2	South East, UK	269.8	1	-1	12	Ontario, Canada	187.1	5	-7
3	Ireland	244.9	102	99*	13	New Zealand	183.5	6	-7
4	London, UK	242.9	2	-2	14	Alberta, Canada	183.3	7	-7
5	Eastern, UK	238.8	3	-2	15	Noreste, Spain	183.2	93	78*
6	Bratislavský, Slovak Republic	225.4	-	-	16	Scotland, UK	177.5	76	60*
7	Île de France, France	221.8	21	14	17	British Columbia, Canada	167.9	8	-9
8	Singapore	205.9	4	-4	18	Vlaams Gewest, Belgium	152.3	94	76*
9	Comunidad de Madrid, Spain	205.5	88	79*	19	West, Netherlands	150.4	59	40*
10	Budapest, Hungary	199.6	-	-	20	Baden-Württemberg, Germany	146.7	100	80*

(Managers per 1000 inhabitants)

Index of Number of Managers Table 3.4
Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
106	Kyoto, Japan	43.1	82	-24	116	Hyderabad, India	31.7	89	-27
107	Shiga, Japan	42.3	83	-24	117	Mumbai, India	31.7	89	-28
108	Shizuoka, Japan	41.7	84	-24	118	Schleswig-Holstein, Germany	25.6	122	4
109	Aichi, Japan	41.5	85	-24	119	Central, Italy	22.6	121	2
110	Lazio, Italy	40.9	111	1	120	Smaland Medoarna, Sweden	19.5	99	-21
111	Riverside-San Bernardino, US	39.9	-	-	121	Saarland, Germany	17.4	123	2
112	Tochigi, Japan	38.3	86	-26	122	Beijing, China	5.6	115	-7
113	Ulsan, Korea	34.4	87	-26	123	Pearl River Delta, China	5.6	115	-8
114	North East, Italy	32.3	120	6	124	Shanghai, China	5.6	115	-9
115	Bangalore, India	31.7	89	-26	125	Tianjin, China	5.6	115	-10

(Managers per 1000 inhabitants)

Knowledge-Based Sectors and Employment

Knowledge-based sectors are those sectors characterised by concentrations of high-end technology and intelligence, with the production process requiring high levels of investment and innovation. Firms in such industries deploy a significantly higher proportion of their resources to research and development and often provide increased value-added in terms of generating wealth. Overall, these sectors have the most 'knowledge intensive' production processes, with the importance of innovation and the efficiency of production providing an opportunity for competitive advantage to exist between regions.

Our knowledge-based sectors consist of:

Biotechnology and chemical sectors - pharmaceuticals, drugs, chemicals and chemical products.

IT and computer manufacturing - communication equipment, computer and office equipment, electronic components and accessories.

Automotive and high-technology mechanical engineering - motor vehicles and transport equipment, machine tools and equipment.

Instrumentation and electrical machinery - precision and optical equipment, electrical transmission and distribution equipment, lighting and wiring equipment.

High-technology services - software and computer related services, telecommunications, research, development and testing services.

Concentrations of knowledge-based industry necessarily

suggest the existence of a knowledge-driven economy. Within such economies growth is dependent not only on the proliferation of human and physical capital resources, but is the output of innovation levels amongst a skilled workforce. Our sectoral indicators are a measure of knowledge capital inputs. Regions that perform well in these sectors are more likely to invest heavily in knowledge capital and would be expected to have high levels of factor productivity.

It should be noted that recently the US changed its industrial classification from the SIC categorisation to the NAICS categorisation, and therefore this year we have similarly migrated the WKCI to the new classifications. While every effort has been made to maintain continuity between the different industrial classifications, inevitably ranking changes do, to some extent, reflect changes in these classifications.

Tables 3.5 & 3.6 Biotechnology and chemicals production requires a highly skilled workforce. This is particularly true in the more developed economies where production tends to be concentrated on niche chemicals. This year Indianapolis (273.4) has moved to the top of the table, boosted by the establishment in 2002 of the privately funded 'BioCrossroads' initiative, a government, academic and business consortium aimed specifically at promoting the city's leading life-sciences cluster. Given that the partnership was established the year these statistics were taken, Indianapolis will be an interesting biotechnology region to follow in the future.

Lombardia and Greensboro-High Point also move up the list, while Hessen, the centre for the German biotechnology industry, and Toyama in Japan remain in the top five. Two Swedish regions - Stockholm and South Sweden - have also moved significantly up the rankings, adding to the generally strong employment of European regions in Biotechnology and Chemicals - ten of the top twenty regions are European.

Index of Regional Employment in the Biotechnology and Chemicals Sector
Top twenty regions in 2005 Table 3.5

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Indianapolis, US	273.4	10	9	11	South, Sweden	192.4	39	28
2	Lombardia, Italy	270.7	14	12	12	Taiwan	191.9	18	6
3	Hessen, Germany	262.6	1	-2	13	Osaka, Japan	187.5	20	7
4	Greensboro-High Point, US	260.4	23	19	14	Richmond, US	184.5	7	-7
5	Toyama, Japan	255.9	5	0	15	Nordrhein-Westfalen, Germany	181.2	6	-9
6	Switzerland	219.4	9	3	16	Victoria, Australia	173.9	24	8
7	Vlaams Gewest, Belgium	215.3	4	-3	17	South Netherlands	173.9	16	-1
8	Stockholm, Sweden	211.9	29	21	18	Cleveland-Elyria-Mentor, US	173.7	19	1
9	Philadelphia, US	196.6	11	2	19	Shizuoka, Japan	166.7	27	8
10	Houston, US	196.5	12	2	20	Ireland	165.3	13	-7

(Employees per 1000 inhabitants)

Index of Regional Employment in the Biotechnology and Chemicals Sector
Bottom twenty regions in 2005 Table 3.6

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
100	Mumbai, India	30.6	102	2	110	Phoenix-Mesa-Scottsdale, US	21.6	97	-13
101	Hyderabad, India	30.2	103	2	111	Orlando-Kissimmee, US	20.8	112	1
102	San Antonio, US	28.8	105	3	112	Sacramento--Arden-Arcade--Roseville, US	19.5	72	-40
103	Denver-Aurora, US	27.0	95	-8	113	Hong Kong	19.4	110	-3
104	Miami-Fort Lauderdale-Miami Beach, US	25.9	109	5	114	Saskatchewan, Canada	19.1	111	-3
105	Seattle-Tacoma-Bellevue, US	25.6	108	3	115	Saarland, Germany	18.8	79	-36
106	Portland-Vancouver-Beaverton, US	25.6	104	-2	116	Virginia Beach-Norfolk-Newport News, US	16.1	115	-1
107	Smaland Medoarna, Sweden	23.9	113	6	117	Las Vegas-Paradise, US	14.2	114	-3
108	British Columbia, Canada	23.4	106	-2	118	Luxembourg	8.0	99	-19
109	Bangalore, India	22.7	107	-2	119	Rochester, US	2.0	90	-29

(Employees per 1000 inhabitants)

Japan also performs quite strongly in this sector, with three regions in the top twenty.

Analysing the WKCI biotechnology and chemical sector index as a whole, it is interesting to see that there are large intra-national variations in employment, showing that business clustering is very much on a regional, not a national, basis. This lends support to the importance of competition at the regional level rather than the national level in innovative, knowledge-intensive sectors.

Tables 3.7 & 3.8 IT and computer manufacturing is another high value-added industry and continues to grow rapidly, having recovered from the brief but dramatic downturn of the dot-com crash. The division of the metropolitan area of San Jose, the home of Silicon Valley, from the metropolitan area of San Francisco in the new MSA classifications has created a new leader in this year's index. With over one person in every twenty employed in IT and Computer Manufacturing in San Jose - almost 13 times the index average - the region has taken top spot in the rankings by some distance. Austin (469.8), last year's leader and home to Dell computers as well as more than 200 other computer and peripheral manufacturing companies, moves down to second place.

Elsewhere there has been very little change. Clusters of IT manufacturing remain particularly prevalent in East Asia: Singapore (3rd) and Taiwan (11th) are joined in the top twenty by six Japanese regions, led by Shiga which remains in fourth place. In Europe, clusters of high employment are geographically dispersed. Of particular interest is Bratislavský entering in 13th place. The bottom of the index shows how concentrated employment in this sector is on a national basis: while the US takes the top two places in the index, it also takes twelve of the bottom twenty positions.

Tables 3.9 & 3.10 The automotive and mechanical engineering sector provides high-technology employment and requires high levels of technological investment. The reputation of Germany and Japan in automotive production is again borne out in our rankings: Baden Württemberg (379.0) moves to the top of the rankings, followed by five other German regions in the top fifteen; meanwhile the Japanese regions of Aichi (346.3) and Shizuoka (300.8) both move up one place to second and fourth respectively. Grand Rapids (322.3) moves up to third place, ahead of neighbouring Detroit, the city that has for so long been synonymous with the US car industry. Elsewhere in the US both Rochester and Seattle move well up the index into the top twenty. The Italian regions of North West and Emilia-Romagna, the later home to the luxury car models Ferrari, Ducati and Maserati, also both remain in the top ten. West Sweden, home of Saab, falls to tenth.

Tables 3.11 & 3.12 The instrumentation and electrical engineering sector utilises some of the most high-technology production techniques available. Similarly, the sector requires a supply of suitably skilled labour, providing high value equipment for a range of 'front line' industries.

We should again note that the change in the US classification system from the SIC to NAICS employment codes has, in this sector, led to a quite significant change in some of the rankings. Therefore, caution should be used in any comparisons with previous year's data for US regions.

Uusimaa (376.6) is this year's leader, moving up ten places from 2004 and 21 places from 2003, which represents rapid growth in this sector. Switzerland (317.2) has also consolidated its previous rapid growth, moving up to second place. Baden-Württemberg is placed third, followed by San Jose, which again enters high up the index, and also helps to

Index of Regional Employment in the IT and Computer Manufacturing Sector **Table 3.7**

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	San Jose, US	1257.3	1257.3	-	11	Taiwan	237.7	237.7	-1
2	Austin, US	469.8	469.8	-1	12	Tokyo, Japan	236.1	236.1	1
3	Singapore	466.2	466.2	0	13	Bratislavský, Slovak Republic	220.3	220.3	-
4	Shiga, Japan	458.1	458.1	0	14	Ireland	200.6	200.6	0
5	Portland, US	335.5	335.5	0	15	Phoenix, US	199.3	199.3	-8
6	Tochigi, Japan	315.6	315.6	2	16	Kyoto, Japan	197.2	197.2	3
7	Toyama, Japan	307.6	307.6	-1	17	Boston, US	196.5	196.5	-8
8	Kanagawa, Japan	262.9	262.9	3	18	Bayern, Germany	161.9	161.9	6
9	South Netherlands	238.1	238.1	3	19	East, Austria	159.9	159.9	12
10	Baden-Württemberg, Germany	238.0	238.0	8	20	Shizuoka, Japan	148.0	148.0	6

(Employees per 1000 inhabitants)

Index of Regional Employment in the IT and Computer Manufacturing Sector **Table 3.8**

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
97	New Zealand	19.1	103	5	107	Riverside-San Bernardino, US	16.3	82	
98	Western Australia	19.0	94	5	108	Noreste, Spain	16.3	97	-26
99	St. Louis, US	19.0	-	-5	109	Columbus, US	15.6	100	-12
100	Baltimore, US	18.4	107		110	Louisville, US	14.8	101	-10
101	West, Netherlands	17.8	89	6	111	Kansas City, US	14.0	110	-10
102	Central, Italy	17.4	105	-13	112	Saskatchewan, Canada	13.9	76	-2
103	Miami, US	17.2	15	2	113	Jacksonville, US	11.8	111	-37
104	Denver, US	16.7	93	-89	114	Detroit, US	8.8	113	-3
105	San Antonio, US	16.6	106	-12	115	Las Vegas-Paradise, US	7.3	16	-2
106	Hong Kong	16.5	-	0	116	Saarland, Germany	1.2	83	-33

(Employees per 1000 inhabitants)

account for San Francisco dropping out of the top twenty. Improved statistics for the Japanese regions has also lifted them up the rankings across the board, led by Shizuoka in fifth place.

Three of the four lowest ranked regions are Mumbai, Hyderabad and Bangalore in India, along with Jacksonville in the US. In general, there are numerous regions with very low employment in this sector.

Tables 3.13 & 3.14 The WKCI's high-technology service sectors index represents the density of employment for the following: telecommunications services; IT support; data processing; computer software; and research and scientific development.

This year Tokyo (284.8) moves back to the top of the rankings, while last year's leader Denver falls to ninth. The

biggest change to the rankings is the entry of three new regions: San Jose in third again enters near the top of the index, accounting for the fall of San Francisco to 14th, while the Eastern European regions of Bratislavský and Prague enter at sixth and seventh respectively. Bratislavský has made a very successful entry to the employment indices, also entering in the top twenty IT and Computer manufacturing regions. The World Bank recently described Slovakia as having the World's 'fastest transforming business environment' in 2004, and the performance of Bratislavský will be interesting to follow.

Elsewhere there has been relatively little change in this index: Stockholm remains in second place; Washington, Uusimaa and Ile de France remain in the top ten. The UK continues to perform strongly in high-tech services, with the South-East region, the centre of government-led research and development in the UK in eighth, and both London and

Index of Employment in the Automotive and Mechanical Engineering Sector

Table 3.9

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Baden-Württemberg, Germany	379.0	2	1	11	West, Sweden	220.3	6	-5
2	Aichi, Japan	346.3	3	1	12	Saarland, Germany	211.7	15	3
3	Grand Rapids, US	322.3	10	7	13	Noreste, Spain	199.9	16	3
4	Shizuoka, Japan	300.8	4	0	14	Hartford, US	198.1	21	7
5	Bayern, Germany	294.5	5	0	15	Tochigi, Japan	194.9	17	2
6	Detroit, US	263.4	1	-5	16	Seattle, US	193.7	34	18
7	Niedersachsen, Germany	231.4	7	0	17	Bremen, Germany	188.6	13	-4
8	Hessen, Germany	229.4	14	6	18	North East, Italy	175.2	22	4
9	North West, Italy	227.1	11	2	19	Rochester, US	172.1	51	32
10	Emilia-Romagna, Italy	226.3	8	-2	20	Shiga, Japan	169.3	19	-1

(Employees per 1000 inhabitants)

Index of Regional Employment in the Automotive and Mechanical Engineering Sector

Table 3.10

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
100	British Columbia, Canada	30.8	102	2	110	Hong Kong	18.8	107	-3
101	San Antonio, US	29.6	101	0	111	Miami, US	18.6	105	-6
102	Baltimore, US	28.4	-	-	112	Sacramento, US	16.5	110	-2
103	San Francisco, US	27.7	106	3	113	New York, US	16.4	111	-2
104	Austin, US	27.0	98	-6	114	Mumbai, India	8.3	112	-2
105	Tampa, US	24.4	103	-2	115	Hyderabad, India	8.2	113	-2
106	Richmond, US	23.8	97	-9	116	Washington, US	7.5	108	-8
107	Stockholm, Sweden	23.7	88	-19	117	Bangalore, India	6.2	115	-2
108	Luxembourg	22.6	86	-22	118	Brussels, Belgium	5.6	109	-9
109	Raleigh-Cary, US	20.9	116	7	119	Las Vegas, US	3.4	114	-5

(Employees per 1000 inhabitants)

Index of Regional Employment in the Instrumentation and Electrical Machinery Sector

Table 3.11

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Uusimaa, Finland	376.6	11	10	11	Bayern, Germany	250.6	2	-9
2	Switzerland	317.2	5	3	12	Lombardia, Italy	235.3	9	-3
3	Baden-Württemberg, Germany	302.2	4	1	13	Aichi, Japan	202.8	65	52
4	San Jose, US	299.1	-	-	14	Bratislavský, Slovak Republic	202.1	-	-
5	Milwaukee, US	291.3	3	-2	15	Kyoto, Japan	202.1	34	19
6	Shizuoka, Japan	279.2	69	63	16	Budapest, Hungary	201.4	-	-
7	Smaland Medoarna, Sweden	278.6	22	15	17	North East, Italy	191.8	10	-7
8	Tochigi, Japan	277.8	21	13	18	Boston, US	188.8	7	-11
9	Shiga, Japan	271.5	70	61	19	Emilia-Romagna, Italy	186.5	24	5
10	South, Sweden	255.6	28	18	20	Osaka, Japan	180.4	51	31

(Employees per 1000 inhabitants)

Eastern England also moving up to 11th and 15th respectively. Madrid also continues to emerge as a modern centre of the European knowledge economy and has seen significant gains both in high-technology service sector employment and overall wealth.

Index of Regional Employment in the Instrumentation and Electrical Machinery Sector

Table 3.12

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
100	Columbus, US	25.8	66	-34	110	Virginia Beach, US	13.4	106	-4
101	Kansas City, US	24.2	79	-22	111	Alberta, Canada	11.3	112	1
102	Detroit, US	24.2	100	-2	112	San Antonio, US	10.1	82	-30
103	Sacramento, US	23.5	103	0	113	Richmond, US	8.8	102	-11
104	Manitoba, Canada	23.1	107	3	114	Luxembourg	8.5	93	-21
105	Miami, US	22.5	76	-29	115	Las Vegas, US	7.5	113	-2
106	Charlotte, US	18.8	83	-23	116	Mumbai, India	6.6	114	-2
107	British Columbia, Canada	17.4	110	3	117	Jacksonville, US	6.5	78	-39
108	Denver, US	17.1	46	-62	118	Hyderabad, India	6.5	115	-3
109	Saskatchewan, Canada	13.8	111	2	119	Bangalore, India	4.9	116	-3

(Employees per 1000 inhabitants)

Index of Regional Employment in the High-Technology Service Sectors

Table 3.13

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Tokyo, Japan	284.8	5	4	11	London, UK	160.5	13	2
2	Stockholm, Sweden	249.8	2	0	12	Kansas City, US	158.5	7	-5
3	San Jose, US	237.6	-	-	13	Comunidad de Madrid, Spain	158.1	15	2
4	Washington, US	236.5	6	2	14	San Francisco, US	149.1	3	-11
5	Uusimaa, Finland	228.6	4	-1	15	Eastern, UK	144.3	17	2
6	Bratislavský, Slovak Republic	218.3	-	-	16	Boston, US	139.8	10	-6
7	Prague, Czech Republic	193.2	-	-	17	Raleigh-Cary, US	134.9	16	-1
8	Île de France, France	192.5	9	1	18	Denmark	130.5	23	5
9	South East, UK	170.8	11	2	19	Atlanta, US	129.8	8	-11
10	Denver, US	162.8	1	-9	20	South, Sweden	126.7	24	4

(Employees per 1000 inhabitants)

Index of Regional Employment in the High-Technology Service Sectors

Table 3.14

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
97	Miami, US	64.8	67	-30	107	Las Vegas, US	53.0	88	-19
98	Smaland Medoarna, Sweden	63.6	91	-7	108	Phoenix, US	52.9	58	-50
99	Manitoba, Canada	61.5	-	-	109	British Columbia, Canada	51.5	100	-9
100	Saskatchewan, Canada	61.5	-	-	110	Luxembourg	51.3	101	-9
101	North, Netherlands	60.3	93	-8	111	Alberta, Canada	46.1	103	-8
102	Akron, US	58.7	-	-	112	Central, Italy	46.1	104	-8
103	Quebec, Canada	57.5	95	-8	113	Noreste, Spain	38.9	105	-8
104	West, Austria	56.3	94	-10	114	Taiwan	30.9	109	-5
105	Niedersachsen, Germany	54.2	96	-9	115	Riverside-San Bernardino, US	29.3	-	-
106	North East, Italy	53.2	97	-9	116	Hong Kong	24.3	111	-5

(Employees per 1000 inhabitants)

Knowledge capital refers to a region's capacity for creating new ideas and transforming these ideas to create commercial value. R&D expenditure can be seen as an indicator of the efforts to expand and utilise the existing knowledge-base.

Table 4.1 ranks public/government R&D expenditure per head. Government expenditure on R&D is usually focused on developing the science base, supporting the full benefits of research that cannot always be adequately captured by the private sector. There has been some considerable movement in this index between 2004 and 2005, although Washington (839.3) remains at the top of the rankings for the fourth year running. Baltimore, which has previously been combined within the Washington MSA, enters in second place, reflecting the strength of government R&D spending in the state of Maryland. The rest of the top twenty is now dominated by US regions, reflecting strong growth in government-sponsored research in the US, which during the 1990's had been declining due to a fall in military-related R&D after the end of the Cold War. Outside of the US, Beijing (241.0) is the highest ranked region in 14th, although this reflects a fall of twelve places from last year. The European capital regions of Lazio, Prague and Berlin also all remain in the top twenty.

Swedish regions continue to prop up the government R&D spending index, although it is important to note that this reflects the channels of R&D investment in Sweden rather than low investment per se (for example, see table 4.3: R&D Expenditure by Business per Capita).

Index of Research and Development Expenditure by Government per Capita

Table 4.1

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Washington, US	839.3	1	0	11	Los Angeles, US	252.4	62	51
2	Baltimore, US	744.1	-	-	12	San Diego, US	252.4	62	50
3	Richmond, US	445.4	12	9	13	Sacramento, US	252.3	61	48
4	Virginia Beach, US	441.2	13	9	14	Beijing, China	241.0	2	-12
5	Boston, US	383.8	70	65	15	Phoenix, US	213.0	88	73
6	Hartford, US	322.3	-	-	16	Denver, US	201.4	56	40
7	Seattle, US	263.9	67	60	17	Lazio, Italy	164.1	10	-7
8	San Jose, US	252.5	-	-	18	Prague, Czech Republic	155.4	6	-12
9	San Francisco, US	252.4	62	53	19	Berlin, Germany	151.3	9	-10
10	Riverside, US	252.4	-	-	20	Pittsburgh, US	142.7	105	85

Index of Research and Development Expenditure by Government per Capita

Table 4.2

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
103	Lombardia, Italy	23.1	83	-20	113	South Netherlands	12.2	120	7
104	Central, Italy	21.9	79	-25	114	North, Netherlands	10.0	112	-2
105	North West, Italy	19.9	82	-23	115	Noreste, Spain	8.6	109	-6
106	Ireland	18.8	104	-2	116	West, Austria	8.3	103	-13
107	Osaka, Japan	17.3	21	-86*	117	Shiga, Japan	6.8	3	-114*
108	North East, Italy	16.1	89	-19	118	Switzerland	6.0	108	-10
109	Pearl River Delta, China	15.5	92	-17	119	Kyoto, Japan	6.0	19	-100*
110	Toyama, Japan	15.4	11	-99*	120	West, Sweden	1.7	119	-1
111	Aichi, Japan	14.9	5	-106*	121	South, Sweden	0.9	121	0
112	Shizuoka, Japan	12.8	4	-108*	122	Smaland Medoarna, Sweden	0.2	122	0

Business expenditure on research and development highlights the intensity of innovation, particularly through technological process development. Since business R&D expenditure will inevitably 'spillover', in terms of increasing the general knowledge and technological development within a region, this spending will benefit other firms and society as a whole. The level of investment by business, as opposed to the public sector, is a strong barometer of the level of innovative activity within regions, and this year sees Seattle (369.1) move up one place to the top of the rankings. Hartford moves up strongly to 3rd position, with two Swedish regions making up the top four: Stockholm moves up two places to second and West Sweden rises 9 places to fourth. This very high business R&D expenditure is a product of the structure of the Swedish economy, which is dominated by high-tech multinational firms.

However, in general Sweden proves the European exception, with the top twenty dominated by US and Japanese regions. Boston, Detroit, and the Californian regions all rank highly, while Shiga remains the top-ranked Japanese region. The first non-Swedish European region is Ile de France in 14th place, although Luxembourg has risen to 15th.

The bottom twenty is very geographically diverse. This year the Canadian province of Saskatchewan falls to the bottom of the index, followed by Central Italy and New Zealand.

Index of Research and Development Expenditure by Business per Capita

Table 4.3

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Seattle, US	369.1	3	2	11	Los Angeles, US	208.0	8	-3
2	Stockholm, Sweden	342.0	4	2	12	San Diego, US	208.0	9	-3
3	Hartford, US	332.9	10	7	13	Sacramento, US	208.0	6	-7
4	West, Sweden	294.0	13	9	14	Île de France, France	185.6	16	2
5	Boston, US	282.5	5	0	15	Luxembourg	182.6	48	33
6	Detroit, US	247.9	2	-4	16	Shiga, Japan	181.1	11	-5
7	Grand Rapids, US	247.9	1	-6	17	Uusimaa, Finland	179.9	12	-5
8	San Jose, US	208.1	-	-	18	Baden-Württemberg, Germany	177.0	17	-1
9	Riverside-San Bernardino, US	208.0	-	-	19	Aichi, Japan	170.9	18	-1
10	San Francisco, US	208.0	6	-4	20	Shizuoka, Japan	168.8	14	-6

Index of Research and Development Expenditure by Business per Capita

Table 4.4

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
103	Memphis, US	37.2	95	-8	113	Alberta, Canada	27.2	104	-9
104	Lazio, Italy	34.9	105	1	114	Budapest, Hungary	26.2	112	-2
105	Hong Kong	33.6	102	-3	115	Schleswig-Holstein, Germany	24.2	113	-2
106	British Columbia, Canada	32.6	99	-7	116	Manitoba, Canada	20.0	114	-2
107	Emilia-Romagna, Italy	32.5	110	3	117	Tianjin, China	19.2	118	1
108	Bratislavský, Slovak Republic	32.0	111	3	118	North East, Italy	18.3	119	1
109	Smaland Medoarna, Sweden	31.8	100	-9	119	Saarland, Germany	17.9	117	-2
110	Shanghai, China	30.9	106	-4	120	New Zealand	16.6	116	-4
111	Las Vegas-Paradise, US	28.7	101	-10	121	Central, Italy	13.5	121	0
112	North, Netherlands	28.3	109	-3	122	Saskatchewan, Canada	11.8	120	-2

The generation of new ideas within the WKCI is represented by the level of patent registration, as the nearest proxy to direct indicators of knowledge formation and knowledge capitalisation. The number of patents can be used to indicate how successful a region is in converting knowledge into potentially commercially viable products and processes. This indicator is not perfect as patents are an indicator of invention not innovation, and it may be a better indicator for some industries rather than others. For example, automotive companies are more likely to patent than those firms working in financial services.

Table 4.5 illustrates that patent registrations across the WKCI regions are dominated by US regions, with the notable exception of four regions from Japan and China, three of which occupy the first three positions on the index - Tokyo (600.2), Shanghai (423.5) and Osaka (290.0). The Californian MSAs make up the rest of the top 10, followed by a long list of US regions, many of which are located in the North-East of the US. Only Beijing in 12th breaks up the US pattern.

The Eastern European regions remain at the bottom of the table, while Spanish, Italian and Indian regions also feature prominently in the bottom 20. The large change in rankings, particularly at the top of the index, reflects the volatile nature of this indicator, and therefore it is helpful to consider rankings over a range of years rather than any one year in isolation.

Index of Patent Registrations per 1 million inhabitants

Table 4.5

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Tokyo, Japan	600.2	24	23	11	Boston, US	260.2	15	4
2	Shanghai, China	423.5	44	42	12	Beijing, China	239.2	27	15
3	Osaka, Japan	290.0	13	10	13	Denver-Aurora, US	222.1	25	12
4	San Jose, US	284.6	-	-	14	Portland, US	218.9	23	9
5	Riverside-San Bernardino, US	284.6	-	-	15	Detroit, US	197.8	22	7
6	San Francisco, US	284.6	4	-2	16	Grand Rapids, US	197.8	40	24
7	Los Angeles, US	284.6	48	41	17	New York, US	186.2	38	21
8	San Diego, US	284.6	14	6	18	Milwaukee, US	182.7	31	13
9	Sacramento, US	284.6	57	48	19	Seattle, US	177.8	28	9
10	Minneapolis-St. Paul, US	274.5	12	2	19	Buffalo-Niagara Falls, US	173.3	49	29

Index of Patent Registrations per 1 million inhabitants

Table 4.6

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
106	Scotland, UK	19.9	106	0	115	Hyderabad, India	9.3	118	3
107	Bremen, Germany	19.8	103	-4	117	Mumbai, India	9.3	122	5
108	West, Netherlands	18.6	83	-25	118	North, Netherlands	9.1	108	-10
109	North East, Italy	17.9	102	-7	119	Tochigi, Japan	8.8	6	-113
110	New Zealand	17.1	119	9	120	Lazio, Italy	7.1	116	-4
111	North West, Italy	16.6	104	-7	121	Comunidad de Madrid, Spain	5.6	117	-4
112	Hong Kong	15.2	114	2	122	Budapest, Hungary	5.5	123	1
113	Ireland	13.4	107	-6	123	Noreste, Spain	4.5	120	-3
114	Central, Italy	12.0	112	-2	124	Bratislavský, Slovak Republic	2.9	125	1
115	Bangalore, India	9.3	121	6	125	Prague, Czech Republic	2.7	124	-1

In order for firms to compete in the knowledge economy, actors not only need the willingness to acquire knowledge capital but also the finance with which to do so. Here we benchmark the availability of private equity to businesses at the regional level as a measure of financial capital availability. Private equity funding is particularly important, as it is often concentrated in small or medium sized firms with the potential for growth. Such investments finance expansion in order for innovative firms to build up their human, physical and knowledge capital stocks. In addition, private equity includes venture capital and start-up investments, which tend to be in knowledge-based activities and significantly add to each region's business base.

As shown by Table 5.1, US regions continue to provide the highest levels of private equity to their firms and occupy the top six spots in the 2005 rankings. San Jose and San Francisco share the top spot, with both regions benefiting from the huge amount of venture capital available in and around Silicon Valley. The New England regions of Boston and Hartford follow in third place, both of which score over six and a half times the index average. Outside of North America, a handful of European are competitive in terms of private equity: Stockholm, London and Paris all make the top ten. Japanese regions perform poorly in this area, partly reflecting the business structure in Japan, but also suggesting a potential lack of capital investment for smaller and more dynamic firms.

Perhaps one of the most interesting aspects of the index is

the huge intra-national variations in private equity activity. For example, in the US index scores range from 1485.5 in San Jose and San Francisco, down to 41.3 in Memphis and Nashville, a ratio of 35 to 1; in Sweden the range is 300.2 (Stockholm) to 30.6 (Smaland Medoarna), a ratio of 10 to 1; and in Canada 150.6 (Quebec) to 26.2 (Manitoba), around 6 to 1.

Index of Private Equity Investment Capital per Capita

Table 5.1

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	San Jose, US	1325.4	-	-	10	Washington, US	161.3	52	42
1	San Francisco, US	1325.4	4	3	12	Portland, US	154.7	23	11
3	Hartford, US	588.1	8	5	12	Seattle, US	154.7	2	-10
3	Boston, US	588.1	3	0	14	South East, UK	145.5	12	-2
5	San Diego, US	338.9	7	2	15	Uusimaa, Finland	142.4	10	-5
6	Denver, US	334.3	21	15	16	Quebec, Canada	134.4	82	66
7	Stockholm, Sweden	300.2	11	4	17	West, Sweden	131.8	22	5
8	London, UK	246.9	9	1	18	Austin, US	127.5	42	24
9	Île de France, France	246.2	15	6	18	Dallas, US	127.5	42	24
10	Baltimore, US	161.3	-	-	18	Houston, US	127.5	41	23

Index of Private Equity Investment Capital per Capita

Table 5.2

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
102	Western Australia	31.3	56	-46	114	Bratislavský, Slovak Republic	14.7	123	9
106	Saarland, Germany	30.0	117	11	115	Budapest, Hungary	12.0	118	3
107	East, Austria	27.5	100	-7	116	Prague, Czech Republic	10.0	119	3
107	West, Austria	27.5	111	4	117	Beijing, China	1.2	113	-4
108	Smaland Medoarna, Sweden	30.6	88	-20	117	Pearl River Delta, China	1.2	108	-9
109	Saskatchewan, Canada	27.1	74	-35	117	Shanghai, China	1.2	116	-1
110	Schleswig-Holstein, Germany	24.1	115	5	117	Tianjin, China	1.2	120	3
111	Manitoba, Canada	23.4	93	-18	121	Bangalore, India	0.8	122	1
112	Niedersachsen, Germany	19.7	95	-17	121	Hyderabad, India	0.8	121	0
113	New Zealand	17.2	62	-51	121	Mumbai, India	0.8	124	3

Labour productivity is an important measure of regional performance. It is a variable influenced by a wide range of factors such as sector make-up, workforce skills, investment in innovation and market competition. Productivity varies from GDP per capita and is partly a function of a region's economic activity and unemployment rates. The prosperity of all economies is highly dependent on their productivity rates.

As shown by table 6.1, the highest productivity rate is still found in Brussels (242.7), consolidating the top position it gained in the 2004 index, followed by Luxembourg (178.1) and Hartford (175.8), the highest US region. Despite losing San Jose (which enters in fifth) from its classification, San Francisco still moves up to sixth place. The greatest gain comes from London, moving from outside the top twenty into eighth place. German regions also perform well, with Bremen and Hamburg moving up to 3rd and 8th respectively, despite only entering the top twenty last year. The lowest ranked regions are predominantly Asian, although both Hungary and the Canadian regions of British Columbia and Manitoba have slipped down to join them in the bottom twenty.

Index of Labour Productivity
Top twenty regions in 2005

Table 6.1

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Brussels, Belgium	242.7	1	0	11	Rochester, US	130.5	15	4
2	Luxembourg	178.1	2	0	12	Boston, US	129.6	3	-9
3	Hartford, US	175.8	4	1	13	Buffalo-Niagara Falls, US	129.1	8	-5
4	Hamburg, Germany	145.8	6	2	14	Richmond, US	128.2	10	-4
5	San Jose, US	141.9	-	-	15	Los Angeles, US	127.3	21	6
6	San Francisco, US	137.7	7	1	16	Washington, US	123.8	18	2
7	Île de France, France	137.5	11	4	17	Seattle, US	122.6	14	-3
8	London, UK	135.6	23	15	18	Sacramento, US	122.4	16	-2
9	Bremen, Germany	133.6	13	4	19	Dallas, US	121.0	22	3
10	New York, US	133.2	5	-5	20	Ulsan, Korea	120.5	19	-1

(Output per Employee)

Index of Labour Productivity
Bottom twenty regions in 2005

Table 6.2

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
106	British Columbia, Canada	79.9	93	-13	116	Shanghai, China	65.6	116	0
107	Manitoba, Canada	77.8	100	-7	117	Singapore	64.5	117	0
108	Taiwan	76.2	105	-3	118	New Zealand	63.3	118	0
109	Hong Kong	75.6	108	-1	119	Seoul, Korea	62.2	119	0
110	Bratislavský, Slovak Republic	73.4	113	3	120	Beijing, China	55.1	120	0
111	Toyama, Japan	73.3	115	4	121	Pearl River Delta, China	46.3	121	0
112	Tochigi, Japan	73.2	109	-3	122	Tianjin, China	36.9	122	0
113	Budapest, Hungary	72.3	90	-23	123	Mumbai, India	21.8	123	0
114	Kyoto, Japan	72.3	112	-2	124	Bangalore, India	14.5	124	0
115	Shizuoka, Japan	71.5	114	-1	125	Hyderabad, India	10.8	125	0

(Output per Employee)

It is important to assess how output is translated into wealth and prosperity for those individuals living within the WKCI regions. Earnings data indicate the relative wealth and standards of living within an economy, particularly the value-added generated from economic activity. It is also a strong proxy of the relative quality of jobs within an economy.

Table 6.3 indicates that US regions continue to dominate the earnings per capita table - as in 2004, the US has 16 of the top 20 regions. San Jose, the home of Silicon Valley, enters the index in first place, displacing neighbouring San Francisco, while Boston, New York, Washington, Seattle and Hartford all remain in the top 10. San Diego also moves up the index, increasing the dominant position of the Californian metropolitan areas.

Although the US regions dominate this index numerically, Brussels (2nd), Tokyo (6th), Luxembourg (7th) and London (10th) have all improved their positions, suggesting that earnings in some of the stronger non-US regions are becoming increasingly competitive. The lowest ranked regions are again dominated by Indian and Chinese regions, while of the rest Italy fares particularly poorly, with five regions now in the bottom twenty.

Index of Earnings Table 6.3
Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	San Jose, US	204.9	-	-	11	London, UK	147.1	21	10
2	Brussels, Belgium	190.4	4	2	12	Detroit, US	144.0	13	1
3	San Francisco, US	171.5	1	-2	13	Chicago, US	143.2	12	-1
4	New York, US	171.3	3	-1	14	San Diego, US	140.5	23	9
5	Washington, US	165.9	6	1	15	Philadelphia, US	138.5	19	4
6	Tokyo, Japan	160.6	2	-4	16	Minneapolis-St. Paul, US	138.2	15	-1
7	Boston, US	159.5	5	-2	17	Houston, US	138.1	10	-7
8	Luxembourg	157.9	17	9	18	Los Angeles, US	138.0	20	2
9	Seattle, US	149.9	9	0	19	Denver, US	137.8	11	-8
10	Hartford, US	147.7	8	-2	20	Atlanta, US	137.3	18	-2

(Mean Gross Monthly Earnings)

Index of Earnings Table 6.4
Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
106	Lazio, Italy	72.2	87	-19	116	Prague, Czech Republic	48.7	112	-4
107	Manitoba, Canada	70.5	113	6	117	Bratislavský, Slovak Republic	46.2	118	1
108	Lombardia, Italy	69.6	84	-24	118	Pearl River Delta, China	44.2	117	-1
109	Singapore	69.4	114	5	119	Budapest, Hungary	41.3	120	1
110	Ontario, Canada	66.6	79	-31	120	Shanghai, China	39.1	119	-1
111	North West, Italy	62.4	97	-14	121	Beijing, China	33.1	121	0
112	North East, Italy	62.2	102	-10	122	Tianjin, China	24.7	122	0
113	Emilia-Romagna, Italy	62.1	107	-6	123	Mumbai, India	18.7	123	0
114	Central, Italy	58.5	111	-3	124	Bangalore, India	13.6	124	0
115	New Zealand	58.3	116	1	125	Hyderabad, India	9.6	125	0

(Mean Gross Monthly Earnings)

Unemployment levels are shown in Tables 6.5 and 6.6, reverse ranked so that a high score indicates a low level of unemployment. In order to standardise the indexation method across all indices, this year the unemployment rate index is transformed using the simplified equation *100 minus unemployment rate*, thereby maintaining a linear transformation.

Emilia-Romagna and West Austria (103.2) have the lowest level of unemployment in this year's index, followed in third by the Korean region of Ulsan. Two other Italian regions - North East and Lombardia - are in the top six, suggesting that Italian unemployment, although high at the national level, has a significant regional concentration. Unemployment also remains low in West and South Netherlands.

Although the dominance of European regions in the top twenty might seem anomalous, it is interesting to note a similar European bias is evident in the bottom twenty, suggesting that the European unemployment 'problem' is not regionally uniform. Berlin (82.5) takes last place, also being joined in the bottom five by the German regions of Bremen and Hamburg.

There also appears to be a surprising lack of correlation between employment and wealth. For example, the wealthiest region in terms of GDP per capita, Brussels, is down in 124th position, while the WKCI 2005 leader San Jose, is placed 111th, highlighting the aftermath of the recent problems experienced by the region.

Index of Unemployment Table 6.5
Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	West, Austria	103.2	6	5	11	Pearl River Delta, China	102.4	15	4
2	Emilia-Romagna, Italy	103.2	41	39	12	South East, UK	102.3	3	-9
3	Ulsan, Korea	103.1	11	8	13	Eastern, UK	102.2	8	-5
4	Hartford, US	102.9	39	35	14	Tianjin, China	102.2	21	7
5	North East, Italy	102.6	14	9	15	Budapest, Hungary	102.1	1	-14
6	Lombardia, Italy	102.5	22	16	16	Washington, US	102.0	27	11
7	Luxembourg	102.4	5	-2	17	Richmond, US	102.0	22	5
8	West, Netherlands	102.4	2	-6	18	Switzerland	102.0	8	-10
9	Toyama, Japan	102.4	12	3	19	Virginia Beach, US	101.9	31	12
10	South Netherlands	102.4	3	-7	20	Norway	101.9	22	2

Index of Unemployment Table 6.6
Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
106	Noreste, Spain	98.2	116	10	116	Bangalore, India	97.0	119	3
107	Portland, US	98.1	110	3	117	Hyderabad, India	97.0	119	2
108	British Columbia, Canada	97.7	113	5	118	Mumbai, India	97.0	119	1
109	Saarland, Germany	97.7	112	3	119	Quebec, Canada	96.7	115	-4
110	Niedersachsen, Germany	97.4	111	1	120	Île de France, France	96.6	109	-11
111	San Jose, US	97.3	-	-	121	Hamburg, Germany	96.4	94	-27
112	Osaka, Japan	97.2	101	-11	122	Israel	95.1	122	0
113	Nordrhein-Westfalen, Germany	97.1	107	-6	123	Bremen, Germany	94.5	123	0
114	Schleswig-Holstein, Germany	97.1	103	-11	124	Brussels, Belgium	89.8	124	0
115	Lazio, Italy	97.1	118	3	125	Berlin, Germany	87.7	125	0

Knowledge sustainability represents each region's capacity for sustaining the long-term health of its knowledge creation and commercial exploitation capacities. In our model, this is represented by investment in future generations of knowledge workers and investment in ICT infrastructure. The five variables included are:

Investment in Future Knowledge

Per Capita Public Expenditures on Primary and Secondary Education.

Per Capita Public Expenditures on Higher Education.

National ICT Infrastructure

Secure servers per one million inhabitants.

Internet Hosts per 1,000 inhabitants.

Broadband Penetration.

Investment in Future Knowledge

New theories of economic growth are based on the importance of human capital and the need for a skilled workforce that is able to adapt to and meet new business goals in an evolving economy. Future human and knowledge capital is embodied within those individuals undertaking education. Therefore, resources dedicated to education and training can be thought of as investment in knowledge. Sustained economic growth will depend on the quality of school and university graduates and their ability to produce,

adapt, commercialise and utilise knowledge. Much of the expenditure on education is set by national budgets, particularly for compulsory primary and secondary education in Europe, while higher education expenditure is a reflection of the number and type of institutions within a region.

Table 7.1 highlights primary and secondary education expenditure per capita for the highest performing regions, with the scores for European regions based on national data. The statistics continue to show that the smaller European nations are matching the US for primary and secondary education expenditure. Luxembourg (218.4) is ranked first, while Switzerland, Norway, Denmark and three of the Swedish regions also make the top 20. Of the US regions, which fill the remaining positions, the New York state regions of New York, Rochester and Buffalo-Niagara all perform strongly, while last years leader Hartford slips slightly to 3rd position.

There has been little movement at the bottom of the rankings with Asian countries predominant among the bottom twenty. The Eastern European regions have all slipped back, as have the Italian regions of North East and Emilia-Romagna, in what appears to have been a downward trend for Italy across a range of indicators.

Index of Investment in Primary and Secondary Education (Per capita public expenditure) Table 7.1

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Luxembourg	218.4	11	10	11	Norway	148.7	5	-6
2	New York, US	187.0	4	2	12	Denmark	143.4	28	16
3	Hartford, US	178.7	1	-2	13	Smaland Medoarna, Sweden	141.8	33	20
4	Rochester, US	169.6	2	-2	14	West, Sweden	140.4	33	19
5	Buffalo-Niagara Falls, US	169.6	2	-3	15	Milwaukee, US	140.1	10	-5
6	Seattle, US	167.2	31	25	16	Philadelphia, US	139.8	12	-4
7	Switzerland	156.9	25	18	17	Minneapolis-St. Paul, US	136.8	13	-4
8	Boston, US	149.6	9	1	18	South, Sweden	136.7	33	15
9	Detroit, US	149.1	8	-1	19	Baltimore, US	136.1	-	-
10	Grand Rapids, US	149.1	7	-3	20	Washington, US	130.9	32	12

Index of Investment in Primary and Secondary Education (Per capita public expenditure) Table 7.2

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
106	Comunidad de Madrid, Spain	66.8	112	6	116	Budapest, Hungary	39.7	109	-7
107	Taiwan	66.4	111	4	117	Bratislavský, Slovak Republic	37.2	110	-7
108	Emilia-Romagna, Italy	64.1	87	-21	118	Singapore	34.5	118	0
109	Hong Kong	63.8	114	5	119	Shanghai, China	31.9	119	0
110	North East, Italy	62.4	87	-23	120	Pearl River Delta, China	31.6	120	0
111	New Zealand	62.2	115	4	121	Beijing, China	29.1	121	0
112	Noreste, Spain	59.0	112	0	122	Mumbai, India	20.4	122	0
113	Seoul, Korea	51.9	116	3	123	Tianjin, China	16.5	123	0
114	Ulsan, Korea	51.9	116	2	124	Bangalore, India	13.3	124	0
115	Prague, Czech Republic	45.7	78	-37	125	Hyderabad, India	10.8	125	0

Table 7.3 illustrates investments in higher education. As for primary and secondary education, we see a pattern of very strong US performance matched by a handful of European regions. Seattle (242.3) moves up significantly to first place in the rankings, followed by Salt Lake City, the previous top-ranked region. Brussels is third, with Denmark and Norway the other European regions in the top twenty. The Californian MSAs slip to eleventh position, being overtaken in the US by Detroit, Portland and the New York state MSAs of Rochester, Buffalo-Niagara and New York.

There has been very little movement at the bottom of the rankings, with Hyderabad remaining the lowest ranked region (6.2), followed by Bangalore (7.7). Next are the two Korean regions of Seoul and Ulsan, which have slipped back slightly while, as in 2004, eight of the bottom 20 positions are taken up by Japanese regions.

ICT Infrastructure

In order to transfer knowledge effectively and efficiently across regions and nations a well-developed ICT infrastructure, particularly access to fast broadband telecommunications services, is required. Although broadband access data is unavailable for all our benchmarked regions and nations, the OECD has collected certain data at the national level for its member states. Also, in order to look in more detail at the ICT infrastructure, we have analysed the number of secure servers and Internet hosts per capita in the nations covered by the WKCI benchmarked regions. Secure servers utilise encrypted software for e-commerce transactions and the number of such servers within a nation gives a strong indication of the level of e-business undertaken.

Table 7.5 shows that the highest per capita level of secure servers is in the United States (332.4), which has over three times the index average. However, this does represent a fall

from last year, and this relative fall would have been larger had India and China not been included this year. Canada (234.6) moves up one place to second, displacing New Zealand (202.0) which falls to third. China and India enter the index significantly behind the other nations, a clear example of the digital divide that exists between the developing and developed world.

The Internet is the most rapidly growing feature of ICT infrastructure and is now vital for the movement and diffusion of knowledge. The proportion of Internet hosts within a nation is a representation of the degree to which it is developing its 'wired economy'. Among the WKCI nations, Denmark is ranked number one (281.2) as shown by Table 7.6, followed by Finland (242.6). Once again, China and India come bottom of the index, both scoring around one thousand times below the index mean.

As highlighted by Table 7.7, Korea has the widest access to broadband services with an index more than double the WKCI mean average, followed again this year by Hong Kong. The Netherlands has increased broadband penetration significantly, moving up to third place, while in general changes have been relatively small. The Slovak Republic, Ireland and the Czech Republic continue to occupy the bottom three positions in the rankings. Perhaps the most interesting feature of Table 7.7 is the high range of scores even at a national level, revealing that broadband access is still highly variable across the globe. Also of note is the remarkable strength of China in this area, given its level of development relative to the other nations in the index.

Index of Investment in Higher Education

Table 7.3

Top twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
1	Seattle, US	242.3	18	17	11	New York, US	166.9	29	18
2	Salt Lake City, US	220.8	1	-1	12	San Diego, US	159.3	3	-9
3	Brussels, Belgium	212.4	49	46	13	San Francisco, US	159.3	3	-10
4	Grand Rapids, US	195.1	14	10	14	Sacramento, US	159.3	3	-11
5	Detroit, US	195.0	14	9	15	Los Angeles, US	159.3	3	-12
6	Portland, US	184.9	21	15	16	Riverside-San Bernardino, US	159.3	-	-
7	Denmark	174.6	54	47	17	San Jose, US	159.2	-	-
8	Rochester, US	173.7	16	8	18	Louisville, US	155.3	37	19
9	Buffalo-Niagara Falls, US	173.7	17	8	19	Indianapolis, US	153.8	22	3
10	Milwaukee, US	172.2	13	3	20	Norway	151.5	50	30

Index of Investment in Higher Education

Table 7.4

Bottom twenty regions in 2005

Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Region	Index in 2005	Rank in 2004	Change in Rank
106	North East, Italy	36.4	106	0	116	Kanagawa, Japan	26.0	116	0
107	Eastern, UK	36.2	114	7	117	Shanghai, China	25.5	117	0
108	North West, Italy	34.9	110	2	118	Pearl River Delta, China	25.3	118	0
109	Aichi, Japan	34.2	107	-2	119	Tianjin, China	13.2	119	0
110	Osaka, Japan	33.9	108	-2	120	Luxembourg	12.2	123	3
111	Shiga, Japan	31.2	109	-2	121	Mumbai, India	11.8	122	1
112	Tochigi, Japan	29.6	111	-1	122	Seoul, Korea	11.4	120	-2
113	Toyama, Japan	29.4	112	-1	123	Ulsan, Korea	11.4	120	-3
114	Shizuoka, Japan	29.2	113	-1	124	Bangalore, India	7.7	124	0
115	Kyoto, Japan	27.5	115	0	125	Hyderabad, India	6.2	125	0

Index of Secure Servers per Capita Table 7.5

Rank in 2005	Country	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Country	Index in 2005	Rank in 2004	Change in Rank
1	United States	332.4	1	0	16	Germany	78.0	16	0
2	Canada	234.6	3	1	17	Japan	75.2	18	1
3	New Zealand	202.0	2	-1	18	Hong Kong	70.4	8	-10
4	Luxemburg	200.0	5	1	19	Israel	65.4	19	0
5	Australia	197.6	4	-1	20	Belgium	43.0	20	0
6	Switzerland	186.7	6	0	21	Spain	32.9	22	1
7	United Kingdom	167.6	7	0	22	France	30.2	21	-1
8	Sweden	154.3	11	3	23	Taiwan	19.7	24	1
9	Denmark	152.6	13	4	24	Italy	16.6	23	-1
10	Ireland	147.2	9	-1	25	Czech Republic	15.1	25	0
11	Norway	120.2	14	3	26	Hungary	9.6	27	1
12	Finland	117.8	10	-2	27	Korea	9.0	26	-1
13	Singapore	111.6	12	-1	28	Slovak Republic	5.5	28	0
14	Netherlands	108.4	17	3	29	India	0.2	-	-
15	Austria	96.0	14	-1	30	China	0.1	-	-

Index of Internet Hosts per Capita Table 7.6

Rank in 2005	Country	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Country	Index in 2005	Rank in 2004	Change in Rank
1	Denmark	281.2	3	2	16	Italy	97.3	15	-1
2	Finland	242.6	2	0	17	Israel	81.5	23	6
3	Norway	229.3	4	1	18	Luxemburg	64.8	20	2
4	Netherlands	217.7	5	1	19	United Kingdom	64.6	19	0
5	Sweden	177.6	7	2	20	France	46.5	22	2
6	Australia	147.1	8	2	21	Germany	42.8	21	0
7	Belgium	144.8	13	6	22	United States	40.5	1	-21
8	Taiwan	143.1	16	8	23	Czech Republic	32.0	25	2
9	Switzerland	142.1	11	2	23	Hungary	32.0	26	2
10	Austria	125.3	12	2	25	Ireland	28.9	24	-1
11	New Zealand	121.3	9	-2	26	Spain	28.5	18	-8
12	Singapore	120.4	17	5	27	Slovak Republic	19.0	27	0
13	Hong Kong	113.7	6	-7	28	Korea	5.5	28	0
14	Japan	104.9	14	0	29	India	0.1	-	-
15	Canada	104.8	10	-5	30	China	0.1	29	-1

Index of Broadband Penetration Table 7.7

Rank in 2005	Country	Index in 2005	Rank in 2004	Change in Rank	Rank in 2005	Country	Index in 2005	Rank in 2004	Change in Rank
1	Korea	213.5	1	0	16	Luxemburg	84.0	22	6
2	Hong Kong	180.0	2	0	17	China	72.0	16	-1
3	Netherlands	162.9	9	6	18	Germany	72.0	13	-5
4	Denmark	161.2	5	1	19	Spain	72.0	15	-4
5	Canada	152.6	3	-2	20	Italy	69.4	20	0
6	Switzerland	148.3	9	3	21	Australia	66.0	18	-3
7	Belgium	133.7	6	-1	22	New Zealand	40.3	21	-1
8	Finland	128.6	12	4	23	Hungary	30.9	23	0
9	Japan	128.6	9	0	24	Ireland	29.1	24	0
10	Norway	127.7	14	4	25	Czech Republic	13.7	24	-1
11	Sweden	124.3	4	-7	26	Slovak Republic	9.4	26	0
12	United States	111.4	7	-5	27	India	-	-	-
13	France	90.9	17	4	28	Israel	-	-	-
14	United Kingdom	90.0	18	4	29	Singapore	-	-	-
15	Austria	87.4	8	-7	30	Taiwan	-	-	-

Broadband Access per 1000 Inhabitants

Why analyse regions? This was a question I pondered a number of times while working on the compilation of data for the WKCI 2005, often while struggling to locate regional sources for data readily available at the national level. While the logic behind the analysis of 'knowledge' as the key ingredient underlying competitiveness in today's advanced economies is more intuitive, the use of regional analysis is less so. In fact, with advances in telecommunications and information technologies allowing individuals and firms to instantaneously transfer information, regardless of location, you might think geography would be an increasingly less important issue in economic analysis. To borrow the title of Thomas Friedman's recent bestseller, if 'The World is Flat', what difference does it make where you are?

Friedman's basic theme is correct - it has certainly become possible for companies and individuals to source work far more widely. Yet the *geographic concentration* of related resources remains the most striking feature of any nation or region, especially in the most advanced economies. Furthermore, while Friedman shows how historic factors influencing location, such as proximity to inputs and markets, are being undercut, the ability to source from anywhere is also, paradoxically, *increasing* the importance of local competition in many respects - globalization is reinforcing localization.² This chapter begins with an overview of some recent work that helps to explain both the geography of economics and this paradox of localization, all of which serve to highlight the increasing importance of sub-national (or 'regional') economic analysis. Finally, the implications this has for regional economic development policy will be outlined, in particular drawing insight from a case-study of the Indiana biotechnology sector.

Economics and Geography Collide

There is perhaps nothing in economics quite as obvious as the fact that the location of production is vastly uneven. A cursory glance at today's economic landscape in any industrial nation will demonstrate huge geographic variations in the concentration of economic activities. Urban versus rural economies provide the most striking geographic division, yet vast differences also occur between the concentration and specialization of production within different urban areas; something clearly demonstrated by the employment indices in chapter three of this report.

So what have economists done to explain this economic geography and its determinants? The answer, until quite recently, was very little. It was not that the issue had been somehow overlooked: as far back as 1920, Alfred Marshall's *Principles of Economics* laid out what was, by many accounts, a remarkably coherent theory of industrial concen-

tration or 'agglomeration'. The problem has been that within the standard microeconomic model defined by constant returns and perfect competition there is no scope for agglomeration, since concentration necessarily implies the existence of some form of increasing returns; some benefit, either collective or internal to the firm, derived from locating near to other firms. As Paul Krugman summarises:

*the dramatic spatial unevenness of the real economy - the disparity between densely populated manufacturing belts and thinly populated farm belts, between congested cities and desolate rural areas; the spectacular concentration of particular industries in Silicon Valleys and Hollywoods - is surely the result not of inherent differences between locations but of some set of cumulative processes, necessarily involving some form of increasing returns, whereby geographic concentration can be self-reinforcing.*³

Armed with this logic of increasing returns, Krugman was able to develop models based on economies of scale which could explain persistent concentration of industries in certain geographic locations, thereby laying the groundwork for the 'new geography theory'. Although this 'finding' was not necessarily new to the geographic community,⁴ by introducing the concept into the mainstream of economics, and finding a way to model the concept using the standard tools of economics, Krugman's work has led to a great expansion of research on the subject.⁵

Less novel, but equally important, is the close attention paid by Krugman to the impact of history on industrial location. As he notes, 'if you try to explain why a particular region is home to a particular industry, you usually end up explaining it largely by describing the sequence of events that caused the industry to be there.'⁶ This impact of historical 'accident', or the locking-in of transitory advantages, is clearly evident in many of today's major clusters and metropolitan areas. It would be impossible to explain why finance has dominated the economies of London and New York for over a century without implicit reference to the concept of cumulative causation. This idea that important aspects of an economy are contingent, determined by history and accident, is inventively labelled 'QWERTY' by Paul David, after the arbitrary layout of the typewriter keyboard.⁷

An equally important contribution to economic geography has been made by Michael Porter, whose hugely influential work has focused at the level of the 'cluster', which he defines as 'geographic concentrations of interconnected companies, specialized suppliers, services providers, firms in related industries, and associated institutions'.⁸ Porter's ideas revolve around an explanation of geographic concentration through the existence of *local external economies*, or what economists would describe as localized 'positive spillovers'. For Porter, productivity advantages of agglomeration, such

¹ Friedman (2005)

² See Porter (2000), p.15-16

³ Fujita, Krugman and Venables (2000), p.2.

⁴ For a discussion on this issue see The Economist, Economics focus: Economists v geographers, 13 March 1999, 92.

⁵ See, for example, Fujita, Krugman and Venables (2000)

⁶ Krugman, unpublished.

⁷ David (1985).

⁸ Porter (2000), p.15

as access to specialized inputs, employees, information, and institutions, will both encourage firms to cluster, and will reinforce these clusters over time, as new firms become attracted to existing clusters by the same advantages of concentration (in this way, cumulative causation becomes an endogenous process).⁹ Also, and this is perhaps the key, many of the factors that increase current productivity will also encourage innovation within the cluster, and therefore increase firms' *productivity growth*. For example, access to specialized information via personal relationships will, over time, provide advantages to cluster participants in perceiving new technological opportunities and new buyer needs. As Porter states, 'the isolated firm, by contrast, faces higher costs and steeper impediments to assembling insights as well as a greater need to create knowledge in-house.'¹⁰

By taking this business-level analysis of geographic concentration, and understanding it in the context of firms' increasing ability to outsource, Porter is able to explain the 'location paradox' of global competition:

*Anything that can be efficiently sourced from a distance has essentially been nullified as a competitive advantage in advanced economies. Information and relationships that can be accessed through fax or email are available to anyone. Although global sourcing mitigates disadvantages, it does not create advantages . . . paradoxically, the most enduring competitive advantages in a global economy seem to be local.*¹¹

Therefore, as traditional forms of advantage become 'nullified', competitive advantages lying *outside* companies - that is, in the business environment in which they are located - increase in importance.¹² In other words, the flatter the world becomes, the more important local external economies become, and the greater impact centripetal clustering forces will have on the economic landscape we see around us.¹³

The Implications for Regional Analysis

One simple advantage of the above analysis is that it helps to illuminate the results found in the WKCI. The large intra-national differences we find across, for example, knowledge-sector employment levels and productivity rates make much more sense when we understand the economic forces behind regional concentration. More importantly however, it lends considerable weight to the use of both data analysis and a policy approach at the regional, rather than the national, level. Obviously this is not to dismiss the fact that 'region' still remains a somewhat arbitrary level of analysis. However, given that we can never truly define, never mind find data for, identically integrated economic areas, then clearly as a geographic unit of analysis the use of sub-national geographic units, or 'regions', will bring us closer in line both with the nature of competition and the appropriate role of government in economic development.

This is not to say that a regional approach can provide a straightforward policy panacea. As Krugman's original model shows, economic geography inevitably generates cores and peripheries,¹⁴ which undoubtedly problematizes the idea that

every region can be a winner.¹⁵ Therefore, it is crucial that the constructive is differentiated from the destructive: if 'regional competition' does simply degenerate into a zero-sum competition for resources there can be no aggregate benefit. Yet, even if every region cannot 'win' - insofar as regional competition can promote a positive-sum outcome - microeconomic supply-side intervention allows every region to enhance its potential, whatever its initial starting position. Bristow argues that more research is needed to identify 'what options there are for regions that do not have the cultural and institutional conditions conducive to the development of innovative, internationally successful firms'.¹⁶ This may well be true. However, it will arguably still be at the regional level that such localized tailoring of policy is most likely to be carried out effectively.

Scope for Regional Policy

The fact that cumulative causation is a major factor in determining economic location, one of the most straightforward points made so far, in turn implies that future economic growth is *more likely* to come via existing specializations than via the growth of entirely new sectors. Tying this into our knowledge employment indices in chapter three, this leads to the somewhat obvious conclusion that, for example, policymakers in San Jose should worry more about maintaining an environment conducive to the continued growth of IT and computer manufacturing than trying to move up the rankings in, say, automotive and mechanical engineering. If anything, increasing *specialization* tends to be a feature in economic development, be it high-tech manufacturing in Silicon Valley or IT services in Bangalore, and therefore continuing to 'do what you do best' has a lot to be said for it.

What this does not say, however, is that policy should rigidly institutionalize existing industries. Despite a great deal of path dependency, industries do come and go - comparative advantages come and go. A useful historical example can be found in the UK, where the institutionalization of heavy industries long past their sell-by date stalled the progression towards higher value-added production, and arguably greatly weakened the technological strength of the economy. Therefore, optimum policy must *enable* existing firms and clusters to continue to thrive, yet remain *flexible* enough to allow market forces to ultimately determine who fails and who succeeds.

What constitutes such an 'enabling' environment? There are certain basic necessary conditions - macroeconomic stability, basic infrastructure and legal frameworks - which are universally accepted as the requisite roles of national government. How to establish and support these conditions might be of relevance to those regions at the very bottom of our WKCI (and obviously the vast number of regions that do not feature at all), although for discussion here, the more interesting question is, what can be done in terms of regionally specific policies in the more advanced regions? If, as discussed earlier, firm creation and growth is dependent to some extent on local external economies, then how can collective action - on the part of government or business -

⁹ Porter (2000), p.23-24

¹⁰ Porter (2000), p.23

¹¹ Porter (2000), p.32

¹² See Porter (1998) and (2000). This point is arguably the key to Porter's theory, particularly in relation to its policy implications.

¹³ In this sense, we can understand agglomeration as a dynamic process, the pattern of which is determined by opposing centripetal and centrifugal forces. Porter identifies many of the centripetal forces, which centrifugal forces might include land prices, wages and pollution.

¹⁴ See, for example, Krugman (1991), p.1-34.

¹⁵ See Bristow (2005) for a discussion of the problems posed by the 'new regionalism'

¹⁶ Bristow (2005), p.297.

enhance these economies?

This is a question discussed at some length by Porter. For him, regional policy 'requires going beyond improvements in the general business environment to see how policies and institutions affect particular concentrations of related firms and industries'.¹⁷ At this point it is important to qualify the idea of clusters with regard to its policy implications. It needs to be remembered that the cluster concept is just that, a *concept*, and a very broad one too. Martin and Sunley argue that 'it would seem more advisable for local and regional authorities to concentrate on encouraging productivity improvements in all local firms, as well as improving their business environments, without necessarily committing to a cluster mind-set'.¹⁸ From this perspective, the primary focus should be productivity and the business environment. While the 'cluster mind-set' can be valuable insofar as it can *catalyse* increased policy efforts in this direction, caution must be taken in attempting to apply the concept via blinkered institutional frameworks that could permanently exclude certain firms or industries. Indeed, Porter is very keen to distance himself from the term 'industrial policy', since he sees it as crucial that policy should not be focused at the firm or industry level, which merely leads to market distortion.¹⁹ Rather, taking the cluster as the focus 'highlights the externalities, linkages, spillovers, and supporting institutions' and, in turn, highlights a rationale for collective action in terms of building the public or quasi-public goods that encourage business formation and development.²⁰ An example will be useful in discussing how these local external economies might be consciously enhanced.

Biocrossroads: Leveraging Indiana's Life-Science Industry

While putting together this year's WKCI rankings, I noticed that Indianapolis - generally one of the less prominent regions in the index - had moved to the top of the employment rankings in the biotechnology and chemical engineering sector. A brief web search led me to the 'Biocrossroads' initiative which, as it turns out, provides a very illustrative case-study in this context.²¹ Biocrossroads was formed in 2002 with the express aim of expanding Indiana's life sciences industry, an industry that had been identified as holding 'special promise' and which represented 'an exciting intersection of existing assets and growth potential in Indiana'.²² The impetus came not from government, but from the Central Indiana Corporate Partnership, an alliance of Indiana business and research university leaders 'dedicated to the proposition that the public, private and academic sectors must plan and invest strategically to build a competitive, 21st century economy in Central Indiana'.²³

BioCrossroads identified four areas as being critical to expanding Indiana's life sciences industry: forming public-private-academic partnerships; workforce development; capital formation; and raising awareness of the region's assets and opportunities. Standing committees were formed to deal with each issue composed of corporate, community and government leaders. The list of programmes initiated so far includes:²⁴

- The launch of an *academic centre of excellence* focusing on applied protein sciences
- Support for Indiana University's *Emerging Technologies Centre*
- A not-for-profit *Indiana Health Information Exchange*, which aims to enhance collaboration between health researchers
- The launch of a *seed fund* and a *venture capital fund* focusing specifically on opportunities within Indiana life sciences
- The organization of corporate and academic 'teams' whose goal is help uncover potential *spin-off and start-up opportunities*.

The Biocrossroads example gives a very useful insight into the kinds of specific approaches that can be taken to promote regional growth. To see why the rationale behind these approaches would be applicable to any developed region and any industrial cluster, it will be helpful to take a step back, and look at the underlying economic rationale for these projects, which essentially fall into two categories: upgrading public 'knowledge' goods and enhancing investment through the capital market.

Public 'knowledge' goods

Public goods are characterised by the properties of non-excludability (benefits are available to all) and non-rivalry (enjoying benefits will not affect others), and therefore are likely to be undersupplied in a free market. Street lighting is a simple example: would street lighting be supplied when each household can free-ride from the provision of street-lighting by neighbouring households? Such 'collective action problems' present an accepted rationale for government intervention in the market. In the same way, investment in life science knowledge in Indiana has the potential to benefit all biotech firms there. Yet, since it would be difficult for any single firm to capture the full return on its investment, the potential for under-provision exists. Or, to express it in more positive terms, *collective action* has the potential to advantage all: collective investment in educational institutions can increase the local pool of knowledge which, in turn, can increase local external economies and increase the competitive advantage of the region. In this light, investment in 'applied protein sciences' and 'emerging technology centres' seems to be an eminently constructive business strategy.

More generally, Biocrossroads aims to encourage research, to develop educational institutions, and to improve local skills in the life science workforce, all of which represent efforts to upgrade local, industry-specific, public 'knowledge' goods. Since Biocrossroads is a privately-funded initiative, it seems that market incentives have led to effective regional coordination of public goods supply. Yet this is not to say that government could not help to motivate, facilitate and provide incentives for such initiatives - many similar cases of government initiated collaboration can be found. Either way, what is important is that the impetus will have to come at the local level, as this is the level at which policy can be shaped to meet specific local needs: in a world of specialization and geographic concentration one size cannot fit all.

The immense catalytic effect that local knowledge institutions

¹⁷ Porter (2000), p.26

¹⁸ Martin and Sunley (2003), p.29

¹⁹ Porter (2000), p.27-28

²⁰ Porter (2000), p.26-30

²¹ See <http://www.biocrossroads.com>

²² <http://www.biocrossroads.com/bio101/history.htm>

²³ <http://www.cincorp.com>

²⁴ <http://www.biocrossroads.com/bio101/history.htm>

can have on a region is widely evident. Silicon Valley provides the most famous example,²⁵ growing as it did out of a research park developed on Stanford University land. The IT firm Hewlett Packard, which became the nucleus of the Valley in its early years of development, began its operations in this research park, with an initial stake provided by the university. As the Valley grew, the cumulative process became reinforcing: the revenues from the park helped to develop a world-class science and engineering faculty at Stanford, which helped to attract further high-tech businesses, which provided more revenue; and so the cycle continued.²⁶ The growth of clusters around MIT (often referred to as Route 128) and Cambridge University in England are similar high-profile examples where leveraging existing knowledge infrastructure has helped develop clusters of knowledge-intensive business activity. Unfortunately, data for business investment in higher education is unavailable at the regional level, but WKCI data does show a strong positive correlation between regional earnings and public higher education expenditure (although obviously this says nothing about direction of causation): reference figure 8.1.

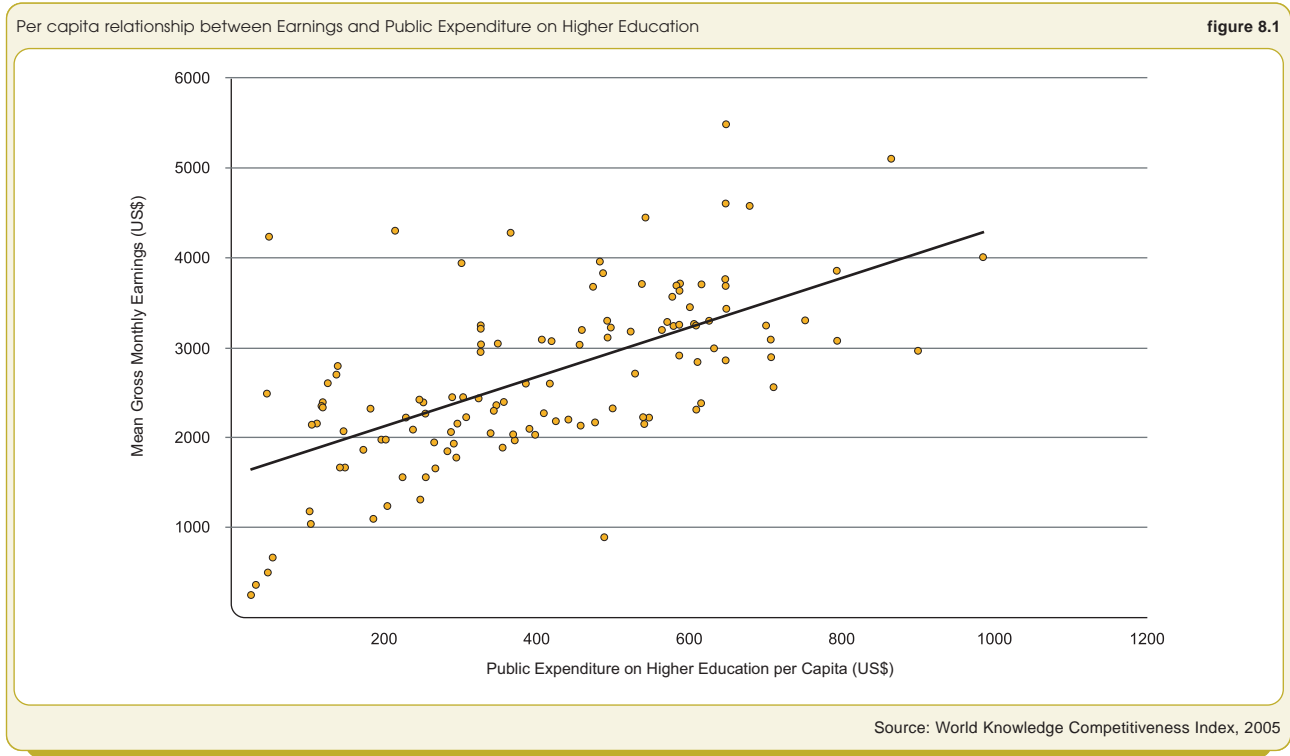
The essential overall point is this: the public sector, the private sector and research institutions - the so-called 'Triple-Helix' - all have a stake in regional economic development, and can all benefit from mutual investment and collaboration:

*Leaders of businesses, government, and institutions all have a stake - and a role to play - in the new economics of competition . . . the lines between public and private investment blur. Companies, no less than governments and universities, have a stake in education. Universities have a stake in the competitiveness of local businesses.*²⁷

Capital markets and high-tech investment

Commercializing a complex high-technology innovation is an inherently high-risk endeavour. There are two key sources of risk: one is the *lack of sufficient public information* for potential investors about technologies, which makes estimating expected risks and returns very difficult; the second is the potential *leakage of new knowledge* that might escape the boundaries of the firm and intellectual property protection, which can inhibit investment in promising technologies, particularly for small firms.²⁸ This certainly does not dissuade all investors - venture capital firms make a living out of early-stage financing, and so-called business 'angels' can come in even earlier in the development cycle. However, it is widely felt that the obstacles to investment described above do lead to a shortage of capital for start-up firms, particularly at the high-technology end of the scale, and particularly in the early 'seed' or 'pre-seed' stages of development; i.e. before it is possible to effectively evaluate the commercial potential of a new idea. As the Biocrossroads example shows, business leaders clearly felt that access to capital was an issue for biotech start-ups in Indiana: both seed funds and venture capital funds have been launched there recently.

From a regional perspective, the importance of access to capital is clear. If growth and high-wage, knowledge-intensive employment are the goals then, no matter how high the quality of local research, 'knowledge' needs to be converted into commercial output and capital is crucial in this conversion. This is not to say that incentives must necessarily come at the local level, since national budgets can provide greater weight in this area. The Small Business Innovation Research Program and the Advanced Technology Program in the US are examples of schemes that aim to increase the development and commercialization of high technology, high-risk products which might otherwise suffer



²⁵ See Kennedy (2000). While the Stanford research park was arguably the major catalyst, the chapter by Sturgeon - 'The biggest "angel" of them all: the military and the making of Silicon Valley' - also emphasises the influence of government on the regions growth.

²⁶ Kennedy (2000).¹¹ Porter (2000), p.32

²⁷ Porter (1998), p.90

²⁸ National Research Council, US (2004), p.17-20

from a lack of investment.²⁹ However, there is also undoubtedly scope for facilitation at the regional level. Venture capitalists will tell you that early stage financing work involves a great deal of time spent at universities - this is where the 'seeds' come from. In fact, the most notable aspect of the WKCI venture capital data collected this year was the intra-national differences in density of funding: reference figure 8.2.

Therefore, having a local venture capital presence, as the Indiana case suggests, will arguably lead to greater capital access for local firms. Nevertheless, this is clearly a case where the chicken must come before the egg: quality research institutions will be a prerequisite for any kind of venture capital activity.

In sum, it is not expected that a single regional case-study will give a comprehensive account of the potential for regional development policy. Undoubtedly other areas remain open for discussion. Rather, the goal has been to open up some of the key issues raised by the idea of regional 'knowledge' competition, and to try to get a flavour of some of the methods business and government can use to help positively shape the local environment.

Productivity versus redistribution: a necessary conflict?

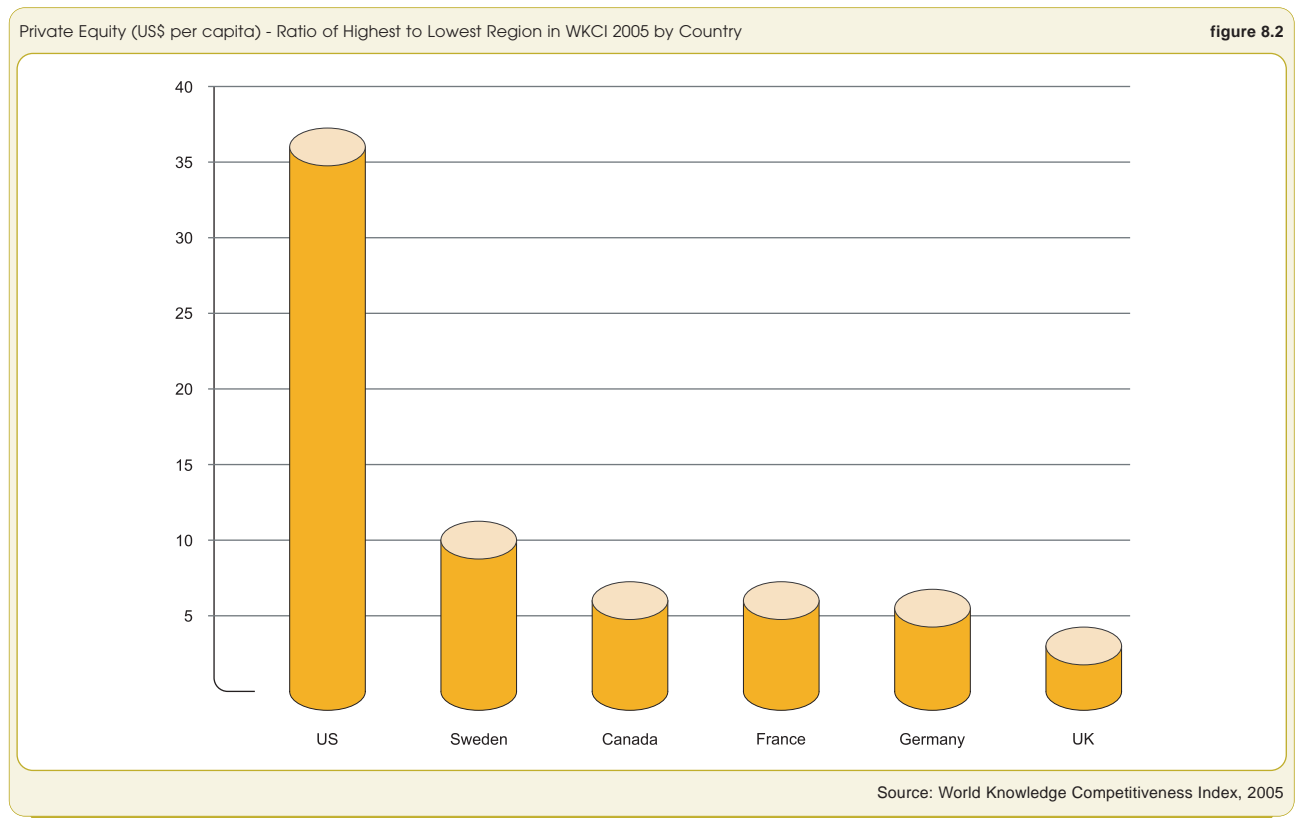
By bringing location into the heart of the analysis, the geography of economics also raises a host of questions regarding the *international* location of industry, and hence for policy considerations at the national level. These questions are beyond the scope of this paper, however one issue that

is more relevant at the national level does deserve mention; that is, the questions arising regarding the scope for redistributive policy within a globally competitive framework.

The above discussion implies that optimal policy should focus on strengths rather than weaknesses. The implicit argument is that existing knowledge-intensive cores offer the greatest growth potential, and therefore policy measures would be best focusing on areas with existing high-quality knowledge infrastructure. At the regional level, this might imply focusing attention on, say, upgrading institutions within the wealthiest metropolitan centre, rather than in the less-developed periphery.

Given this implicit argument, some points need to be clarified. Firstly, there is no reason why policy cannot target a range of goals: for example, aspiring towards creating world-class research institutions can sit within a general policy framework oriented towards any normative economic goals of society, be it equality of opportunity or greater equality of wealth distribution. In some cases the goals can even be mutually supportive - basic education being the obvious area of overlap. Also, since the major function of policy is, as has been discussed, to motivate and facilitate private funding of knowledge-generation and technological development, any shift in policy does not need to constitute a major change in funding priorities. MIT and Stanford University were both identified earlier as major catalysts of high-tech business growth in their respective regions - both are *privately* funded institutions.

This is important when we consider different attitudes towards the role of government policy. In Europe, for



²⁹ US National Research Council (2004) and (2001)

³⁰ This is based on evidence from interviews with recipients of SBIR and ATP grants in the US, which suggest that relatively small competition-based government grants can have a significant influence on behaviour, even of larger firms - see, for example, US National Research Council (2001) and (2004)

³¹ 'Collaboration-orientated' programs include, for example, EUREKA and COST. For a summary of the current (6th) framework programme of the EC for research and technological development see: <http://europa.eu.int/scadplus/leg/en/lvb/i23012.htm>

³² The Indian Express, Value for Money, 24 October, 2005

³³ Ibid

example, the economic legitimacy of the European Commission rests, to a large extent, on its ability to redistribute the EU budget towards the less wealthy regions. In this context, the idea of increasing funding for research and its commercialization via, for example, competition-based awards, which are likely to disproportionately benefit wealthier regions, is politically not an easy agenda to pursue. However, since relatively small sums of money are needed to create the incentives for such programmes to be effective,³⁰ there is no reason why such policies should not be part of a broader agenda. Yet where competition-based awards are available, the criteria tend to focus on cross-border collaboration in investment and research ahead of pure technical merit.³¹

This issue is certainly not unique to the EU. An anecdotal example comes from India, where during a recent BBC interview with Infosys Chairman Narayana Murthy, the interviewer mentioned that the last state election had been won by a campaign based on the premise that the urban elite in Bangalore had 'too much of the cake, now the cake has to be redistributed to the poor'.³² Yes Murthy replied, but 'you saw the roads, you have been in Bangalore for the past couple of days so you must have seen that this is not really the best of anything'.³³ He argued that Bangalore provides sixty percent of state taxes, and therefore it makes economic sense, *for the entire region*, to use some of that money to upgrade the physical and educational infrastructure on which that wealth has been built. Whichever theoretical lens we look through - "new economic geography", "cluster-theory", "knowledge competitiveness" or simply "the world is flat" - it would certainly seem that Murthy has a point.

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Region	Knowledge Competitiveness Index					Knowledge Intensity Ratio							
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Ratio 2005	Rank 2005	Ratio 2004	Rank 2004	Ratio 2003	Rank 2003	Change in Rank 2005
Atlanta-Sandy Springs-Marietta, US	129.3	35	135.3	31	143.4	22	1.09	49	1.06	54	1.11	40	5
Austin-Round Rock, US	150.9	19	183.0	9	194.9	2	1.33	17	1.50	5	1.61	1	-12
Baltimore-Towson, US	136.7	27	-	-	-	-	1.16	37	-	-	-	-	-
Boston-Cambridge-Quincy, US	244.3	2	230.4	2	183.0	3	0	1.62	5	1.22	33	69	28
Buffalo-Niagara Falls, US	137.8	25	138.1	28	128.5	33	1.06	52	1.07	52	1.00	58	0
Charlotte-Gastonia-Concord, US	126.3	41	131.5	36	137.7	30	0.96	63	0.96	60	0.99	61	-3
Chicago-Naperville-Joliet, US	136.6	28	159.3	17	146.7	19	1.13	44	1.30	23	1.19	26	-21
Cincinnati-Middletown, US	128.4	36	155.1	18	139.4	28	1.18	34	1.44	12	1.27	15	-22
Cleveland-Elyria-Mentor, US	127.2	39	134.9	33	127.2	34	0.98	59	1.25	29	1.16	30	-30
Columbus, US	133.1	30	137.2	29	139.1	29	1.13	43	1.12	41	1.12	36	-2
Dallas-Fort Worth-Arlington, US	146.7	21	152.6	21	154.7	13	0	1.12	46	1.12	45	32	-1
Denver-Aurora, US	167.0	14	175.3	14	170.7	6	1.30	22	1.28	25	1.25	20	3
Detroit-Warren-Livonia, US	161.5	15	176.7	12	154.3	14	0	1.48	11	1.68	2	1.42	4
Grand Rapids, US	195.4	6	197.3	3	159.7	9	1.62	4	1.65	3	1.29	12	-1
Greensboro-High Point, US	127.1	40	118.5	41	126.2	35	1.13	42	0.97	59	1.02	57	17
Hartford, US	224.7	4	195.4	5	167.5	7	1.30	21	1.12	44	0.96	68	23
Houston-Sugar Land-Baytown, US	136.9	26	141.0	25	134.6	32	1.17	36	1.12	43	1.08	45	7
Indianapolis, US	132.7	32	140.6	26	141.8	24	0	1.11	48	1.26	27	1.24	21
Jacksonville, US	95.9	63	101.2	59	111.6	47	0.81	88	0.80	85	0.90	75	-3
Kansas City, US	124.6	42	135.2	32	140.6	25	1.11	47	1.15	39	1.20	23	-8
Las Vegas-Paradise, US	90.6	68	90.0	72	105.4	53	0.76	92	0.80	86	0.95	71	-6
Los Angeles-Long Beach-Santa Ana, US	173.5	10	179.8	11	144.2	21	1.36	15	1.49	8	1.19	24	-7
Louisville, US	109.4	53	109.4	49	120.8	39	0.92	71	0.93	66	1.02	54	-5
Memphis, US	97.4	61	105.2	53	105.5	52	0.89	75	0.95	62	0.96	70	-13
Miami-Fort Lauderdale-Miami Beach, US	89.6	69	93.3	67	100.4	62	0.89	76	0.96	61	1.05	51	-15
Milwaukee-Waukesha-West Allis, US	139.3	24	140.3	27	139.5	27	1.20	30	1.26	26	1.25	18	-4
Minneapolis-St. Paul-Bloomington, US	167.0	13	180.5	10	176.4	5	1.30	20	1.39	16	1.34	8	-4
Nashville-Davidson--Murfreesboro, US	100.8	59	109.9	47	118.2	42	0.93	69	0.95	64	1.02	56	-5
New York-Northern New Jersey-Long Island, US	172.2	12	175.6	13	158.7	11	1.22	28	1.16	36	1.06	49	8
Orlando-Kissimmee, US	97.9	60	103.6	56	120.2	40	0.89	74	0.90	72	1.06	47	-2
Philadelphia-Camden--Wilmington, US	153.5	17	160.2	16	140.4	26	1.31	19	1.35	20	1.19	25	1
Phoenix-Mesa-Scottsdale, US	127.6	38	135.8	30	123.9	36	1.22	27	1.20	35	1.12	37	8
Pittsburgh, US	124.5	43	131.5	35	122.7	38	0	1.17	35	1.23	31	1.14	33
Portland-Vancouver-Beaverton, US	153.1	18	153.1	20	148.4	16	1.37	14	1.36	19	1.28	13	5
Raleigh-Cary, US	132.9	31	151.9	22	160.4	8	1.15	39	1.28	24	1.34	7	-15
Richmond, US	130.8	33	129.5	37	137.2	31	0.96	64	0.91	70	0.98	65	6
Riverside-San Bernardino-Ontario, US	155.7	16	-	-	-	-	1.51	10	-	-	-	-	-
Rochester, US	176.3	9	191.8	7	181.0	4	1.28	23	1.47	9	1.40	5	-14
Sacramento--Arden-Arcade--Roseville, US	172.9	11	183.0	8	147.3	17	1.42	12	1.42	13	1.14	34	1
Salt Lake City, US	129.9	34	141.6	24	142.1	23	1.19	32	1.24	30	1.25	19	-2
San Antonio, US	116.9	47	117.0	43	114.8	43	0	1.20	31	1.07	53	1.06	50
San Diego-Carlsbad-San Marcos, US	193.5	7	192.5	6	159.4	10	1.62	3	1.52	4	1.26	17	1
San Francisco-Oakland-Fremont, US	239.1	3	259.0	1	228.7	1	1.54	8	1.69	1	1.48	2	-7

Region	Knowledge Competitiveness Index					Knowledge Intensity Ratio							
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Ratio 2005	Rank 2005	Ratio 2004	Rank 2004	Ratio 2003	Rank 2003	Change in Rank 2005
San Jose-Sunnyvale-Santa Clara, US	295.8	1	-	-	-	-	1.84	1	-	-	-	-	-
Seattle-Tacoma-Bellevue, US	205.7	5	196.3	4	154.9	12	1.56	7	1.47	10	1.16	31	3
St. Louis, US	116.0	49	118.3	42	119.2	41	-7	1.12	45	1.09	49	41	4
Tampa-St. Petersburg-Clearwater, US	94.1	64	98.0	61	114.3	45	-3	0.86	79	0.89	73	1.06	48
Virginia Beach-Norfolk-Newport News, US	116.8	48	109.8	48	111.3	48	0	1.16	38	0.95	63	0.98	67
Washington-Arlington-Alexandria, US	142.4	23	149.7	23	144.2	20	0	1.02	56	1.10	48	1.09	43
Alberta, Canada	62.0	98	73.5	80	101.0	61	-18	0.50	115	0.85	78	0.80	94
British Columbia, Canada	52.0	105	63.3	96	73.6	88	-9	0.62	104	0.71	98	0.88	78
Manitoba, Canada	61.2	100	65.0	92	78.6	82	-8	0.74	94	0.77	89	1.02	55
Ontario, Canada	92.9	66	97.0	63	97.7	65	-3	0.91	73	1.13	40	1.00	59
Quebec, Canada	72.7	85	75.0	78	78.9	81	-7	0.86	81	0.60	105	0.99	64
Saskatchewan, Canada	54.3	104	59.2	100	74.0	86	-4	0.62	105	0.57	110	0.85	83
Brussels, Belgium	118.9	45	106.2	51	102.3	56	6	0.70	97	0.63	100	0.60	115
Vlaams Gewest, Belgium	77.2	79	65.7	90	61.4	101	11	0.94	67	0.80	84	0.74	102
Denmark	110.6	51	97.7	62	91.9	71	11	1.23	25	1.08	50	0.99	63
Baden-Württemberg, Germany	108.2	54	103.9	55	95.4	67	1	1.21	29	1.12	46	1.00	60
Bayern, Germany	94.1	65	91.8	70	90.6	73	5	1.03	55	0.97	57	0.93	73
Berlin, Germany	71.1	87	67.8	87	70.0	92	0	1.01	58	0.93	67	0.93	72
Bremen, Germany	64.7	95	62.9	98	82.6	79	3	0.61	106	0.58	108	0.74	103
Hamburg, Germany	82.5	76	81.6	75	103.7	55	-1	0.62	103	0.59	106	0.73	105
Hessen, Germany	92.7	67	90.1	71	86.1	76	4	0.96	65	0.91	68	0.85	85
Niedersachsen, Germany	55.6	103	53.8	105	55.8	107	2	0.78	91	0.73	93	0.74	100
Nordrhein-Westfalen, Germany	64.8	94	63.3	97	67.3	95	3	0.82	87	0.76	90	0.79	95
Saarland, Germany	41.8	111	42.6	113	54.0	111	2	0.58	109	0.58	107	0.71	108
Schleswig-Holstein, Germany	45.4	109	45.1	111	52.4	112	2	0.63	102	0.62	103	0.69	111
Norestie, Spain	46.0	108	36.3	115	40.4	118	7	0.59	107	0.48	116	0.53	122
Comunidad de Madrid, Spain	67.6	92	61.3	99	63.9	99	7	0.76	93	0.71	97	0.74	101
Île de France, France	136.3	29	133.5	34	105.4	54	5	1.06	51	1.11	47	0.85	84
Centre-est, France	75.4	82	71.6	82	56.8	105	0	0.94	66	0.94	65	0.73	106
Ireland	84.9	74	65.3	91	70.4	91	17	0.93	70	0.72	94	0.78	97
Central, Italy	35.6	114	29.4	116	45.2	116	2	0.43	117	0.35	120	0.53	121
Emilia-Romagna, Italy	57.3	102	49.5	107	66.1	98	5	0.58	108	0.50	115	0.65	112
Lazio, Italy	48.9	106	47.1	110	50.6	113	4	0.56	111	0.54	113	0.57	120
Lombardia, Italy	74.7	84	64.9	93	73.3	89	9	0.73	95	0.63	102	0.70	110
North East, Italy	46.8	107	41.4	114	56.5	106	7	0.51	113	0.45	118	0.60	117
North West, Italy	59.4	101	54.7	104	54.7	110	3	0.67	100	0.61	104	0.60	116
Luxembourg	103.3	58	94.6	65	114.8	44	7	0.68	99	0.63	101	0.75	99
North, Netherlands	70.8	89	54.9	103	61.8	100	14	0.86	82	0.72	96	0.78	98
West, Netherlands	81.3	77	70.1	84	80.2	80	7	0.83	85	0.75	91	0.83	88
South Netherlands	113.1	50	92.6	68	86.8	75	18	1.35	16	1.16	37	1.05	52
East, Austria	88.2	70	79.2	76	83.4	78	6	0.93	68	0.84	80	0.87	80
West, Austria	70.8	90	63.8	95	74.0	87	5	0.80	90	0.72	95	0.82	89
Uusimaa, Finland	148.2	20	154.7	19	123.0	37	-1	1.37	13	1.39	14	1.10	42

Knowledge Intensity Ratio

Knowledge Competitiveness Index

Region	Knowledge Competitiveness Index					Knowledge Intensity Ratio					Change in Rank 2005		
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Ratio 2005	Rank 2005	Ratio 2004	Rank 2004		Ratio 2003	Rank 2003
Stockholm, Sweden	190.8	8	170.7	15	147.0	18	1.69	2	1.49	7	1.28	14	5
Smaland Medboarna, Sweden	63.0	97	67.0	88	78.0	83	0.84	83	0.89	74	1.03	53	-9
South, Sweden	117.2	46	105.6	52	91.1	72	1.53	9	1.38	17	1.18	28	8
West, Sweden	128.0	37	115.9	44	93.9	69	1.60	6	1.47	11	1.18	27	5
Eastern, UK	96.8	62	108.5	50	74.9	84	1.23	26	1.34	21	0.92	74	-5
London, UK	105.8	56	111.4	46	93.9	68	0.83	86	0.97	56	0.82	90	-30
Scotland, UK	75.0	83	66.6	89	60.2	104	0.97	61	0.88	76	0.79	96	15
South East, UK	106.1	55	119.8	40	85.2	77	1.18	33	1.39	15	0.98	66	-18
Norway	110.3	52	104.8	54	101.3	59	0.98	60	0.78	87	0.87	79	27
Switzerland	122.6	44	114.1	45	110.8	49	1.31	18	1.22	32	1.18	29	14
Bratislavský, Slovak Republic	28.3	117	13.8	120	49.8	114	0.36	122	0.18	124	0.65	113	2
Budapest, Hungary	17.2	121	9.7	122	45.3	115	0.27	125	0.13	125	0.60	118	0
Prague, Czech Republic	28.7	116	43.5	112	68.2	93	0.27	124	0.45	117	0.72	107	-7
Israel	72.2	86	69.7	86	39.3	119	0	1.13	41	1.08	51	114	10
New South Wales, Australia	68.2	91	71.3	83	66.3	96	0.80	89	0.82	82	0.80	93	-7
Victoria, Australia	71.0	88	73.6	79	66.1	97	0.84	84	0.86	77	0.84	87	-7
Western Australia	66.5	93	69.7	85	67.6	94	0.73	96	0.75	92	0.81	92	-4
New Zealand	42.1	110	48.3	108	55.1	108	0.69	98	0.78	88	0.86	82	-10
Aichi, Japan	83.4	75	99.6	60	101.8	58	0.86	80	1.12	42	1.12	38	-38
Kanagawa, Japan	75.7	81	78.4	77	100.4	63	1.04	53	1.16	38	1.44	3	-15
Kyoto, Japan	63.2	96	63.8	94	88.4	74	0.86	78	0.91	69	1.26	16	-9
Osaka, Japan	86.8	72	73.1	81	95.7	66	0.96	62	0.85	79	1.09	44	17
Shiga, Japan	104.8	57	123.1	39	112.8	46	1.23	24	1.49	6	1.33	9	-18
Shizuoka, Japan	87.2	71	102.1	57	101.2	60	1.04	54	1.37	18	1.32	10	-36
Tochigi, Japan	86.7	73	101.6	58	107.3	50	1.07	50	1.34	22	1.38	6	-28
Tokyo, Japan	143.4	22	123.8	38	149.8	15	1.02	57	0.91	71	1.07	46	14
Toyama, Japan	76.3	80	93.3	66	98.7	64	0.92	72	1.26	28	1.30	11	-44
Seoul, Korea	26.6	120	48.1	109	43.3	117	0.41	119	0.88	75	0.89	77	-44
Ulsan, Korea	37.7	113	59.1	101	55.0	109	0.31	123	0.50	114	0.50	123	-9
Hong Kong	27.7	118	52.2	106	61.4	102	0.36	121	0.66	99	0.74	104	-22
Singapore	77.4	78	83.2	74	73.0	90	1.14	40	1.21	34	0.99	62	-6
Taiwan	61.3	99	57.4	102	60.6	103	0.89	77	0.82	83	0.86	81	6
Beijing, China	27.7	119	27.4	117	38.0	120	0.51	116	0.57	111	0.85	86	-3
Pearl River Delta, China	32.9	115	23.8	118	74.8	85	0.46	114	0.33	121	1.23	22	5
Shanghai, China	40.2	112	17.5	119	36.4	121	0.63	101	0.27	122	0.59	119	21
Tianjin, China	15.7	122	10.3	121	25.8	122	0.42	118	0.27	123	0.81	91	5
Bangalore, India	7.2	124	7.1	124	1.5	125	0	0.57	110	0.57	109	12	-1
Hyderabad, India	5.4	125	5.8	125	7.0	123	0	0.51	112	0.56	112	109	0
Mumbai, India	8.6	123	7.9	123	6.3	124	0	0.40	120	0.38	119	124	-1

Region	Economic Activity Rate					Human Capital: Economic Activity Rate					GDP per capita				
	Rate	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
Atlanta-Sandy Springs-Marietta, US	63.1	103.9	48	115.5	7	116.2	10	-41	118.5	33	128.1	20	129.4	16	-13
Austin-Round Rock, US	66.8	110.0	21	118.0	5	120.6	4	-16	113.0	41	121.9	28	120.7	30	-13
Baltimore-Towson, US	59.3	97.7	73	-	-	-	-	-	118.1	34	-	-	-	-	-
Boston-Cambridge-Quincy, US	67.0	110.4	19	112.9	15	106.9	38	-4	150.9	6	189.0	1	191.0	1	-5
Buffalo-Niagara Falls, US	57.1	94.0	86	101.4	65	96.9	77	-21	130.5	16	129.1	18	127.9	19	2
Charlotte-Gastonia-Concord, US	69.6	114.6	9	112.0	19	113.7	14	10	131.2	15	137.1	10	138.9	10	-5
Chicago-Naperville-Joliet, US	59.6	98.1	72	103.5	51	107.8	32	-21	121.1	25	122.9	25	123.7	28	0
Cincinnati-Middletown, US	62.4	102.8	53	109.1	27	108.3	30	-26	109.3	49	107.6	55	109.6	51	6
Cleveland-Elyria-Mentor, US	68.0	112.0	17	103.7	50	101.7	61	33	130.1	17	-	-	-	-	-
Columbus, US	69.0	113.7	11	115.2	8	112.5	17	-3	117.8	35	122.2	27	124.3	24	-8
Dallas-Fort Worth-Arlington, US	65.1	107.1	33	114.1	13	116.2	9	-20	131.4	14	136.6	11	135.4	12	-3
Denver-Aurora, US	66.9	110.2	20	114.1	14	115.5	11	-6	128.9	18	137.2	9	137.0	11	-9
Detroit-Warren-Livonia, US	58.2	95.8	80	102.3	59	106.5	39	-21	109.2	51	105.3	57	109.0	53	6
Grand Rapids, US	65.3	107.5	31	116.6	6	119.6	5	-25	120.4	26	119.7	31	124.0	27	5
Greensboro-High Point, US	58.1	95.6	82	106.6	37	108.6	28	-45	112.4	44	122.3	26	124.1	25	-18
Hartford, US	64.2	105.8	40	103.8	49	103.2	53	9	173.2	1	174.9	2	174.7	2.0	1
Houston-Sugar Land-Baytown, US	65.6	108.0	26	106.8	35	108.9	26	9	116.7	37	125.9	24	124.7	22	-13
Indianapolis, US	68.5	112.8	13	112.7	17	110.7	20	4	119.8	28	112.0	46	114.7	40	18
Jacksonville, US	58.8	96.8	77	105.5	43	107.5	35	-34	118.6	31	126.4	22	124.4	23	-9
Kansas City, US	65.1	107.1	34	114.2	12	116.6	8	-22	112.4	43	117.6	35	117.3	34	-8
Las Vegas-Paradise, US	62.7	103.3	51	105.1	44	106.9	36	-7	118.6	30	112.9	44	110.4	48	14
Los Angeles-Long Beach-Santa Ana, US	57.0	93.9	88	104.4	47	103.9	49	-41	127.9	22	120.9	29	121.3	29	7
Louisville, US	60.8	100.1	63	107.9	32	112.2	18	-31	118.6	32	117.3	36	117.9	33	4
Memphis, US	63.6	104.8	45	105.9	40	104.8	46	-5	109.5	48	110.3	49	110.1	49	1
Miami-Fort Lauderdale-Miami Beach, US	52.8	86.9	115	99.1	74	98.4	73	-41	100.8	63	97.4	63	95.8	66	0
Milwaukee-Waukesha-West Allis, US	70.1	115.4	8	108.9	28	109.8	21	20	115.6	38	111.2	47	111.2	46	9
Minneapolis-St. Paul-Bloomington, US	71.3	117.5	6	123.9	1	121.9	3	-5	128.4	20	130.2	17	132.1	15	-3
Nashville-Davidson--Murfreesboro, US	64.5	106.2	39	112.8	16	109.3	23	-23	108.7	52	116.0	37	115.6	37	-15
New York-Northern New Jersey-Long Island, US	54.6	89.8	102	99.3	72	99.3	71	-30	141.6	7	151.1	5	150.4	6	-2
Orlando-Kissimmee, US	63.2	104.1	46	111.2	20	114.4	13	-26	109.7	46	114.8	39	112.9	43	-7
Philadelphia-Camden-Wilmington, US	58.4	96.3	79	103.3	53	101.5	62	-26	117.5	36	118.5	32	118.2	32	-4
Phoenix-Mesa-Scottsdale, US	60.6	99.8	65	106.3	39	104.8	45	-26	104.4	57	113.1	43	110.8	47	-14
Pittsburgh, US	55.9	92.0	92	103.2	54	97.2	74	-38	106.0	55	107.1	56	107.4	57	1
Portland-Vancouver-Beaverton, US	60.1	98.9	70	110.9	21	112.8	16	-49	111.8	45	112.4	45	115.9	35	0
Raleigh-Cary, US	64.6	106.3	38	114.8	9	113.4	15	-29	115.5	39	118.2	33	120.0	31	-6
Richmond, US	65.0	107.0	36	109.7	25	105.1	43	-11	136.1	11	142.2	7	139.3	9	-4
Riverside-San Bernardino-Ontario, US	41.9	69.1	125	-	-	-	-	-	103.2	59	-	-	-	-	-
Rochester, US	60.1	99.0	68	109.9	24	105.8	41	-44	137.8	10	130.2	16	129.0	18	6
Sacramento--Arden-Arcade--Roseville, US	57.3	94.4	85	114.6	10	103.4	52	-75	121.7	24	128.8	19	129.2	17	-5
Salt Lake City, US	75.6	124.5	3	119.0	4	118.7	6	1	109.5	47	113.8	42	113.4	42	-5
San Antonio, US	55.6	91.6	93	104.5	46	102.8	54	-47	97.6	66	109.8	50	108.8	54	-16
San Diego-Carlsbad-San Marcos, US	55.4	91.3	94	105.7	41	100.9	64	-53	119.2	29	126.5	21	126.9	20	-8
San Francisco-Oakland-Fremont, US	61.0	100.4	62	110.0	23	109.3	24	-39	155.4	4	153.6	4	154.0	4	0

Region	Economic Activity Rate					Human Capital: Economic Activity Rate					GDP per capita				
	Rate	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
San Jose-Sunnyvale-Santa Clara, US	68.5	112.8	14	-	-	-	-	-	161.1	3	-	-	-	-	-
Seattle-Tacoma-Bellevue, US	62.9	103.6	50	109.1	26	108.7	27	-24	132.1	13	133.6	15	134.0	13	2
St. Louis, US	61.9	102.0	58	108.3	31	108.3	31	-27	103.3	58	108.3	53	108.4	55	-5
Tampa-St. Petersburg-Clearwater, US	57.1	94.0	87	105.0	45	104.9	44	-42	35,650	50	109.6	51	107.8	56	1
Virginia Beach-Norfolk-Newport News, US	54.8	90.3	98	98.0	78	97.1	75	-20	33,021	62	115.8	38	113.4	41	-24
Washington-Arlington-Alexandria, US	69.2	114.0	10	112.4	18	109.0	25	8	45,430	9	136.0	13	132.4	14	4
Alberta, Canada	73.4	120.9	4	114.4	11	114.5	12	7	40,483	23	126.0	23	126.5	21	0
British Columbia, Canada	65.4	107.7	29	101.9	61	101.7	60	32	27,506	84.2	89	85.6	87	83.8	-2
Manitoba, Canada	69.0	113.6	12	107.6	34	108.5	29	22	27,073	82.9	93	84.2	88	76.9	-5
Ontario, Canada	68.4	112.6	15	106.6	36	106.4	40	21	33,292	102.0	61	103.6	59	97.5	-2
Quebec, Canada	66.0	108.7	24	102.9	57	102.1	59	33	27,679	84.8	86	86.1	83	79.9	-3
Saskatchewan, Canada	68.2	112.3	16	106.3	38	105.5	42	22	28,730	88.0	82	89.4	76	86.8	-6
Brussels, Belgium	51.4	84.6	117	77.6	121	80.9	120	4	55,436	169.8	2	167.8	3	170.5	1
Vlaams Gewest, Belgium	53.1	87.4	112	81.4	117	81.2	117	5	26,926	82.5	95	81.8	92	83.1	-3
Denmark	65.5	107.9	28	101.6	63	102.7	55	35	29,414	90.1	77	90.2	74	92.9	-3
Baden-Württemberg, Germany	59.8	98.5	71	92.6	94	92.8	92	23	29,100	89.1	78	93.1	71	95.6	-7
Bayern, Germany	60.3	99.3	66	94.6	90	94.5	88	24	29,929	91.7	73	94.6	67	97.2	-6
Berlin, Germany	58.8	96.8	76	92.1	98	92.7	93	22	22,926	70.2	113	72.9	111	74.9	-2
Bremen, Germany	53.7	88.4	109	82.8	114	84.5	109	5	34,634	106.1	54	109.0	52	112.0	-2
Hamburg, Germany	58.8	96.8	75	92.3	96	92.3	97	21	43,550	133.4	12	138.4	8	142.2	-4
Hessen, Germany	57.7	95.0	83	90.6	102	90.1	102	19	31,547	96.6	68	98.7	62	101.4	-6
Niedersachsen, Germany	55.3	91.1	95	86.4	107	86.9	107	12	23,151	70.9	112	73.2	110	75.2	-2
Nordrhein-Westfalen, Germany	54.0	88.9	107	84.3	111	84.5	110	4	25,887	79.3	100	82.8	90	85.1	-10
Saarland, Germany	50.5	83.2	120	79.8	119	82.0	115	-1	23,653	72.4	109	73.8	108	75.8	-1
Schleswig-Holstein, Germany	58.1	95.7	81	89.5	103	89.7	103	22	23,504	72.0	110	73.4	109	75.4	-1
Noreste, Spain	54.0	88.9	108	79.0	120	79.2	121	12	25,454	77.9	102	76.2	99	76.3	-3
Comunidad de Madrid, Spain	55.9	92.1	91	85.0	109	83.2	114	18	28,963	88.7	80	86.1	84	86.2	4
Île de France, France	60.7	100.0	64	96.0	83	96.7	78	19	42,003	128.6	19	120.6	30	124.0	11
Centre-est, France	56.0	92.2	90	88.2	106	87.8	106	16	26,308	80.6	97	76.2	100	78.3	3
Ireland	60.2	99.1	67	93.7	92	92.2	99	25	29,955	91.7	72	90.2	75	90.3	3
Central, Italy	50.0	82.4	122	76.2	123	76.3	123	1	27,163	83.2	91	83.5	89	85.2	-2
Emilia-Romagna, Italy	54.1	89.1	105	81.5	115	81.8	116	10	32,174	86.5	64	99.1	61	101.1	-3
Lazio, Italy	49.5	81.5	123	75.8	124	75.1	124	1	28,389	88.9	83	86.6	81	88.5	-2
Lombardia, Italy	53.6	88.3	110	81.5	115	81.1	118	5	33,455	102.5	60	103.2	60	105.4	0
North East, Italy	53.1	87.4	113	81.4	117	81.1	119	4	29,994	91.9	71	92.5	73	94.5	2
North West, Italy	50.4	83.0	121	76.4	122	77.3	122	1	28,914	88.5	81	89.4	77	91.3	-4
Luxembourg	54.8	90.2	99	83.9	112	83.7	112	13	49,610	151.9	5	149.9	6	153.0	1
North, Netherlands	62.2	102.4	56	95.1	89	95.8	84	33	27,041	82.8	94	76.7	98	79.6	4
West, Netherlands	65.0	107.0	35	101.5	64	100.5	67	29	32,099	98.3	65	93.2	69	96.7	4
South Netherlands	64.1	105.6	42	98.5	76	98.5	72	34	27,381	83.8	90	80.0	94	83.1	4
East, Austria	59.1	97.3	74	91.0	101	92.7	94	27	31,016	95.0	69	94.8	66	96.4	-3
West, Austria	61.2	100.8	61	93.5	93	95.0	86	32	29,026	88.9	79	88.6	79	90.1	0
Uusimaa, Finland	65.2	107.4	32	108.6	29	109.4	22	-3	35,306	108.1	53	111.2	48	112.2	-5

Region	Economic Activity Rate					Human Capital: Economic Activity Rate					GDP per capita				
	Rate	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
Stockholm, Sweden	70.3	115.8	7	108.5	30	116.8	7	23	113.2	40	114.6	40	115.2	38	0
Smaaland Medoarna, Sweden	63.0	103.8	49	97.7	79	106.9	37	30	74.8	106	75.7	104	76.1	106	-2
South, Sweden	58.7	96.7	78	92.3	96	102.7	56	18	76.8	105	76.8	97	77.2	99	-8
West, Sweden	65.3	107.5	30	99.6	70	107.5	34	40	80.1	98	79.0	95	79.4	95	-3
Eastern, UK	64.9	106.9	37	101.9	61	100.8	65	24	79.0	101	80.9	93	81.4	92	-8
London, UK	64.0	105.4	43	98.7	75	100.2	69	32	128.3	21	114.5	41	115.2	39	20
Scotland, UK	62.6	103.1	52	96.0	83	96.7	79	31	77.5	104	75.7	103	76.2	105	-1
South East, UK	65.8	108.4	25	102.6	58	103.9	48	33	90.3	75	86.1	82	86.7	81	7
Norway	72.5	119.4	5	110.5	22	111.2	19	17	112.9	42	133.8	14	115.9	36	-28
Switzerland	67.8	111.7	18	105.7	42	88.1	105	24	93.4	70	93.4	68	94.2	71	-2
Bratislavský, Slovak Republic	63.8	105.1	44	102.9	56	103.5	50	12	79.5	99	76.1	101	76.7	101	2
Budapest, Hungary	52.8	87.0	114	82.9	113	83.4	113	-1	63.8	117	74.3	107	76.0	107	-10
Prague, Czech Republic	62.4	102.8	54	99.8	69	100.4	68	15	105.4	56	95.9	64	94.8	68	8
Israel	54.3	89.4	104	84.6	110	84.4	111	6	63.6	118	64.6	117	65.4	116	-1
New South Wales, Australia	62.3	102.7	55	98.2	77	91.9	100	22	85.5	84	86.9	80	82.5	91	-4
Victoria, Australia	63.2	104.0	47	99.1	73	94.7	87	26	84.5	87	85.9	85	78.8	96	-2
Western Australia	65.6	108.0	27	103.4	52	96.5	80	25	91.4	74	92.8	72	83.7	87	-2
New Zealand	66.2	109.0	23	103.1	55	102.5	58	32	61.1	120	62.1	119	64.3	117	-1
Aichi, Japan	54.4	89.6	103	100.9	66	101.5	63	-37	97.1	67	88.8	78	91.0	75	11
Kanagawa, Japan	53.3	87.7	111	95.3	85	95.9	83	-26	72.7	108	67.8	116	69.5	115	8
Kyoto, Japan	50.8	83.7	118	91.7	100	92.3	98	-18	73.1	107	70.0	114	70.4	114	7
Osaka, Japan	50.8	83.7	119	91.9	99	92.4	96	-20	90.1	76	85.9	86	88.0	79	10
Shiga, Japan	52.0	85.6	116	96.6	82	97.1	76	-34	84.9	85	82.5	91	84.5	85	6
Shizuoka, Japan	55.2	90.8	96	102.0	60	102.6	57	-36	84.2	88	74.6	105	76.5	102	17
Tochigi, Japan	54.0	88.9	106	99.5	71	100.1	70	-35	80.7	96	75.8	102	77.7	98	6
Tokyo, Japan	54.6	90.0	100	95.2	87	95.7	85	-13	140.6	8	136.3	12	139.8	8	4
Toyama, Japan	54.6	89.9	101	100.2	67	100.8	66	-34	83.1	92	74.3	106	76.2	104	14
Seoul, Korea	62.2	102.4	57	96.8	80	95.9	82	23	64.3	116	54.6	120	48.4	120	4
Ulsan, Korea	61.3	101.0	60	95.2	86	93.8	90	26	119.9	27	118.2	34	109.9	50	7
Hong Kong	61.8	101.8	59	96.6	81	96.3	81	22	77.5	103	78.8	96	83.3	88	-7
Singapore	64.2	105.7	41	100.1	68	107.5	33	27	67.8	115	68.9	115	73.7	112	0
Taiwan	57.3	94.4	84	89.4	104	90.4	101	20	69.0	114	70.1	113	70.7	113	-1
Beijing, China	77.1	127.0	2	120.2	3	127.5	1	1	54.7	121	48.0	121	44.9	121	0
Pearl River Delta, China	78.5	129.3	1	122.4	2	123.1	2	1	71.3	111	72.4	112	60.8	119	1
Shanghai, China	60.1	99.0	69	93.7	91	94.2	89	22	63.6	119	64.6	118	61.2	118	-1
Tianjin, China	66.8	110.0	22	104.1	48	104.7	47	26	37.5	122	38.2	122	31.8	122	0
Bangalore, India	56.7	93.4	89	88.4	105	88.9	104	16	12.7	124	12.4	124	12.2	124	0
Hyderabad, India	43.7	71.9	124	68.1	125	68.4	125	1	10.6	125	10.3	125	9.8	125	0
Mumbai, India	54.8	90.3	97	85.5	108	86.0	108	11	21.3	123	20.8	123	18.8	123	0

Region	Employment					Human Capital: Employment in IT and Computer Manufacturing per 1,000 inhabitants					Human Capital: Number of Managers per 1,000 inhabitants				
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	
Atlanta-Sandy Springs-Marietta, US	1.5	32.4	77	49.5	69	49.4	70	-8	34	108.0	45	168.9	19	-23	
Austin-Round Rock, US	21.5	469.8	2	714.2	1	712.9	1	-1	36	114.0	39	191.3	8	-16	
Baltimore-Towson, US	0.8	18.4	100	-	-	-	-	-	36	115.5	37	-	-	-	
Boston-Cambridge-Quincy, US	9.0	196.5	17	248.9	9	248.4	8	-8	43	137.3	25	178.5	14	-9	
Buffalo-Niagara Falls, US	1.2	27.2	84	34.7	85	34.6	82	1	17	55.0	101	80.6	71	-30	
Charlotte-Gastonia-Concord, US	2.8	60.8	60	50.7	67	50.6	66	7	34	106.8	46	145.7	25	-21	
Chicago-Naperville-Joliet, US	1.7	37.9	74	72.2	51	72.1	49	-23	32	102.7	51	143.0	27	-24	
Cincinnati-Middletown, US	0.9	19.2	95	17.4	104	17.4	105	9	28	88.1	66	127.6	39	-27	
Cleveland-Elyria-Mentor, US	1.1	23.3	92	37.9	79	37.8	77	-13	28	88.8	65	114.3	47	-18	
Columbus, US	0.7	15.6	109	25.2	97	25.1	96	-12	30	95.4	59	137.3	32	-27	
Dallas-Fort Worth-Arlington, US	6.0	131.9	24	168.2	20	167.9	22	-4	32	101.4	52	143.3	26	-26	
Denver-Aurora, US	0.8	16.7	104	200.6	15	200.2	14	-89	31	98.0	57	137.7	31	-26	
Detroit-Warren-Livonia, US	0.4	8.8	114	11.4	111	11.4	110	-3	19	59.5	97	84.3	66	-31	
Grand Rapids, US	1.0	20.8	93	50.6	68	50.5	67	-25	19	59.0	100	84.2	67	-33	
Greensboro-High Point, US	3.5	76.1	49	34.5	86	34.4	83	37	30	95.3	61	126.6	41	-20	
Hartford, US	1.9	42.2	69	85.9	39	85.8	39	-30	30	95.3	60	136.2	34	-26	
Houston-Sugar Land-Baytown, US	2.0	43.8	66	154.1	21	153.8	25	-45	29	92.5	64	128.4	36	-28	
Indianapolis, US	1.2	27.1	85	54.5	64	54.4	62	-21	26	82.6	70	116.4	46	-24	
Jacksonville, US	0.5	11.8	113	43.7	76	43.6	74	-37	22	69.2	85	102.8	55	-30	
Kansas City, US	0.6	14.0	111	19.7	101	19.7	103	-10	30	94.4	67	137.3	33	-30	
Las Vegas-Paradise, US	0.3	7.3	115	8.5	113	8.5	112	-2	21	66.1	83	90.5	62	-25	
Los Angeles-Long Beach-Santa Ana, US	3.2	69.6	51	91.8	37	91.7	38	-14	24	74.8	79	98.0	58	-21	
Louisville, US	0.7	14.8	110	20.2	100	20.2	102	-10	25	80.6	72	124.0	43	-29	
Memphis, US	1.1	24.8	89	36.8	81	36.8	79	-8	31	99.7	53	136.3	35	-23	
Miami-Fort Lauderdale-Miami Beach, US	0.8	17.2	103	16.2	105	16.1	106	2	19	61.5	93	88.8	63	-30	
Milwaukee-Waukesha-West Allis, US	2.0	43.8	67	35.0	84	35.0	81	17	27	84.3	69	113.2	48	-21	
Minneapolis-St. Paul-Bloomington, US	5.0	109.3	35	150.9	22	150.6	26	-13	31	99.0	55	140.3	29	-26	
Nashville-Davidson--Murfreesboro, US	1.2	25.7	86	78.4	42	78.2	43	-44	36	113.5	41	167.2	20	-21	
New York-Northern New Jersey-Long Island, US	1.4	31.0	80	52.6	65	52.5	63	-15	23	73.0	83	98.6	57	-26	
Orlando-Kissimmee, US	2.8	61.3	59	62.0	57	61.9	57	-2	22	70.9	84	104.2	54	-30	
Philadelphia-Camden-Wilmington, US	1.3	28.0	82	55.7	62	55.6	61	-20	36	113.9	40	131.4	35	-5	
Phoenix-Mesa-Scottsdale, US	9.1	199.3	15	274.6	7	274.1	7	-8	27	84.9	68	120.7	45	-23	
Pittsburgh, US	1.5	32.6	76	33.1	88	33.0	86	12	27	86.2	67	126.5	42	-25	
Portland-Vancouver-Beaverton, US	15.4	335.5	5	371.0	5	370.3	4	0	25	79.8	73	108.6	51	-22	
Raleigh-Cary, US	4.1	88.3	39	66.5	53	66.3	51	14	35	110.3	43	169.8	19	-24	
Richmond, US	1.5	31.8	79	84.3	40	84.1	40	-39	26	81.8	71	123.6	44	-27	
Riverside-San Bernardino-Ontario, US	0.7	16.3	107	-	-	-	-	-	13	39.9	111	-	-	-	
Rochester, US	3.0	64.7	55	51.2	66	51.1	65	11	19	61.2	94	88.7	64	-30	
Sacramento--Arden-Arcade--Roseville, US	6.8	147.8	21	198.4	17	198.1	15	-4	23	73.4	82	109.9	50	-32	
Salt Lake City, US	2.9	64.0	56	121.0	28	120.8	29	-28	31	98.2	56	128.1	37	-19	
San Antonio, US	0.8	16.6	105	29.0	93	29.0	91	-12	23	73.9	80	108.4	52	-28	
San Diego-Carlsbad-San Marcos, US	6.0	131.5	25	119.4	29	119.2	30	4	24	77.4	76	112.5	49	-27	
San Francisco-Oakland-Fremont, US	4.8	104.2	36	606.6	2	605.5	2	-34	33	104.5	48	147.2	24	-24	

Region	Employment					Human Capital: Employment in IT and Computer Manufacturing per 1,000 inhabitants					Human Capital: Number of Managers per 1,000 inhabitants				
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	
San Jose-Sunnyvale-Santa Clara, US	57.7	1257.3	1	-	-	-	-	41	129.3	29	-	-	-	-	
Seattle-Tacoma-Bellevue, US	2.7	59.7	61	28.1	95	28.1	95	20	62.2	91	78.7	72	96.5	58	
St. Louis, US	0.9	19.0	99	28.4	94	28.3	94	30	96.2	58	141.5	28	150.1	28	
Tampa-St. Petersburg-Clearwater, US	2.4	52.3	63	45.6	71	45.5	72	19	66.8	86	99.6	56	116.3	49	
Virginia Beach-Norfolk-Newport News, US	1.8	39.0	71	65.3	54	65.2	52	21	60.4	95	83.5	70	95.7	59	
Washington-Arlington-Alexandria, US	0.9	19.2	96	15.3	108	16.1	106	43	135.5	26	183.9	13	187.5	10	
Alberta, Canada	1.5	33.4	75	32.0	90	33.3	84	58	183.3	14	257.8	7	248.0	4	
British Columbia, Canada	1.9	41.9	70	40.1	78	45.3	73	53	167.9	17	236.2	8	229.7	6	
Manitoba, Canada	1.3	27.3	83	26.1	96	22.2	99	44	137.9	24	194.0	11	190.8	9	
Ontario, Canada	3.6	78.0	47	74.6	49	110.0	32	59	187.1	12	263.1	5	248.5	3	
Quebec, Canada	2.8	61.8	58	59.1	60	72.3	48	46	146.2	21	205.7	9	199.7	7	
Saskatchewan, Canada	0.6	13.9	112	13.3	110	12.7	108	41	128.9	31	181.4	15	180.7	13	
Brussels, Belgium	2.4	51.5	64	14.9	109	28.6	92	45	143.4	23	281.1	96	27.2	93	
Vlaams Gewest, Belgium	4.3	93.4	38	77.8	43	37.8	78	48	152.3	18	34.3	94	33.1	91	
Denmark	2.4	52.6	62	44.0	75	59.4	59	37	116.9	35	31.2	95	30.2	92	
Baden-Württemberg, Germany	10.9	238.0	10	181.3	18	98.8	36	46	146.7	20	26.7	100	25.9	97	
Bayern, Germany	7.4	161.9	18	137.0	24	107.6	34	42	134.5	28	22.3	104	21.6	101	
Berlin, Germany	5.5	120.8	29	106.4	32	173.9	20	31	99.4	54	17.8	107	17.2	104	
Bremen, Germany	1.1	23.9	91	59.9	59	47.2	71	24	75.6	78	13.5	109	13.1	106	
Hamburg, Germany	4.0	88.2	40	75.1	48	73.1	47	20	63.4	90	17.8	107	17.2	105	
Hessen, Germany	5.1	111.9	33	92.9	35	36.3	80	36	113.2	42	22.3	104	21.6	102	
Niedersachsen, Germany	3.7	79.9	45	69.0	52	28.5	93	20	64.4	89	9.1	113	8.8	110	
Nordrhein-Westfalen, Germany	5.1	111.7	34	97.0	34	33.8	84	16	51.7	102	9.2	112	8.9	109	
Saarland, Germany	0.1	1.2	116	35.5	83	6.1	113	6	17.4	121	2.6	123	2.5	116	
Schleswig-Holstein, Germany	3.2	70.0	50	75.9	47	50.4	68	8	25.6	118	4.6	122	4.4	115	
Noreste, Spain	0.7	16.3	108	36.5	82	21.5	100	58	183.2	15	36.2	93	35.0	90	
Comunidad de Madrid, Spain	3.9	85.4	42	86.5	38	63.3	53	65	205.5	9	46.7	88	45.1	84	
Île de France, France	2.9	63.3	57	76.8	44	92.8	37	70	221.8	7	160.5	21	155.2	27	
Centre-est, France	3.7	81.5	44	83.3	41	50.4	69	36	114.5	38	71.6	74	69.3	72	
Ireland	9.2	200.6	14	207.2	14	185.3	18	77	244.9	3	23.9	102	23.1	99	
Central, Italy	0.8	17.4	102	32.1	89	30.5	88	7	22.6	119	4.6	121	4.4	114	
Emilia-Romagna, Italy	0.9	20.0	94	44.7	73	38.4	75	19	59.0	99	11.3	110	10.9	107	
Lazio, Italy	2.1	45.3	65	54.8	63	75.7	45	13	40.9	110	10.1	111	9.8	108	
Lombardia, Italy	3.7	81.6	43	76.4	46	83.3	42	23	73.7	81	18.6	106	18.0	103	
North East, Italy	1.4	29.9	81	37.4	80	37.8	76	10	32.3	114	6.5	120	6.2	113	
North West, Italy	3.0	66.3	54	74.4	50	62.1	56	30	94.5	62	23.4	103	22.7	100	
Luxembourg	1.2	25.5	87	20.9	99	20.8	101	25	78.5	75	26.7	100	25.9	98	
North, Netherlands	5.6	122.5	28	98.2	33	51.4	64	34	109.0	44	78.2	73	75.7	68	
West, Netherlands	0.8	17.8	101	15.7	107	33.7	85	47	150.4	19	93.6	59	90.6	62	
South Netherlands	10.9	238.1	9	216.1	12	176.2	19	106	334.5	1	93.6	59	90.6	63	
East, Austria	7.3	159.9	19	107.4	31	113.8	31	46	145.9	22	8.9	114	8.6	111	
West, Austria	4.6	99.9	37	60.5	58	12.4	109	25	79.3	74	7.4	119	7.1	112	
Uusimaa, Finland	5.9	128.6	26	199.8	16	190.5	17	33	103.3	50	62.4	79	60.4	81	

Region	Employment					Human Capital: Employment in IT and Computer Manufacturing per 1,000 inhabitants					Human Capital: Number of Managers per 1,000 inhabitants					Change in Rank 2005			
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
Stockholm, Sweden	5.7	124.7	27	139.9	23	328.2	5	-	-	-	37	115.9	36	62.4	79	60.4	82	43	-4
Smaland Medoarna, Sweden	2.0	42.8	68	40.4	77	71.0	50	9	9	6	19.5	120	27.6	99	26.7	96	96	-21	9
South, Sweden	3.1	67.7	52	63.4	56	74.3	46	4	4	20	64.4	88	27.6	98	26.7	95	95	10	4
West, Sweden	3.1	66.5	53	44.2	74	22.8	98	21	21	33	103.6	49	27.9	97	27.0	94	94	48	21
Eastern, UK	6.4	138.9	22	117.8	30	62.5	55	8	8	75	238.8	5	344.1	3	314.8	1	1	-2	8
London, UK	1.8	38.8	72	45.1	72	23.2	97	0	0	77	242.9	4	356.3	2	73.3	70	70	-2	0
Scotland, UK	5.4	117.0	31	126.0	27	143.6	28	-4	-4	56	177.5	16	68.4	76	66.2	74	74	60	-4
South East, UK	6.2	134.4	23	131.0	25	83.7	41	2	2	85	269.8	2	373.4	1	237.2	5	5	-1	2
Norway	1.7	38.0	73	30.7	91	102.0	35	18	18	39	123.3	32	64.6	78	62.5	76	76	46	18
Switzerland	1.1	23.9	90	64.9	55	107.9	33	-35	-35	33	105.2	47	44.5	92	43.1	88	88	45	-35
Bratislavský, Slovak Republic	10.1	220.3	13	-	-	-	-	-	-	71	225.4	6	-	-	-	-	-	-	-
Budapest, Hungary	5.2	114.3	32	-	-	-	-	-	-	63	199.6	10	-	-	-	-	-	-	-
Prague, Czech Republic	3.5	76.3	48	-	-	-	-	-	-	60	189.3	11	205.3	10	-	-	-	-1	-
Israel	4.0	87.2	41	46.2	70	60.3	58	29	29	24	76.5	77	107.6	53	90.2	64	64	-24	29
New South Wales, Australia	1.5	32.0	78	30.6	92	29.3	90	14	14	41	129.2	30	181.7	14	175.7	16	16	-16	14
Victoria, Australia	1.2	25.2	88	24.1	98	29.7	89	10	10	43	135.2	27	190.2	12	184.0	11	11	-15	10
Western Australia	0.9	19.0	98	18.2	103	32.3	87	5	5	39	122.9	33	172.9	17	167.3	20	20	-16	5
New Zealand	0.9	19.1	97	18.3	102	17.5	104	5	5	58	183.5	13	258.1	6	249.7	2	2	-7	5
Aichi, Japan	3.6	79.5	46	58.5	61	160.9	23	15	15	13	41.5	109	58.4	85	58.8	83	83	-24	15
Kanagawa, Japan	12.1	262.9	8	225.1	11	230.6	11	3	3	15	49.0	103	68.9	75	72.0	71	71	-28	3
Kyoto, Japan	9.0	197.2	16	178.1	19	196.0	16	3	3	14	43.1	106	60.7	82	66.8	73	73	-24	3
Osaka, Japan	5.5	120.6	30	92.4	36	171.9	21	6	6	14	44.0	105	61.9	81	64.6	75	75	-24	6
Shiga, Japan	21.0	458.1	4	432.6	4	429.3	3	0	0	13	42.3	107	59.5	83	61.0	79	79	-24	0
Shizuoka, Japan	6.8	148.0	20	129.1	26	244.5	9	6	6	13	41.7	108	58.7	84	60.7	80	80	-24	6
Tochigi, Japan	14.5	315.6	6	270.9	8	296.1	6	2	2	12	38.3	112	53.8	86	62.4	77	77	-26	2
Tokyo, Japan	10.8	236.1	12	210.2	13	210.2	13	1	1	19	59.5	98	83.7	69	92.9	60	60	-29	1
Toyama, Japan	14.1	307.6	7	293.3	6	236.8	10	-1	-1	15	48.6	104	68.4	77	61.5	78	78	-27	-1
Seoul, Korea	-	-	-	-	-	-	-	-	-	19	61.7	92	86.9	65	-	-	-	-	-27
Ulsan, Korea	-	-	-	-	-	-	-	-	-	11	34.4	113	48.4	87	-	-	-	-	-26
Hong Kong	0.8	16.5	106	15.8	106	146.7	27	0	0	39	122.5	34	172.4	18	38.9	89	89	-16	0
Singapore	21.4	466.2	3	445.9	3	158.4	24	0	0	65	205.9	8	289.7	4	143.9	31	31	-4	0
Taiwan	10.9	237.7	11	227.4	10	227.0	12	-1	-1	19	59.7	96	83.9	68	79.3	67	67	-28	-1
Beijing, China	-	-	-	-	-	-	-	-	-	2	5.6	123	7.9	115	-	-	-	-8	-
Pearl River Delta, China	-	-	-	-	-	-	-	-	-	2	5.6	122	7.9	115	-	-	-	-7	-
Shanghai, China	-	-	-	-	-	-	-	-	-	2	5.6	125	7.9	115	-	-	-	-10	-
Tianjin, China	-	-	-	-	-	-	-	-	-	2	5.6	124	7.9	115	-	-	-	-9	-
Bangalore, India	-	-	-	-	-	-	-	-	-	10	31.7	115	44.6	89	43.1	86	86	-26	-
Hyderabad, India	-	-	-	-	-	-	-	-	-	10	31.7	117	44.6	89	43.1	87	87	-28	-
Mumbai, India	-	-	-	-	-	-	-	-	-	10	31.7	116	44.6	89	43.1	85	85	-27	-

Region	Human Capital: Employment in Automotive and Mechanical Engineering per 1,000 inhabitants					Human Capital: Employment in Biotechnology and Chemicals per 1,000 inhabitants										
	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
Atlanta-Sandy Springs-Marietta, US	4.5	31.5	99	63.3	76	62.9	74	-23	2.4	59.9	86	54.6	85	55.8	84	-1
Austin-Round Rock, US	3.9	27.0	104	33.2	98	33.0	100	-6	1.7	42.1	92	43.5	89	44.5	89	-3
Baltimore-Towson, US	4.1	28.4	102	-	-	-	-	-	3.8	95.5	54	-	-	-	-	-
Boston-Cambridge-Quincy, US	7.4	51.2	83	61.9	79	61.5	77	-4	3.2	81.7	71	66.2	75	67.6	73	4
Buffalo-Niagara Falls, US	13.0	90.7	53	88.9	54	88.4	55	1	5.1	129.1	36	119.2	42	121.7	38	6
Charlotte-Gastonia-Concord, US	10.8	75.3	64	129.1	31	128.3	33	-33	5.6	141.8	26	132.1	36	134.8	30	10
Chicago-Naperville-Joliet, US	7.4	51.8	82	51.4	84	51.1	86	2	4.7	119.3	40	120.6	41	123.1	37	1
Cincinnati-Middletown, US	13.8	95.9	51	128.8	32	128.1	34	-19	6.1	153.4	23	269.5	2	275.1	2	-21
Cleveland-Elyria-Mentor, US	18.5	128.3	36	156.9	20	155.9	20	-16	6.9	173.7	18	160.5	19	163.9	17	1
Columbus, US	14.9	103.5	48	62.7	78	62.3	76	30	3.8	95.0	55	87.4	62	89.3	62	7
Dallas-Fort Worth-Arlington, US	12.2	84.8	58	91.0	49	90.4	51	-9	2.8	69.9	81	58.8	83	60.0	82	2
Denver-Aurora, US	5.0	34.4	95	46.8	89	46.5	90	-6	1.1	27.0	103	36.0	95	36.8	95	-8
Detroit-Warren-Livonia, US	37.9	263.4	6	367.7	1	365.5	1	-5	1.9	48.5	91	42.3	91	43.1	91	0
Grand Rapids, US	46.4	322.3	3	211.2	10	210.0	10	7	5.5	138.3	30	206.0	8	210.3	10	-22
Greensboro-High Point, US	10.3	71.7	67	77.3	63	76.9	65	-4	10.3	260.4	4	150.5	23	153.6	21	19
Hartford, US	28.5	198.1	14	155.3	21	154.4	21	7	2.0	50.4	90	39.5	93	40.3	93	3
Houston-Sugar Land-Baytown, US	8.0	55.8	76	39.6	94	39.4	93	18	7.8	196.5	10	183.7	12	187.5	13	2
Indianapolis, US	19.2	133.7	30	149.3	23	148.4	23	-7	10.8	273.4	1	196.3	10	200.4	11	9
Jacksonville, US	5.5	38.5	94	40.4	93	40.1	92	-1	1.6	39.3	96	37.8	94	38.6	94	-2
Kansas City, US	8.6	59.9	73	68.5	73	68.1	71	0	3.2	80.0	73	151.5	22	154.6	20	-5
Las Vegas-Paradise, US	0.5	3.4	119	6.4	114	6.4	114	-5	0.6	14.2	117	10.4	114	10.6	114	-3
Los Angeles-Long Beach-Santa Ana, US	9.1	63.3	70	69.8	71	69.3	70	1	2.6	66.5	83	62.8	78	64.1	78	-5
Louisville, US	18.6	129.2	34	142.0	25	141.1	27	-9	4.0	101.6	49	124.4	38	127.0	34	-11
Memphis, US	4.6	32.2	98	136.6	28	135.8	31	-70	5.2	130.1	35	117.0	45	119.4	39	10
Miami-Fort Lauderdale-Miami Beach, US	2.7	18.6	111	26.4	105	26.2	106	-6	1.0	25.9	104	17.5	109	17.8	111	5
Milwaukee-Waukesha-West Allis, US	21.5	149.6	24	218.4	9	217.1	8	-15	3.3	82.8	70	112.1	48	114.4	42	-22
Minneapolis-St. Paul-Bloomington, US	10.0	69.5	68	97.9	46	97.3	48	-22	2.6	64.4	84	93.5	56	95.5	57	-28
Nashville-Davidson--Murfreesboro, US	17.6	122.4	38	146.6	24	145.7	24	-14	2.1	53.4	89	53.5	87	54.6	85	-2
New York-Northern New Jersey-Long Island, US	2.4	16.4	113	8.5	111	8.5	111	-2	5.4	136.0	31	97.5	54	99.5	55	23
Orlando-Kissimmee, US	6.7	46.5	85	51.6	83	51.3	83	-2	0.8	20.8	111	14.8	112	15.1	113	1
Philadelphia-Camden-Wilmington, US	6.5	45.3	87	51.3	85	51.0	87	-2	7.8	196.6	9	193.1	11	197.2	12	2
Phoenix-Mesa-Scottsdale, US	7.6	52.7	81	72.3	69	71.9	68	-12	0.9	21.6	110	34.7	97	35.4	96	-13
Pittsburgh, US	6.3	43.9	90	57.9	81	57.6	80	-9	3.6	91.9	59	-	-	-	-	-
Portland-Vancouver-Beaverton, US	8.1	56.2	75	70.7	70	70.3	69	-5	1.0	25.6	106	22.6	104	23.1	105	-2
Raleigh-Cary, US	3.0	20.9	109	4.5	116	4.5	116	7	5.2	131.9	33	227.1	3	231.8	4	-30
Richmond, US	3.4	23.8	106	34.6	97	34.4	98	-9	7.3	184.5	14	210.5	7	214.9	9	-7
Riverside-San Bernardino-Ontario, US	4.8	33.7	97	-	-	-	-	-97	1.3	31.6	99	-	-	-	-	-
Rochester, US	24.8	172.1	19	89.7	51	89.1	54	32	0.1	2.0	119	42.4	90	43.2	90	-29
Sacramento--Arden-Arcade--Roseville, US	2.4	16.5	112	9.9	110	9.8	110	-2	0.8	19.5	112	70.1	72	71.5	70	-40
Salt Lake City, US	5.8	40.2	92	63.1	77	62.7	75	-15	2.6	66.6	82	64.7	76	66.1	75	-6
San Antonio, US	4.3	29.6	101	31.8	101	31.6	103	0	1.1	28.8	102	20.0	105	20.4	107	3
San Diego-Carlsbad-San Marcos, US	8.0	55.3	77	59.5	80	59.1	79	3	2.2	56.6	87	47.5	88	48.5	86	1
San Francisco-Oakland-Fremont, US	4.0	27.7	103	20.5	106	20.4	107	3	3.2	80.9	72	62.3	80	63.6	79	8

Region	Human Capital: Employment in Automotive and Mechanical Engineering per 1,000 inhabitants					Human Capital: Employment in Biotechnology and Chemicals per 1,000 inhabitants										
	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
San Jose-Sunnyvale-Santa Clara, US	15.0	104.1	47	-	-	-	-	-	3.0	75.3	74	-	-	-	-	-
Seattle-Tacoma-Bellevue, US	27.9	193.7	16	128.1	34	127.3	35	18	1.0	25.6	105	18.8	108	19.2	109	3
St. Louis, US	15.3	108.1	44	83.3	57	82.8	57	13	4.5	113.6	42	127.7	37	130.4	32	-5
Tampa-St. Petersburg-Clearwater, US	3.5	24.4	105	28.8	103	28.6	104	-2	1.4	34.3	97	34.5	98	35.2	98	1
Virginia Beach-Norfolk-Newport News, US	18.5	128.7	35	132.8	30	132.0	32	-5	0.6	16.1	116	9.5	115	9.7	115	-1
Washington-Arlington-Alexandria, US	1.1	7.5	116	17.9	108	17.8	109	-8	1.3	34.0	98	40.1	92	40.9	92	-6
Alberta, Canada	6.4	44.8	89	42.7	91	38.9	94	2	2.5	63.4	85	53.6	86	67.9	72	1
British Columbia, Canada	4.4	30.8	100	29.4	102	32.6	101	2	0.9	23.4	108	19.8	106	21.5	106	-2
Manitoba, Canada	12.9	89.5	54	85.3	56	90.2	52	2	1.6	41.6	94	35.1	96	46.3	87	2
Ontario, Canada	19.4	135.0	29	128.8	33	141.7	26	4	4.3	108.0	44	91.3	57	105.1	52	13
Quebec, Canada	11.0	76.4	63	72.9	68	75.7	66	5	3.4	87.0	62	73.6	71	77.0	66	9
Saskatchewan, Canada	11.9	82.8	59	78.9	61	38.2	95	2	0.8	19.1	114	16.2	111	25.2	104	-3
Brussels, Belgium	0.8	5.6	118	15.0	109	20.0	108	-9	3.7	93.3	57	134.5	32	128.2	33	-25
Vlaams Gewest, Belgium	17.4	121.3	39	100.5	45	103.8	46	6	8.5	215.3	7	220.5	4	234.1	3	-3
Denmark	16.5	114.8	41	101.8	44	109.8	44	3	5.6	140.2	28	133.7	33	107.2	46	5
Baden-Württemberg, Germany	54.5	379.0	1	359.6	2	352.3	2	1	5.6	140.7	27	176.2	15	164.3	16	-12
Bayern, Germany	42.3	294.5	5	254.2	5	237.5	5	0	5.0	124.9	38	133.3	34	100.1	54	-4
Berlin, Germany	9.0	62.7	72	64.5	75	67.1	72	3	3.4	86.8	64	79.7	66	106.1	47	2
Bremen, Germany	27.1	188.6	17	193.7	13	181.6	14	-4	1.6	40.5	95	56.3	84	35.2	97	-11
Hamburg, Germany	16.5	114.5	42	90.1	50	80.7	62	8	4.1	102.3	48	136.6	30	106.0	48	-18
Hessen, Germany	33.0	229.4	8	190.1	14	180.1	15	6	10.4	262.6	3	343.1	1	317.4	1	-2
Niedersachsen, Germany	33.3	231.4	7	221.2	7	215.2	9	0	3.4	87.0	63	99.6	52	105.7	49	-11
Nordrhein-Westfalen, Germany	22.8	158.4	23	139.3	26	148.8	22	3	7.2	181.2	15	212.1	6	224.3	5	-9
Saarland, Germany	30.4	211.7	12	190.1	15	168.1	17	3	0.7	18.8	115	62.5	79	17.8	112	-36
Schleswig-Holstein, Germany	19.0	132.0	33	115.6	39	125.1	37	6	4.6	116.3	41	102.9	50	131.3	31	9
Noreste, Spain	28.7	199.9	13	189.3	16	187.3	12	3	3.6	91.0	60	85.2	63	68.2	71	3
Comunidad de Madrid, Spain	14.8	102.8	49	75.8	66	78.9	63	17	3.4	85.8	65	156.0	21	125.7	36	-44
Île de France, France	11.8	82.1	61	76.9	64	81.5	59	3	5.4	135.5	32	117.3	44	143.8	26	12
Centre-est, France	14.0	97.4	50	89.2	53	92.0	50	3	5.6	142.1	25	113.6	46	137.1	28	21
Ireland	6.9	47.8	84	41.7	92	45.4	91	8	6.6	165.3	20	180.8	13	146.6	23	-7
Central, Italy	15.6	108.3	43	93.2	48	89.4	53	5	2.9	73.7	77	90.7	59	100.8	53	-18
Emilia-Romagna, Italy	32.5	226.3	10	219.5	8	177.3	16	-2	3.8	96.7	53	90.9	58	116.9	41	5
Lazio, Italy	6.0	41.7	91	38.9	95	36.0	96	4	4.1	102.3	47	90.3	60	93.1	59	13
Lombardia, Italy	20.7	144.0	25	162.4	18	162.0	18	-7	10.7	270.7	2	180.5	14	217.1	8	12
North East, Italy	25.2	175.2	18	155.2	22	137.8	28	4	3.0	74.8	76	78.7	68	76.3	67	-8
North West, Italy	32.7	227.1	9	208.5	11	227.5	7	2	2.8	70.2	80	99.3	53	105.5	50	-27
Luxembourg	3.2	22.6	108	50.8	86	35.6	97	-22	0.3	8.0	118	29.2	99	33.6	99	-19
North, Netherlands	10.7	74.7	65	68.5	74	60.8	78	9	3.5	88.8	61	87.6	61	72.7	69	0
West, Netherlands	6.5	45.2	88	45.6	90	48.4	89	2	4.1	103.7	46	84.1	65	85.2	63	19
South Netherlands	13.4	93.5	52	88.7	55	98.8	47	3	6.9	173.9	17	164.6	16	219.4	7	-1
East, Austria	11.2	77.9	62	74.2	67	63.7	73	5	3.3	83.1	68	112.1	47	95.4	58	-21
West, Austria	19.7	136.6	28	123.4	36	112.1	43	8	3.9	97.7	52	142.7	25	119.4	40	-27
Uusimaa, Finland	10.4	72.3	66	68.9	72	83.9	56	6	6.3	159.0	21	135.2	31	91.1	60	10

Region	Human Capital: Employment in Automotive and Mechanical Engineering per 1,000 inhabitants					Human Capital: Employment in Biotechnology and Chemicals per 1,000 inhabitants					Change in Rank 2005					
	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Employment	Index 2005		Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003
Stockholm, Sweden	3.4	23.7	107	48.9	88	53.4	82	-19	8.4	211.9	8	137.0	29	152.0	22	21
Smaaland Medoarna, Sweden	23.6	163.9	21	201.5	12	207.1	11	-9	0.9	23.9	107	12.1	113	18.7	110	6
South, Sweden	7.8	54.3	79	104.4	42	120.9	39	-37	7.6	192.4	11	122.7	39	176.9	14	28
West, Sweden	31.7	220.3	11	228.8	6	235.5	6	-5	5.1	128.4	37	68.8	73	111.1	44	36
Eastern, UK	23.0	160.1	22	118.7	38	80.8	61	16	3.3	82.8	69	164.5	17	105.3	51	-52
London, UK	5.6	38.8	93	26.5	104	28.1	105	11	1.7	42.1	93	66.8	74	44.7	88	-19
Scotland, UK	12.8	89.3	55	75.8	65	57.5	81	10	3.4	84.5	66	77.8	70	67.6	74	4
South East, UK	19.2	133.3	31	103.6	43	74.7	67	12	4.2	104.8	45	142.7	26	110.0	45	-19
Norway	15.4	107.1	45	89.3	52	135.9	30	7	3.3	84.2	67	105.7	49	146.6	24	-18
Switzerland	15.0	104.3	46	112.8	41	143.8	25	-5	8.7	219.4	6	196.7	9	155.0	19	3
Bratislavský, Slovak Republic	7.9	54.8	78	-	-	-	-	-	3.7	92.8	58	-	-	-	-	-
Budapest, Hungary	6.7	46.5	86	-	-	-	-	-	5.2	131.3	34	-	-	-	-	-
Prague, Czech Republic	9.1	63.2	71	-	-	-	-	-	2.2	56.1	88	-	-	-	-	-
Israel	9.4	65.3	69	35.5	96	34.2	99	27	3.9	97.9	51	78.0	69	77.0	65	18
New South Wales, Australia	4.8	33.7	96	32.2	100	118.6	40	4	5.5	139.5	29	117.9	43	59.2	83	14
Victoria, Australia	12.3	85.7	57	81.8	59	51.3	84	2	6.9	173.9	16	147.0	24	76.2	68	8
Western Australia	8.4	58.3	74	55.6	82	51.3	85	8	4.0	100.5	50	84.9	64	65.1	76	14
New Zealand	7.6	52.9	80	50.5	87	48.8	88	7	4.8	120.0	39	101.4	51	111.7	43	12
Aichi, Japan	49.8	346.3	2	330.2	3	330.3	3	1	3.0	74.9	75	63.3	77	65.1	77	2
Kanagawa, Japan	19.0	132.0	32	125.9	35	126.3	36	3	3.7	94.2	56	79.6	67	82.1	64	11
Kyoto, Japan	12.5	87.0	56	83.0	58	82.5	58	2	2.9	73.4	78	62.1	81	63.3	80	3
Osaka, Japan	18.4	127.8	37	121.8	37	121.3	38	0	7.4	187.5	13	158.5	20	162.0	18	7
Shiga, Japan	24.4	169.3	20	161.5	19	161.7	19	-1	5.7	144.6	24	122.2	40	125.8	35	16
Shizuoka, Japan	43.3	300.8	4	286.8	4	286.1	4	0	6.6	166.7	19	140.9	27	144.3	25	8
Tochigi, Japan	28.0	194.9	15	185.9	17	185.3	13	2	2.8	70.3	79	59.4	82	60.7	81	3
Tokyo, Japan	11.8	82.4	60	78.6	62	78.6	64	2	6.2	157.4	22	133.0	35	136.7	29	13
Toyama, Japan	20.6	143.6	26	136.9	27	136.1	29	1	10.1	255.9	5	216.3	5	220.7	6	0
Seoul, Korea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ulsan, Korea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hong Kong	2.7	18.8	110	17.9	107	106.5	45	-3	0.8	19.4	113	16.4	110	90.5	61	-3
Singapore	20.1	139.9	27	133.4	29	115.0	41	2	4.4	111.0	43	93.8	55	97.8	56	12
Taiwan	17.0	118.4	40	112.9	40	112.2	42	0	7.6	191.9	12	162.2	18	165.6	15	6
Beijing, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pearl River Delta, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shanghai, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tianjin, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bangalore, India	0.9	6.2	117	5.9	115	5.9	115	-2	0.9	22.7	109	19.2	107	19.6	108	-2
Hyderabad, India	1.2	8.2	115	7.8	113	7.8	113	-2	1.2	30.2	101	25.6	103	26.1	103	2
Mumbai, India	1.2	8.3	114	7.9	112	7.9	112	-2	1.2	30.6	100	25.9	102	26.4	102	2

Region	Human Capital: Employment in High-Tech Services per 1,000 inhabitants					Human Capital: Employment in Instrumentation and Electrical Machinery per 1,000 inhabitants										
	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
Atlanta-Sandy Springs-Marietta, US	24.0	129.8	19	186.5	8	180.5	8	-11	2.0	38.9	91	65.3	72	60.2	79	-19
Austin-Round Rock, US	17.4	93.8	52	127.1	22	123.1	26	-30	2.7	53.0	76	97.8	49	90.2	61	-27
Baltimore-Towson, US	18.0	97.1	49	-	-	-	-	-	3.7	72.4	60	-	-	-	-	-
Boston-Cambridge-Quincy, US	25.9	139.8	16	182.6	10	176.8	9	-6	9.5	188.8	18	209.2	7	192.9	9	-11
Buffalo-Niagara Falls, US	12.3	66.5	89	72.9	80	70.6	82	-9	3.7	74.3	57	86.0	62	79.2	72	5
Charlotte-Gastonia-Concord, US	14.7	79.3	75	112.7	34	109.1	34	-41	0.9	18.8	106	49.7	83	45.8	90	-23
Chicago-Naperville-Joliet, US	15.9	86.2	62	112.4	35	108.8	35	-27	3.9	77.7	55	107.3	39	98.9	50	-16
Cincinnati-Middletown, US	13.2	71.5	85	99.5	46	96.3	46	-39	3.0	59.6	68	84.8	63	78.2	73	-5
Cleveland-Elyria-Mentor, US	13.5	72.7	83	76.8	75	74.4	74	-8	4.9	97.8	49	154.0	18	142.0	21	-31
Columbus, US	21.9	118.2	29	138.6	20	134.2	20	-9	1.3	25.8	100	76.3	66	70.4	76	-34
Dallas-Fort Worth-Arlington, US	21.4	115.7	33	157.3	14	152.3	12	-19	2.9	57.8	69	105.9	40	97.7	52	-29
Denver-Aurora, US	30.1	162.8	10	244.7	1	236.9	2	-9	0.9	17.1	108	101.0	46	93.1	60	-62
Detroit-Warren-Livonia, US	18.2	98.4	47	83.8	62	81.1	66	15	1.2	24.2	102	30.3	100	28.0	100	-2
Grand Rapids, US	9.8	53.0	107	51.6	99	50.0	103	-8	2.5	50.0	82	104.7	42	96.6	55	-40
Greensboro-High Point, US	18.7	100.9	45	69.2	85	67.0	89	40	5.1	101.9	47	92.7	55	85.4	66	8
Hartford, US	15.7	84.8	63	84.4	60	81.8	64	-3	4.6	90.3	51	132.5	26	122.2	30	-25
Houston-Sugar Land-Baytown, US	13.1	71.0	87	83.0	64	80.4	68	-23	2.1	41.6	89	47.6	86	43.9	94	-3
Indianapolis, US	18.1	97.6	48	106.8	42	103.4	40	-6	1.4	28.4	97	154.5	16	142.4	20	-81
Jacksonville, US	16.0	86.3	61	90.9	54	88.0	56	-7	0.3	6.5	117	56.2	78	51.8	84	-39
Kansas City, US	29.3	158.5	12	190.7	7	184.6	7	-5	1.2	24.2	101	55.2	79	50.9	85	-22
Las Vegas-Paradise, US	9.9	53.2	106	64.6	88	62.6	95	-18	0.4	7.5	115	9.8	113	9.0	113	-2
Los Angeles-Long Beach-Santa Ana, US	12.2	66.2	91	90.2	56	87.3	57	-35	5.8	114.8	41	131.5	27	121.3	31	-14
Louisville, US	22.6	122.1	25	108.7	38	105.2	37	13	2.9	57.2	70	26.1	104	24.1	104	34
Memphis, US	16.1	87.2	57	84.3	61	81.6	65	4	2.1	42.4	88	91.7	57	84.5	69	-31
Miami-Fort Lauderdale-Miami Beach, US	12.0	64.8	97	80.9	67	78.4	70	-30	1.1	22.5	105	57.3	76	52.8	83	-29
Milwaukee-Waukesha-West Allis, US	15.4	83.0	69	83.6	63	80.9	67	-6	14.7	291.3	5	297.0	3	273.8	2	-2
Minneapolis-St. Paul-Bloomington, US	18.3	99.1	46	132.5	21	128.3	23	-25	8.3	165.4	24	265.6	6	244.9	6	-18
Nashville-Davidson--Murfreesboro, US	12.3	66.5	90	115.2	31	111.5	32	-59	2.0	40.0	90	46.8	87	43.1	95	-3
New York-Northern New Jersey-Long Island, US	19.0	102.4	44	121.6	25	117.8	28	-19	1.9	37.0	93	95.2	52	87.8	63	-41
Orlando-Kissimmee, US	16.8	90.7	55	109.2	37	105.8	36	-18	1.6	30.9	95	109.4	37	100.9	46	-58
Philadelphia-Camden-Wilmington, US	18.0	97.0	50	95.8	51	92.8	51	1	3.4	67.8	64	91.3	58	84.2	70	-6
Phoenix-Mesa-Scottsdale, US	9.8	52.9	108	87.8	58	85.0	59	-50	3.1	62.2	67	53.5	80	49.4	87	13
Pittsburgh, US	15.2	82.3	71	74.2	79	71.8	77	8	2.7	54.2	74	95.1	53	87.6	64	-21
Portland-Vancouver-Beaverton, US	14.3	77.2	79	94.6	53	91.6	52	-26	3.4	67.2	65	89.4	61	82.4	71	-4
Raleigh-Cary, US	25.0	134.9	17	149.7	16	145.0	15	-1	5.3	105.9	43	152.2	19	140.3	24	-24
Richmond, US	16.0	86.4	59	82.0	66	79.4	69	7	0.4	8.8	113	27.8	102	25.7	102	-11
Riverside-San Bernardino-Ontario, US	5.4	29.3	115	-	-	-	-	-	1.4	28.5	96	-	-	-	-	-
Rochester, US	16.0	86.4	60	107.8	40	104.3	38	-20	3.7	72.5	59	847.5	1	781.4	1	-58
Sacramento--Arden-Arcade--Roseville, US	15.4	83.1	68	99.1	48	96.0	47	-20	1.2	23.5	103	27.1	103	25.0	103	0
Salt Lake City, US	19.8	106.7	39	139.7	18	135.3	18	-21	2.8	55.5	71	139.6	23	128.7	29	-48
San Antonio, US	14.3	77.2	78	107.7	41	104.2	39	-37	0.5	10.1	112	50.6	82	46.7	89	-30
San Diego-Carlsbad-San Marcos, US	20.3	109.8	38	138.7	19	134.3	19	-19	3.2	62.5	66	107.7	38	99.3	48	-28
San Francisco-Oakland-Fremont, US	27.6	149.1	14	236.1	3	228.6	3	-11	2.7	52.8	77	205.1	8	189.1	10	-69

Region	Human Capital: Employment in High-Tech Services per 1,000 inhabitants					Human Capital: Employment in Instrumentation and Electrical Machinery per 1,000 inhabitants										
	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
San Jose-Sunnyvale-Santa Clara, US	44.0	237.6	3	-	-	-	-	-	15.1	299.1	4	-	-	-	-	-
Seattle-Tacoma-Bellevue, US	20.5	111.0	37	157.7	12	152.7	11	-25	3.5	69.9	63	73.8	67	68.0	77	4
St. Louis, US	15.6	84.5	66	102.8	43	99.6	43	-23	2.7	53.1	75	92.4	56	85.2	67	-19
Tampa-St. Petersburg-Clearwater, US	14.3	77.3	77	79.6	71	77.0	71	-6	2.7	52.6	78	105.7	41	97.4	53	-37
Virginia Beach-Norfolk-Newport News, US	13.5	73.0	82	76.6	76	74.2	75	-6	0.7	13.4	110	22.6	106	20.8	105	-4
Washington-Arlington-Alexandria, US	43.8	236.5	4	210.8	6	204.1	5	2	1.4	27.3	99	28.6	101	26.3	101	2
Alberta, Canada	8.5	46.1	111	44.6	103	-	-	-8	0.6	11.3	111	10.5	112	16.3	109	1
British Columbia, Canada	9.5	51.5	109	49.9	100	55.7	100	-9	0.9	17.4	107	16.3	110	15.0	111	3
Manitoba, Canada	11.4	61.5	99	-	-	-	-	-	1.2	23.1	104	21.6	107	19.9	107	3
Ontario, Canada	13.2	71.4	86	69.1	86	70.9	80	0	2.3	45.8	86	42.8	90	62.9	78	4
Quebec, Canada	10.9	58.7	102	56.8	95	-	-	-7	1.9	38.6	92	36.1	95	36.5	98	3
Saskatchewan, Canada	11.4	61.5	100	-	-	-	-	-	0.7	13.8	109	12.9	111	11.9	112	2
Brussels, Belgium	19.5	105.5	41	95.4	52	70.4	83	11	3.6	71.2	61	33.7	98	44.5	93	37
Vlaams Gewest, Belgium	17.4	93.9	51	80.4	69	81.9	62	18	3.7	74.3	58	72.8	68	53.8	81	10
Denmark	24.2	130.5	18	126.6	23	94.9	48	5	7.7	153.4	27	158.5	14	109.5	38	-13
Baden-Württemberg, Germany	17.1	92.3	54	89.6	57	81.9	63	3	15.2	302.2	3	285.1	4	252.2	3	1
Bayern, Germany	17.3	93.4	53	90.7	55	84.0	61	2	12.6	250.6	11	305.7	2	212.1	7	-9
Berlin, Germany	22.1	119.5	28	115.7	30	93.9	50	2	7.0	138.8	30	119.8	31	141.2	23	1
Bremen, Germany	14.2	76.9	80	63.1	89	64.5	92	9	6.4	126.3	35	63.1	74	75.2	75	39
Hamburg, Germany	19.6	105.8	40	102.8	44	85.7	58	4	4.5	88.6	52	103.1	44	84.6	68	-4
Hessen, Germany	19.0	102.6	43	99.3	47	101.0	42	4	9.0	177.4	21	154.1	17	150.2	16	-4
Niedersachsen, Germany	10.4	56.3	104	54.6	96	51.0	102	-8	5.7	112.4	42	89.6	59	97.2	54	17
Nordrhein-Westfalen, Germany	13.2	71.6	84	69.3	84	58.6	98	0	6.8	134.9	33	117.7	33	119.2	34	0
Saarland, Germany	15.0	81.1	73	78.4	73	49.0	105	0	5.9	117.1	38	100.6	47	111.8	37	9
Schleswig-Holstein, Germany	13.5	73.1	81	71.0	82	66.1	90	1	6.2	123.6	37	134.4	25	102.2	45	-12
Noreste, Spain	7.2	38.9	113	37.7	105	27.3	109	-8	6.4	127.7	34	97.7	50	99.0	49	16
Comunidad de Madrid, Spain	29.3	158.1	13	153.8	15	111.8	31	2	4.1	80.8	54	63.3	73	86.5	65	19
Île de France, France	35.6	192.5	8	185.8	9	149.3	13	1	5.8	115.9	40	94.3	54	107.3	41	14
Centre-est, France	14.6	78.8	76	76.3	78	74.5	73	2	8.5	168.9	22	170.3	12	146.4	17	-10
Ireland	19.3	104.2	42	101.6	45	90.0	54	3	8.3	163.6	25	118.8	32	142.6	19	7
Central, Italy	8.5	46.1	112	44.6	104	49.9	104	-8	4.9	97.4	50	81.0	64	75.4	74	14
Emilia-Romagna, Italy	12.8	69.0	88	66.9	87	64.7	91	-1	9.4	186.5	19	135.0	24	154.4	15	5
Lazio, Italy	21.7	117.3	32	113.7	33	101.6	41	1	2.6	52.2	80	38.1	94	53.4	82	14
Lombardia, Italy	15.7	84.7	65	82.2	65	71.6	79	0	11.9	235.3	12	195.5	9	202.3	8	-3
North East, Italy	10.0	54.2	105	52.5	97	41.9	107	-8	9.7	191.8	17	192.9	10	168.2	11	-7
North West, Italy	15.4	83.3	67	80.4	68	70.8	81	1	6.9	137.7	31	104.3	43	120.3	32	12
Luxembourg	9.5	51.3	110	49.7	101	55.5	101	-9	0.4	8.5	114	39.6	93	20.4	106	-21
North, Netherlands	11.2	60.3	101	58.7	93	62.2	96	-8	2.8	55.3	73	67.7	71	49.9	86	-2
West, Netherlands	22.5	121.6	26	118.1	28	127.3	24	2	2.3	46.2	85	41.3	92	38.8	97	7
South Netherlands	15.2	82.4	70	79.7	70	73.7	76	0	3.6	70.6	62	62.4	75	58.7	80	13
East, Austria	22.6	122.3	24	118.3	27	88.7	55	3	5.2	102.5	46	103.1	45	93.9	59	-1
West, Austria	10.6	57.5	103	57.0	94	47.2	106	-9	6.3	124.2	36	122.3	30	95.0	57	-6
Uusimaa, Finland	42.3	228.6	5	221.3	4	188.0	6	-1	19.0	376.6	1	174.8	11	141.8	22	10

Region	Human Capital: Employment in High-Tech Services per 1,000 inhabitants					Human Capital: Employment in Instrumentation and Electrical Machinery per 1,000 inhabitants									
	Employment	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005			
Stockholm, Sweden	46.2	249.8	2	243.4	2	218.5	4	7.6	151.3	28	89.5	60	95.9	56	32
Smaaland Medoarna, Sweden	11.8	63.6	98	61.4	91	70.2	84	14.1	278.6	7	140.2	22	119.1	35	15
South, Sweden	23.4	126.7	20	123.0	24	99.5	44	12.9	255.6	10	130.1	28	97.8	51	18
West, Sweden	22.3	120.6	27	117.1	29	109.3	33	5.9	116.7	39	111.1	36	112.3	36	-3
Eastern, UK	26.7	144.3	15	140.9	17	133.0	22	5.3	104.4	44	130.1	29	94.9	58	-15
London, UK	29.7	160.5	11	157.5	13	133.5	21	2.6	52.4	79	48.1	85	48.6	88	6
Scotland, UK	15.2	82.2	72	79.1	72	76.0	72	5.1	101.0	48	100.0	48	90.0	62	0
South East, UK	31.6	170.8	9	166.7	11	157.1	10	7.3	144.7	29	157.8	15	131.5	28	-14
Norway	20.8	112.3	35	97.6	50	113.5	30	2.8	55.4	72	51.5	81	135.6	27	9
Switzerland	20.9	112.9	34	112.0	36	120.1	27	16.0	317.2	2	284.6	5	143.4	18	3
Bratislavský, Slovak Republic	40.4	218.3	6	-	-	-	-	10.2	202.1	14	-	-	-	-	-
Budapest, Hungary	21.8	117.9	31	-	-	-	-	10.2	201.4	16	-	-	-	-	-
Prague, Czech Republic	35.7	193.2	7	-	-	-	-	5.2	102.9	45	-	-	-	-	-
Israel	12.0	64.8	96	59.8	92	71.7	78	3.9	76.6	56	115.1	35	104.5	43	-21
New South Wales, Australia	21.8	117.9	30	114.1	32	90.4	53	2.4	47.8	84	44.7	89	102.5	44	5
Victoria, Australia	23.1	125.1	22	121.0	26	96.4	45	1.6	51.8	81	48.4	84	44.6	91	3
Western Australia	20.6	111.4	36	107.8	39	94.5	49	2.4	27.4	98	25.6	105	44.6	92	7
New Zealand	16.5	89.0	56	86.1	59	68.2	87	2.3	45.7	87	42.7	91	41.4	96	4
Aichi, Japan	16.0	86.6	58	48.4	102	84.6	60	10.2	202.8	13	77.2	65	106.6	42	52
Kanagawa, Japan	23.4	126.4	21	97.7	49	125.0	25	6.8	135.1	32	56.9	77	136.4	26	45
Kyoto, Japan	12.2	66.0	92	36.8	106	68.5	86	10.2	202.1	15	115.8	34	168.0	12	19
Osaka, Japan	22.7	122.5	23	76.5	77	117.0	29	9.1	180.4	20	95.3	51	109.4	39	31
Shiga, Japan	12.2	65.8	94	35.4	108	62.9	93	13.7	271.5	9	71.8	70	245.3	4	61
Shizuoka, Japan	12.2	65.9	93	35.9	107	62.8	94	14.1	279.2	6	72.7	69	157.4	14	63
Tochigi, Japan	15.7	84.8	64	52.0	98	140.6	16	14.0	277.8	8	146.0	21	245.1	5	13
Tokyo, Japan	52.7	284.8	1	212.1	5	280.6	1	8.4	167.2	23	164.4	13	158.8	13	-10
Toyama, Japan	12.1	65.2	95	26.2	110	56.6	99	4.3	84.7	53	34.2	97	119.8	33	44
Seoul, Korea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ulsan, Korea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hong Kong	4.5	24.3	116	23.5	111	136.7	17	1.7	33.5	94	31.3	99	99.9	47	5
Singapore	14.8	79.9	74	77.3	74	147.7	14	2.4	48.2	83	45.0	88	107.9	40	5
Taiwan	5.7	30.9	114	29.9	109	28.9	108	8.0	159.4	26	149.1	20	137.5	25	-6
Beijing, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pearl River Delta, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shanghai, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tianjin, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bangalore, India	-	-	-	-	-	-	-	0.2	4.9	119	4.6	116	4.2	116	-3
Hyderabad, India	-	-	-	-	-	-	-	0.3	6.5	118	6.1	115	5.6	115	-3
Mumbai, India	-	-	-	-	-	-	-	0.3	6.6	116	6.1	114	5.7	114	-2

Region	R&D Spending (US \$)					Knowledge Capital Components: Per Capita Expenditure on R&D performed by Business					Knowledge Capital Components: Per Capita Expenditure on R&D performed by Government						
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005			
Atlanta-Sandy Springs-Marietta, US	247	45.3	89	38.7	94	40.6	94	40.6	94	236	133.1	22	39.3	78	43.0	81	56
Austin-Round Rock, US	494	90.7	57	86.3	56	90.5	55	55	55	156	87.6	43	26.2	93	28.7	94	50
Baltimore-Towson, US	698	128.2	33	-	-	-	-	-	-	1,322	744.1	2	-	-	-	-	-
Boston-Cambridge-Quincy, US	1,539	282.5	5	282.4	5	296.2	4	0	0	682	383.8	5	45.8	70	50.1	70	65
Buffalo-Niagara Falls, US	482	88.5	60	111.6	38	117.0	40	-22	-22	196	110.4	28	10.9	110	11.9	110	82
Charlotte-Gastonia-Concord, US	395	72.5	69	85.9	60	90.1	58	-9	-9	157	88.6	42	35.5	85	38.9	86	43
Chicago-Naperville-Joliet, US	601	110.4	39	165.0	23	173.1	18	-16	-16	131	73.6	56	82.4	51	90.0	46	-5
Cincinnati-Middletown, US	474	87.0	62	174.9	22	183.5	15	-40	-40	160	90.2	41	50.8	68	55.7	66	27
Cleveland-Elyria-Mentor, US	546	100.2	47	105.5	41	110.6	42	-6	-6	184	103.9	31	63.7	57	69.7	57	26
Columbus, US	546	100.2	48	105.5	41	110.6	43	-7	-7	184	103.8	32	63.7	58	69.7	58	26
Dallas-Fort Worth-Arlington, US	495	90.8	56	86.3	56	90.5	56	0	0	155	87.5	44	26.2	93	28.7	96	49
Denver-Aurora, US	627	115.2	38	146.7	27	153.8	22	-11	-11	358	201.4	16	66.0	56	72.3	56	40
Detroit-Warren-Livonia, US	1,351	247.9	6	356.6	2	374.0	1	-4	-4	124	69.7	60	28.3	91	31.0	91	31
Grand Rapids, US	1,351	247.9	7	356.6	1	374.0	2	-6	-6	124	69.7	59	28.3	90	31.0	90	31
Greensboro-High Point, US	415	76.1	64	91.6	52	96.1	48	-12	-12	167	94.1	39	38.2	80	41.9	82	41
Hartford, US	1,814	332.9	3	257.8	10	270.4	9	7	7	572	322.3	6	6.7	117	7.3	117	111
Houston-Sugar Land-Baytown, US	495	90.8	55	86.3	56	90.5	54	1	1	155	87.4	45	26.2	93	28.7	95	48
Indianapolis, US	580	106.5	42	88.1	54	92.4	51	12	12	85	48.0	78	13.8	107	15.1	109	29
Jacksonville, US	222	40.8	94	40.4	86	42.3	88	-8	-8	138	77.4	54	42.1	72	46.1	72	18
Kansas City, US	381	69.8	71	74.8	69	78.5	63	-2	-2	169	95.4	36	9.0	113	9.9	113	77
Las Vegas-Paradise, US	156	28.7	111	32.0	101	33.5	102	-10	-10	155	87.3	46	14.3	106	15.6	108	60
Los Angeles-Long Beach-Santa Ana, US	1,134	208.0	11	271.5	8	284.7	5	-3	-3	448	252.4	11	57.4	62	62.8	60	51
Louisville, US	250	45.8	88	41.9	85	43.9	85	-3	-3	80	44.8	81	4.7	118	5.2	118	37
Memphis, US	203	37.2	103	38.5	95	40.4	95	-8	-8	137	77.3	55	24.0	99	26.3	100	44
Miami-Fort Lauderdale-Miami Beach, US	222	40.8	96	40.4	86	42.3	89	-10	-10	138	77.7	53	42.1	72	46.1	73	19
Milwaukee-Waukesha-West Allis, US	487	89.3	58	74.2	70	77.8	64	12	12	109	61.4	66	8.3	115	9.1	115	49
Minneapolis-St. Paul-Bloomington, US	874	160.4	22	149.4	26	156.7	21	4	4	225	126.6	26	7.7	116	8.4	116	90
Nashville-Davidson--Murfreesboro, US	222	40.8	95	42.9	83	45.0	84	-12	-12	119	67.0	63	18.4	102	20.1	103	39
New York-Northern New Jersey-Long Island, US	839	153.9	23	179.5	20	188.2	12	-3	-3	226	127.2	24	25.4	98	27.9	99	74
Orlando-Kissimmee, US	222	40.7	98	40.4	86	42.3	90	-12	-12	138	77.8	52	42.1	75	46.1	75	23
Philadelphia-Camden-Wilmington, US	831	152.4	24	192.7	15	202.1	11	-9	-9	252	142.1	21	41.5	77	45.4	78	56
Phoenix-Mesa-Scottsdale, US	589	108.0	41	95.7	46	100.4	46	5	5	378	213.0	15	33.3	88	36.5	88	73
Pittsburgh, US	573	105.2	43	128.8	33	135.1	28	-10	-10	253	142.7	20	14.5	105	15.9	106	85
Portland-Vancouver-Beaverton, US	801	147.0	27	130.3	31	136.7	27	4	4	178	100.0	33	33.6	87	36.8	87	54
Raleigh-Cary, US	414	76.0	65	91.6	52	96.1	49	-13	-13	168	94.4	38	38.2	80	41.9	83	42
Richmond, US	401	73.7	67	77.1	67	80.9	62	0	0	791	445.4	3	240.4	12	263.2	7	9
Riverside-San Bernardino-Ontario, US	1,134	208.0	9	-	-	-	-	-	-	448	252.4	10	-	-	-	-	-
Rochester, US	482	88.5	59	111.6	37	117.0	39	-22	-22	196	110.1	29	10.9	110	11.9	111	81
Sacramento-Arden-Arcade--Roseville, US	1,134	208.0	13	271.5	6	284.7	6	-7	-7	448	252.3	13	57.4	61	62.8	61	48
Salt Lake City, US	481	88.3	61	88.1	55	92.4	52	-6	-6	176	99.4	34	36.7	84	40.2	84	50
San Antonio, US	495	90.8	54	86.3	59	90.5	57	5	5	155	87.3	47	26.2	93	28.7	97	46
San Diego-Carlsbad-San Marcos, US	1,134	208.0	12	271.5	9	284.7	7	-3	-3	448	252.4	12	57.4	62	62.8	62	50
San Francisco-Oakland-Fremont, US	1,134	208.0	10	271.5	6	284.7	8	-4	-4	448	252.4	9	57.4	62	62.8	63	53

Region	R&D Spending (US \$)					Knowledge Capital Components: Per Capita Expenditure on R&D performed by Business					Knowledge Capital Components: Per Capita Expenditure on R&D performed by Government				
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	
San Jose-Sunnyvale-Santa Clara, US	1,134	208.1	8	-	-	-	-	448	252.5	8	-	-	-	-	
Seattle-Tacoma-Bellevue, US	2,011	369.1	1	315.8	3	331.2	3	469	263.9	7	51.5	67	56.4	65	
St. Louis, US	363	66.6	75	92.0	50	96.5	47	192	108.1	30	8.9	114	9.8	114	
Tampa-St. Petersburg-Clearwater, US	222	40.8	97	40.4	86	42.3	91	138	77.8	51	42.1	75	46.1	76	
Virginia Beach-Norfolk-Newport News, US	402	73.7	66	77.3	65	81.1	61	784	441.2	4	238.1	13	260.7	8	
Washington-Arlington-Alexandria, US	520	95.4	51	73.5	71	77.0	66	1,491	839.3	1	1009.5	1	1105.3	1	
Alberta, Canada	148	27.2	113	29.8	104	34.7	100	106	59.7	67	125.2	30	137.1	28	
British Columbia, Canada	178	32.6	106	35.7	99	37.5	99	68	38.5	90	78.2	52	85.7	50	
Manitoba, Canada	109	20.0	116	21.9	114	21.5	113	104	58.4	68	115.7	36	126.7	33	
Ontario, Canada	505	92.8	53	101.5	43	100.9	45	90	50.7	76	99.8	42	109.2	41	
Quebec, Canada	397	72.9	68	79.8	63	75.4	68	124	70.1	58	138.2	27	151.3	24	
Saskatchewan, Canada	65	11.8	122	13.0	120	12.9	119	141	79.6	50	160.2	24	175.4	22	
Brussels, Belgium	369	67.7	73	108.0	40	104.5	44	74	41.5	87	62.2	60	67.8	59	
Vlaams Gewest, Belgium	566	103.9	44	85.6	61	81.3	60	55	30.7	96	18.4	101	20.1	104	
Denmark	538	98.7	49	93.1	49	77.1	65	57	32.3	94	117.3	34	112.7	40	
Baden-Württemberg, Germany	964	177.0	18	188.7	17	178.6	17	129	72.5	57	143.1	26	148.7	27	
Bayern, Germany	763	140.0	28	142.0	28	134.5	29	76	42.6	85	84.3	49	87.6	48	
Berlin, Germany	565	103.6	45	95.3	47	89.5	59	269	151.3	19	286.3	9	295.2	5	
Bremen, Germany	394	72.3	70	78.1	64	73.1	70	234	131.8	23	231.4	14	237.7	10	
Hamburg, Germany	366	67.1	74	101.1	44	95.7	50	166	93.5	40	173.1	20	179.8	20	
Hessen, Germany	668	122.7	35	139.7	30	131.9	31	59	33.2	93	50.6	69	52.5	69	
Niedersachsen, Germany	437	80.2	63	80.8	62	76.3	67	77	43.4	83	85.4	48	88.6	47	
Nordrhein-Westfalen, Germany	303	55.7	83	63.6	73	59.9	78	76	42.6	86	83.1	50	86.0	49	
Saarland, Germany	98	17.9	119	18.2	117	17.1	117	62	34.9	92	56.8	65	58.6	64	
Schleswig-Holstein, Germany	132	24.2	115	22.9	113	23.0	112	82	46.2	79	90.5	47	93.9	45	
Noreste, Spain	220	40.3	99	27.5	108	32.8	103	15	8.6	115	11.9	109	16.3	105	
Comunidad de Madrid, Spain	345	63.3	78	40.0	91	47.0	83	149	84.1	48	117.2	35	149.5	26	
Île de France, France	1,011	185.6	14	190.6	16	185.2	13	214	120.6	27	218.5	15	229.5	11	
Centre-est, France	522	95.8	50	77.2	66	75.2	69	71	39.7	89	74.2	54	78.1	52	
Ireland	258	47.4	86	29.9	103	48.0	82	33	18.8	106	14.7	104	23.9	101	
Central, Italy	73	13.5	121	10.4	121	12.1	120	39	21.9	104	39.1	79	45.8	77	
Emilia-Romagna, Italy	177	32.5	107	26.0	110	30.5	105	45	25.4	101	33.6	86	39.6	85	
Lazio, Italy	190	34.9	104	28.9	105	33.9	101	291	164.1	17	281.6	10	331.0	4	
Lombardia, Italy	316	58.1	82	48.1	80	56.5	80	41	23.1	103	37.4	83	44.0	79	
North East, Italy	100	18.3	118	13.7	119	16.2	118	29	16.1	108	29.3	89	34.4	89	
North West, Italy	363	66.6	76	54.6	79	63.5	76	35	19.9	105	37.7	82	43.9	80	
Luxembourg	995	182.6	15	94.3	48	92.0	53	77	43.2	84	132.1	28	134.5	30	
North, Netherlands	154	28.3	112	27.2	109	29.8	107	18	10.0	114	9.5	112	10.4	112	
West, Netherlands	251	46.0	87	47.7	81	52.3	81	114	64.4	65	161.3	23	177.3	21	
South Netherlands	744	136.6	30	108.2	39	118.5	38	22	12.2	113	3.2	120	3.5	119	
East, Austria	547	100.5	46	70.9	72	71.6	71	52	29.2	100	56.3	66	54.9	67	
West, Austria	326	59.8	81	42.4	84	42.8	86	15	8.3	116	16.0	103	15.6	107	
Uusimaa, Finland	981	179.9	17	217.0	12	181.2	16	226	127.1	25	292.4	8	286.7	6	

Region	R&D Spending (US \$)					Index					Rank					Change in Rank				
	2005	2004	2005	2004	2005	2005	2004	2005	2004	2005	2005	2004	2005	2004	2005	2005	2004	2005	2004	2005
Stockholm, Sweden	1,863	342.0	2	299.0	4	286.4	10	2	102	57.6	69	121.5	31	113.0	39	-38				
Smaland Medboarna, Sweden	173	31.8	109	33.0	100	29.4	108	-9	0	0.2	122	0.4	122	0.3	122	0				
South, Sweden	895	164.3	21	149.9	25	133.6	30	4	2	0.9	121	1.9	121	1.8	121	0				
West, Sweden	1,602	294.0	4	206.7	13	184.2	14	9	3	1.7	120	3.5	119	3.3	120	-1				
Eastern, UK	830	152.4	25	180.0	19	152.9	23	-6	86	48.6	77	98.8	43	77.7	53	-34				
London, UK	213	39.1	101	39.3	93	32.7	104	-8	53	29.9	99	71.8	55	53.7	68	-44				
Scotland, UK	209	38.4	102	27.7	107	24.9	111	5	77	43.6	82	96.8	44	77.2	54	-38				
South East, UK	664	121.9	36	129.7	32	116.9	41	-4	93	52.5	75	162.7	22	136.3	29	-53				
Norway	360	66.0	77	75.2	68	57.8	79	-9	99	55.7	70	125.2	29	97.1	44	-44				
Switzerland	598	109.7	40	115.2	36	124.3	34	-4	11	6.0	118	11.9	108	30.7	92	-10				
Bratislavský, Slovak Republic	174	32.0	108	25.1	111	25.8	110	3	72	40.5	88	146.7	25	160.6	23	-63				
Budapest, Hungary	143	26.2	114	24.9	112	29.9	106	-2	144	81.1	49	111.2	38	121.7	35	-11				
Prague, Czech Republic	215	39.4	100	47.7	82	42.4	87	-18	276	155.4	18	324.2	6	355.0	3	-12				
Israel	702	128.9	32	141.1	29	136.9	26	-3	53	30.1	97	62.8	59	73.3	55	-38				
New South Wales, Australia	227	41.7	91	36.9	96	39.9	96	5	94	52.9	72	105.9	39	119.5	36	-33				
Victoria, Australia	227	41.7	92	36.9	96	39.9	97	4	94	52.9	73	105.9	39	119.5	37	-34				
Western Australia	227	41.7	93	36.9	96	39.9	98	3	94	52.9	74	105.9	39	119.5	38	-35				
New Zealand	91	16.6	120	18.2	116	19.1	115	-4	80	45.0	80	93.9	46	102.7	43	-34				
Aichi, Japan	931	170.9	19	184.6	18	130.3	32	-1	27	14.9	111	327.7	5	183.3	18	-106				
Kanagawa, Japan	812	149.1	26	118.9	35	172.4	19	9	56	31.7	95	211.1	17	204.3	14	-78				
Kyoto, Japan	517	94.8	52	99.1	45	140.2	24	-7	11	6.0	119	175.9	19	213.6	13	-100				
Osaka, Japan	681	124.9	34	91.7	51	127.0	33	17	31	17.3	107	162.7	21	149.7	25	-86				
Shiga, Japan	987	181.1	16	226.7	11	138.8	25	-5	12	6.8	117	402.5	3	250.4	9	-114				
Shizuoka, Japan	920	168.8	20	204.4	14	123.2	35	-6	23	12.8	112	362.8	4	199.9	15	-108				
Tochigi, Japan	760	139.4	29	176.7	21	119.7	37	-8	53	30.1	98	313.6	7	187.8	17	-91				
Tokyo, Japan	740	135.9	31	120.5	34	169.0	20	3	169	95.1	37	213.8	16	189.5	16	-21				
Toyama, Japan	639	117.2	37	150.2	24	122.1	36	-13	27	15.4	110	266.6	11	180.0	19	-99				
Seoul, Korea	336	61.7	79	62.1	74	65.2	72	-5	120	67.8	61	120.6	32	132.0	31	-29				
Ulsan, Korea	336	61.7	80	62.1	74	65.2	73	-6	120	67.8	62	120.6	32	132.0	32	-30				
Hong Kong	183	33.6	105	30.3	102	5.8	122	-3	119	66.8	64	114.9	37	125.9	34	-27				
Singapore	297	54.6	84	59.7	77	64.2	74	-7	64	36.0	91	75.0	53	81.4	51	-38				
Taiwan	288	52.8	85	57.8	78	60.8	77	-7	176	99.1	35	206.7	18	223.0	12	-17				
Beijing, China	240	44.1	90	39.5	92	41.5	93	2	428	241.0	14	412.0	2	451.1	2	-12				
Pearl River Delta, China	370	68.0	72	61.0	76	64.0	75	4	28	15.5	109	26.5	92	29.0	93	-17				
Shanghai, China	169	30.9	110	27.7	106	29.1	109	-4	98	55.4	71	94.8	45	103.8	42	-26				
Tianjin, China	105	19.2	117	17.2	118	18.1	116	1	44	24.7	102	42.2	71	46.2	71	-31				
Bangalore, India	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Hyderabad, India	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Mumbai, India	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

Region	Private Equity (US \$)					Financial Capital: Private Equity \$ Per Capita					Knowledge Capital Components: Number of Patents Registered per one million inhabitants							
	Index 2005	Rank 2005	Index 2004	Rank 2004	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Change in Rank 2005	Patents	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
Atlanta-Sandy Springs-Marietta, US	88	33	50.2	70	37	80.6	18	111.9	42	24	204	84.1	54	78.5	53	80.1	51	-1
Austin-Round Rock, US	139	18	111.9	42	24	127.5	18	111.9	42	24	332	136.9	37	390.7	7	415.2	3	-30
Baltimore-Towson, US	175	10	-	-	0	161.3	10	-	-	0	337	139.0	32	-	-	-	-	-
Boston-Cambridge-Quincy, US	639	3	366.2	3	0	588.1	3	366.2	3	0	630	260.2	11	197.9	15	203.7	17	4
Buffalo-Niagara Falls, US	64	53	144.7	27	-26	58.7	53	144.7	27	-26	420	173.3	20	90.0	49	93.3	48	29
Charlotte-Gastonia-Concord, US	88	34	111.4	45	11	80.6	34	111.4	45	11	281	115.9	42	56.9	68	58.5	68	26
Chicago-Naperville-Joliet, US	43	83	214.0	18	-65	39.3	83	214.0	18	-65	354	146.3	29	111.4	35	124.2	30	6
Cincinnati-Middletown, US	43	84	226.8	17	-67	39.3	84	226.8	17	-67	344	141.9	31	137.1	26	144.7	24	-5
Cleveland-Elyria-Mentor, US	43	85	136.8	31	-54	39.3	85	136.8	31	-54	396	163.3	24	102.6	43	109.5	41	19
Columbus, US	43	86	136.8	31	-55	39.3	86	136.8	31	-55	396	163.3	25	63.1	65	67.3	59	40
Dallas-Fort Worth-Arlington, US	139	18	111.9	42	24	127.5	18	111.9	42	24	332	136.9	36	115.1	32	122.4	31	-4
Denver-Aurora, US	363	6	190.2	21	15	334.3	6	190.2	21	15	538	222.1	13	137.2	25	143.0	27	12
Detroit-Warren-Livonia, US	43	87	191.8	20	-67	39.3	87	191.8	20	-67	479	197.8	15	145.2	22	149.2	22	7
Grand Rapids, US	43	91	25.1	92	1	39.3	91	25.1	92	1	479	197.8	16	106.7	40	109.5	42	24
Greensboro-High Point, US	88	35	118.8	37	2	80.6	35	118.8	37	2	293	120.8	40	58.8	67	60.4	66	27
Hartford, US	639	3	334.3	8	5	588.1	3	334.3	8	5	397	163.9	23	123.9	30	132.1	28	7
Houston-Sugar Land-Baytown, US	139	18	111.9	41	23	127.5	18	111.9	41	23	332	136.9	34	114.3	33	121.5	32	-1
Indianapolis, US	43	88	114.3	39	-49	39.3	88	114.3	39	-49	322	132.9	38	94.1	46	106.4	43	8
Jacksonville, US	88	36	52.4	65	29	80.6	36	52.4	65	29	194	80.2	60	35.9	96	37.8	95	36
Kansas City, US	43	89	97.0	50	-39	39.3	89	97.0	50	-39	200	82.5	56	37.9	94	43.6	84	38
Las Vegas-Paradise, US	61	55	41.4	77	22	55.8	55	41.4	77	22	193	79.6	63	31.3	101	36.0	96	38
Los Angeles-Long Beach-Santa Ana, US	85	46	352.0	4	-42	77.8	46	352.0	4	-42	690	284.6	7	90.1	48	90.8	49	41
Louisville, US	43	90	54.3	64	-26	39.3	90	54.3	64	-26	177	73.0	68	49.2	75	50.6	77	7
Memphis, US	40	96	50.0	72	-24	36.8	96	50.0	72	-24	181	74.5	67	41.1	86	42.8	86	19
Miami-Fort Lauderdale-Miami Beach, US	88	37	52.4	65	28	80.6	37	52.4	65	28	194	80.2	61	46.8	81	49.2	80	20
Milwaukee-Waukesha-West Allis, US	104	30	96.2	51	21	95.6	30	96.2	51	21	443	182.7	18	120.5	31	117.8	34	13
Minneapolis-St. Paul-Bloomington, US	104	31	193.7	19	-12	95.6	31	193.7	19	-12	665	274.5	10	221.1	12	238.4	14	2
Nashville-Davidson--Murfreesboro, US	40	97	55.6	63	-34	36.8	97	55.6	63	-34	197	81.2	58	31.6	100	32.9	99	42
New York-Northern New Jersey-Long Island, US	121	24	232.7	16	-8	111.7	24	232.7	16	-8	451	186.2	17	107.7	38	113.6	39	21
Orlando-Kissimmee, US	88	38	52.4	65	27	80.6	38	52.4	65	27	195	80.3	59	36.7	95	38.6	94	36
Philadelphia-Camden-Wilmington, US	125	23	249.8	13	-10	115.2	23	249.8	13	-10	400	165.1	22	105.7	41	115.5	36	19
Phoenix-Mesa-Scottsdale, US	61	56	124.1	35	-21	55.8	56	124.1	35	-21	355	146.6	28	109.3	37	119.4	33	9
Pittsburgh, US	43	92	167.0	24	-68	39.3	92	167.0	24	-68	336	138.5	33	95.5	45	105.3	44	12
Portland-Vancouver-Beaverton, US	168	12	168.9	23	11	154.7	12	168.9	23	11	530	218.9	14	144.0	23	146.6	23	9
Raleigh-Cary, US	88	39	118.8	38	-1	80.6	39	118.8	38	-1	292	120.6	41	259.7	10	266.6	13	-31
Richmond, US	88	40	100.0	47	7	80.6	40	100.0	47	7	203	84.0	55	47.8	79	50.9	76	24
Riverside-San Bernardino-Ontario, US	85	47	-	-	5	77.8	47	-	-	5	690	284.6	9	-	-	-	-	-
Rochester, US	64	54	144.7	27	-27	58.7	54	144.7	27	-27	420	173.3	21	434.5	5	450.4	1	-16
Sacramento-Arden-Arcade--Roseville, US	77	49	352.0	4	-45	70.8	49	352.0	4	-45	690	284.6	9	72.6	57	73.2	55	48
Salt Lake City, US	61	55	114.2	40	-17	55.8	57	114.2	40	-17	366	151.1	27	112.5	34	117.4	35	7
San Antonio, US	139	18	111.9	44	26	127.5	18	111.9	44	26	332	136.9	35	50.3	74	53.4	70	39
San Diego-Carlsbad-San Marcos, US	368	5	352.0	7	2	338.9	5	352.0	7	2	690	284.6	8	203.7	14	205.2	15	6
San Francisco-Oakland-Fremont, US	1,441	1	1325.4	4	3	1325.4	1	1325.4	4	3	690	284.6	6	438.1	4	441.4	2	-2

Region	Private Equity (US \$)					Financial Capital: Private Equity \$ Per Capita					Knowledge Capital Components: Number of Patents Registered per one million inhabitants							
	Index 2005	Rank 2005	Index 2004	Rank 2004	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Change in Rank 2005	Patents	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005
San Jose-Sunnyvale-Santa Clara, US	1,441	1325.4	1	-	-	690	284.6	4	-	-	-	-	-	-	-	-	-	-
Seattle-Tacoma-Bellevue, US	168	154.7	12	409.5	2	431	177.8	19	131.2	28	126.0	29	28	126.0	29	29	9	
St. Louis, US	43	39.3	93	119.3	36	234	96.5	51	74.3	56	79.8	52	56	79.8	52	52	5	
Tampa-St. Petersburg-Clearwater, US	88	80.6	41	52.4	69	194	80.2	62	48.6	76	51.1	73	76	51.1	73	73	14	
Virginia Beach-Norfolk-Newport News, US	88	80.6	42	100.2	46	204	84.4	53	27.5	105	29.2	104	105	29.2	104	104	52	
Washington-Arlington-Alexandria, US	175	161.3	10	95.3	52	251	103.8	47	77.3	55	76.2	54	55	76.2	54	54	8	
Alberta, Canada	47	42.8	81	93.8	54	141	58.2	75	39.1	87	40.4	92	87	40.4	92	92	12	
British Columbia, Canada	50	46.0	77	124.2	34	141	58.2	74	39.1	87	40.4	93	87	40.4	93	93	13	
Manitoba, Canada	25	23.4	111	24.0	93	141	58.2	76	39.1	87	40.4	90	87	40.4	90	90	11	
Ontario, Canada	112	102.8	28	14.8	104	141	58.2	72	39.1	87	40.4	89	87	40.4	89	89	15	
Quebec, Canada	146	134.4	16	38.7	82	141	58.2	73	39.1	87	40.4	88	87	40.4	88	88	14	
Saskatchewan, Canada	30	27.1	109	46.0	74	141	58.2	77	39.1	87	40.4	91	87	40.4	91	91	10	
Brussels, Belgium	41	38.1	94	45.5	75	82	33.7	91	51.0	72	50.2	78	72	50.2	78	78	-19	
Vlaams Gewest, Belgium	41	38.1	95	36.1	86	75	31.1	93	47.9	78	53.0	71	78	53.0	71	71	-15	
Denmark	60	54.9	58	37.8	83	84	34.6	87	63.4	64	63.1	61	64	63.1	61	61	-23	
Baden-Württemberg, Germany	48	44.6	78	25.4	91	271	111.7	44	171.0	19	171.4	19	19	171.4	19	19	-25	
Bayern, Germany	66	60.8	51	41.3	79	28	215	88.6	52	151.3	21	156.9	21	156.9	21	21	-31	
Berlin, Germany	111	101.7	29	27.7	90	91	37.4	85	65.0	60	60.2	67	60	60.2	67	67	-25	
Bremen, Germany	35	32.3	101	22.7	97	48	19.8	107	29.6	103	29.9	103	103	29.9	103	103	-4	
Hamburg, Germany	112	102.9	27	29.4	89	107	44.3	82	64.9	61	62.3	64	61	62.3	64	64	-21	
Hessen, Germany	67	61.4	50	40.7	81	147	60.8	69	110.4	36	114.4	38	36	114.4	38	38	-33	
Niedersachsen, Germany	21	19.7	112	23.5	95	87	35.8	86	55.6	69	71.7	56	69	71.7	56	56	-17	
Nordrhein-Westfalen, Germany	43	40.0	82	18.5	99	128	52.8	78	88.9	50	95.0	47	50	95.0	47	47	-28	
Saarland, Germany	33	30.0	106	5.3	117	69	28.6	97	43.3	84	51.0	74	84	51.0	74	74	-13	
Schleswig-Holstein, Germany	26	24.1	110	6.7	115	75	31.0	94	46.8	80	45.5	83	80	45.5	83	83	-14	
Noreste, Spain	36	32.8	99	32.6	87	11	4.5	123	10.1	120	10.5	120	120	10.5	120	120	-3	
Comunidad de Madrid, Spain	36	32.8	100	47.4	73	13	5.6	121	10.8	117	13.6	116	117	13.6	116	116	-4	
Île de France, France	268	246.2	9	240.0	15	145	60.0	70	93.3	47	101.1	46	47	101.1	46	46	-23	
Centre-est, France	48	44.1	80	97.2	49	108	44.4	81	66.5	59	66.7	60	59	66.7	60	60	-22	
Ireland	65	60.1	52	23.3	96	32	13.4	113	25.9	107	30.2	102	107	30.2	102	102	-6	
Central, Italy	59	53.9	59	18.0	101	29	12.0	114	17.8	112	21.7	112	112	21.7	112	112	-2	
Emilia-Romagna, Italy	59	53.9	60	45.1	76	72	29.5	95	52.9	71	53.9	69	71	53.9	69	69	-24	
Lazio, Italy	59	53.9	61	50.2	71	17	7.1	120	12.4	116	13.2	117	116	13.2	117	117	-4	
Lombardia, Italy	59	53.9	62	83.6	55	62	25.4	99	50.4	73	51.8	72	73	51.8	72	72	-26	
North East, Italy	59	53.9	63	23.9	94	43	17.9	109	30.2	102	35.0	97	102	35.0	97	97	-7	
North West, Italy	59	53.9	64	94.8	53	40	16.6	111	28.9	104	32.2	101	104	32.2	101	101	-7	
Luxembourg	-	-	-	-	-	96	39.7	84	64.0	62	63.0	62	62	63.0	62	62	-22	
North, Netherlands	86	78.9	43	40.8	80	22	9.1	118	24.4	108	22.6	109	108	22.6	109	109	-10	
West, Netherlands	86	78.9	44	71.5	59	45	18.6	108	44.5	83	49.4	79	83	49.4	79	79	-25	
South Netherlands	86	78.9	45	162.2	25	248	102.4	49	186.5	16	169.6	20	16	169.6	20	20	-33	
East, Austria	30	27.5	107	18.3	100	52	21.6	103	42.3	85	43.3	85	85	43.3	85	85	-18	
West, Austria	30	27.5	107	11.0	111	83	34.3	90	63.7	63	60.4	65	63	60.4	65	65	-27	
Uusimaa, Finland	155	142.4	15	273.3	10	142	58.6	71	174.2	18	205.2	16	18	205.2	16	16	-53	

Region	Private Equity (US \$)				Financial Capital: Private Equity \$ Per Capita				Knowledge Capital Components: Number of Patents Registered per one million inhabitants					
	Index 2005	Rank 2005	Index 2004	Rank 2004	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2005	Rank 2005	Index 2004	Rank 2004	Change in Rank 2005
Stockholm, Sweden	326	300.2	7	29.5	88	81	270	111.6	45	182.6	17	189.5	18	-28
Smaland Medoarna, Sweden	33	30.6	105	266.5	11	-94	80	33.1	92	38.3	93	47.7	81	1
South, Sweden	117	107.8	26	133.6	33	7	272	112.4	43	130.3	29	144.2	26	-14
West, Sweden	143	131.8	17	184.2	22	5	197	81.4	57	102.7	42	114.7	37	-15
Eastern, UK	84	77.2	48	143.5	29	-19	126	52.2	79	78.2	54	78.6	53	-25
London, UK	268	246.9	8	332.2	9	1	52	21.5	104	33.7	97	32.5	100	-7
Scotland, UK	103	95.0	32	152.4	26	-6	48	19.9	106	27.3	106	26.9	105	0
South East, UK	158	145.5	14	256.7	12	-2	102	42.1	83	69.8	58	68.4	57	-25
Norway	48	44.5	79	36.9	84	5	55	22.7	101	86.4	52	19.9	113	-49
Switzerland	58	53.2	65	36.2	85	20	188	77.7	64	159.9	20	67.9	58	-44
Bratislavský, Slovak Republic	16	14.7	114	0.8	123	9	7	2.9	124	0.1	125	0.2	125	1
Budapest, Hungary	13	12.0	115	4.6	118	3	13	5.5	122	1.8	123	1.2	124	1
Prague, Czech Republic	11	10.0	116	3.7	119	3	7	2.7	125	0.7	124	1.3	123	-1
Israel	128	117.5	22	137.8	30	8	185	76.2	66	55.2	70	42.1	87	4
New South Wales, Australia	34	31.3	102	82.1	56	-46	62	25.6	98	18.6	111	23.5	108	13
Victoria, Australia	34	31.3	102	82.1	56	-46	59	24.2	100	17.6	113	18.8	114	13
Western Australia	34	31.3	102	82.1	56	-46	51	21.2	105	15.4	115	22.1	111	10
New Zealand	19	17.2	113	56.6	62	-51	41	17.1	110	10.6	119	11.2	119	9
Aichi, Japan	56	51.9	66	14.9	103	37	299	123.2	39	438.5	3	303.5	8	-36
Kanagawa, Japan	56	51.9	67	10.6	112	45	263	108.4	46	282.5	9	401.3	4	-37
Kyoto, Japan	56	51.9	68	14.7	105	37	344	142.1	30	235.4	11	326.4	7	-19
Osaka, Japan	56	51.9	69	19.9	98	29	703	290.0	3	217.8	13	295.7	9	10
Shiga, Japan	56	51.9	70	11.9	110	40	54	22.1	102	538.5	1	323.1	6	-101
Shizuoka, Japan	56	51.9	71	14.3	106	35	186	76.8	65	485.5	2	286.7	10	-63
Tochigi, Japan	56	51.9	72	12.7	109	37	21	8.8	119	419.7	6	278.6	12	-113
Tokyo, Japan	56	51.9	73	41.4	78	5	1454	600.2	1	141.6	24	393.4	5	23
Toyama, Japan	56	51.9	74	16.3	102	28	70	28.7	96	356.7	8	284.2	11	-88
Seoul, Korea	53	48.5	75	58.0	60	-15	83	34.3	88	22.6	109	23.9	106	21
Ulsan, Korea	53	48.5	76	58.0	60	-16	83	34.3	89	22.6	109	23.9	107	20
Hong Kong				98.6	48		37	15.2	112	17.4	114	18.4	115	2
Singapore	121	111.6	25	242.1	14	-11	109	45.0	80	32.6	98	22.4	110	18
Taiwan	40	36.7	98	13.9	107	9	243	100.3	50	87.4	51	82.1	50	1
Beijing, China	1	1.2	117	8.4	113	-4	580	239.2	12	136.7	27	144.7	25	15
Pearl River Delta, China	1	1.2	117	13.0	108	-9	372	153.5	26	59.0	66	62.4	63	40
Shanghai, China	1	1.2	117	5.9	116	-1	1026	423.5	2	96.0	44	101.6	45	42
Tianjin, China	1	1.2	117	3.7	120	3	249	102.7	48	48.1	77	51.0	75	29
Bangalore, India	1	0.8	121	1.3	122	1	22	9.3	117	6.0	121	6.4	121	4
Hyderabad, India	1	0.8	121	1.6	121	0	22	9.3	116	10.6	118	11.3	118	2
Mumbai, India	1	0.8	121	0.5	124	3	22	9.3	115	3.3	122	3.5	122	7

Region	Earnings (US \$)					Regional Economy Outputs: Mean Gross Monthly Earnings					Regional Economy Outputs: Labour Productivity					Change in Rank 2005			
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2005	Rank 2005	Index 2004		Rank 2004	Index 2003	Rank 2003
Atlanta-Sandy Springs-Marietta, US	3,677	137.3	20	130.0	18	132.8	16	132.8	16	132.8	16	132.8	106.8	44	112.2	34	115.1	28	-10
Austin-Round Rock, US	3,254	121.6	31	131.0	16	137.0	12	137.0	12	137.0	12	137.0	98.4	72	99.6	67	100.8	63	-5
Baltimore-Towson, US	3,567	133.3	22	-	-	-	-	-	-	-	-	-	78,586	35	-	-	-	-	-
Boston-Cambridge-Quincy, US	4,269	159.5	7	146.9	5	150.5	5	150.5	5	150.5	5	150.5	91,302	12	171.9	3	239.6	1	-9
Buffalo-Niagara Falls, US	2,892	108.1	54	102.8	57	105.0	53	105.0	53	105.0	53	105.0	90,949	13	136.3	8	135.2	6	-5
Charlotte-Gastonia-Concord, US	3,458	129.2	23	119.6	25	120.7	25	120.7	25	120.7	25	120.7	84,463	22	121.8	20	125.1	16	-2
Chicago-Naperville-Joliet, US	3,833	143.2	13	134.0	12	136.0	13	136.0	13	136.0	13	136.0	82,167	25	119.5	25	120.2	22	0
Cincinnati-Middletown, US	3,241	121.1	34	114.1	32	115.6	32	115.6	32	115.6	32	115.6	72,592	57	99.7	65	104.5	54	8
Cleveland-Elyria-Mentor, US	3,200	119.5	40	112.1	38	114.1	35	114.1	35	114.1	35	114.1	77,900	36	106.8	41	110.9	36	5
Columbus, US	3,207	119.8	38	112.4	36	113.4	36	113.4	36	113.4	36	113.4	74,230	47	105.7	44	112.1	31	-3
Dallas-Fort Worth-Arlington, US	3,637	135.9	21	131.2	14	133.6	15	133.6	15	133.6	15	133.6	85,221	19	121.0	22	122.5	20	3
Denver-Aurora, US	3,689	137.8	19	134.7	11	138.1	11	138.1	11	138.1	11	138.1	80,297	31	118.7	27	120.4	21	-4
Detroit-Warren-Livonia, US	3,855	144.0	12	133.4	13	138.3	10	138.3	10	138.3	10	138.3	75,449	42	102.7	57	105.6	47	15
Grand Rapids, US	3,083	115.2	45	107.3	48	110.2	44	110.2	44	110.2	44	110.2	77,334	37	105.6	45	109.2	40	8
Greensboro-High Point, US	2,834	105.9	56	101.7	60	103.3	57	103.3	57	103.3	57	103.3	72,066	61	112.3	33	114.6	29	-28
Hartford, US	3,953	147.7	10	140.7	8	141.8	6	141.8	6	141.8	6	141.8	123,849	3	171.0	4	169.2	3	1
Houston-Sugar Land-Baytown, US	3,698	138.1	17	135.0	10	134.7	14	134.7	14	134.7	14	134.7	81,742	27	120.2	24	123.3	19	-3
Indianapolis, US	3,303	123.4	26	115.4	27	116.7	31	116.7	31	116.7	31	116.7	75,551	40	101.8	60	106.4	44	20
Jacksonville, US	3,214	120.1	37	104.0	53	105.2	52	105.2	52	105.2	52	105.2	79,791	33	118.1	28	118.8	25	-5
Kansas City, US	3,283	122.7	28	114.8	31	116.9	28	116.9	28	116.9	28	116.9	72,265	59	104.6	51	104.0	55	5
Las Vegas-Paradise, US	3,052	114.0	47	103.4	54	105.8	51	105.8	51	105.8	51	105.8	82,097	26	103.2	54	106.5	42	28
Los Angeles-Long Beach-Santa Ana, US	3,694	138.0	18	125.3	20	126.9	19	126.9	19	126.9	19	126.9	89,689	15	121.6	21	125.8	14	6
Louisville, US	2,997	111.9	50	106.0	51	106.2	50	106.2	50	106.2	50	106.2	81,068	28	106.4	42	106.4	43	14
Memphis, US	3,225	120.5	36	110.9	41	111.1	41	111.1	41	111.1	41	111.1	74,301	46	109.5	37	111.7	33	-9
Miami-Fort Lauderdale-Miami Beach, US	3,242	121.1	33	110.0	43	111.3	39	111.3	39	111.3	39	111.3	71,281	65	97.3	70	99.4	65	5
Milwaukee-Waukesha-West Allis, US	3,241	121.1	35	113.7	34	115.0	34	115.0	34	115.0	34	115.0	74,151	48	103.3	53	105.2	50	5
Minneapolis-St. Paul-Bloomington, US	3,700	138.2	16	131.1	15	132.1	17	132.1	17	132.1	17	132.1	74,144	49	105.3	48	111.6	34	-1
Nashville-Davidson--Murfreesboro, US	3,072	114.7	46	108.8	45	111.1	40	111.1	40	111.1	40	111.1	69,622	70	104.2	52	106.6	41	-18
New York-Northern New Jersey-Long Island, US	4,585	171.3	4	164.0	3	167.3	3	167.3	3	167.3	3	167.3	93,827	10	154.7	5	154.7	4	-5
Orlando-Kissimmee, US	2,958	110.5	52	100.3	63	100.9	62	100.9	62	100.9	62	100.9	71,917	62	98.5	68	99.3	66	6
Philadelphia-Camden-Wilmington, US	3,708	138.5	15	127.3	19	128.8	18	128.8	18	128.8	18	128.8	80,377	30	116.3	30	119.7	39	0
Phoenix-Mesa-Scottsdale, US	3,106	116.0	42	112.9	33	116.7	29	116.7	29	116.7	29	116.7	72,712	56	106.1	43	109.3	23	-13
Pittsburgh, US	3,179	118.8	41	113.4	37	113.0	37	113.0	37	113.0	37	113.0	72,728	55	105.2	47	109.5	38	-8
Portland-Vancouver-Beaverton, US	3,305	123.5	25	115.8	26	119.8	26	119.8	26	119.8	26	119.8	72,757	54	103.3	54	106.2	45	1
Raleigh-Cary, US	3,243	121.2	32	124.1	22	126.4	20	126.4	20	126.4	20	126.4	72,219	60	100.0	64	105.2	49	4
Richmond, US	3,263	121.9	29	115.0	30	115.2	33	115.2	33	115.2	33	115.2	90,302	14	131.6	10	132.9	8	-4
Riverside-San Bernardino-Ontario, US	2,856	106.7	55	-	-	-	-	-	-	-	-	-	84,840	21	-	-	-	-	-
Rochester, US	3,092	115.5	43	110.2	42	110.9	42	110.9	42	110.9	42	110.9	91,942	11	125.6	15	125.4	15	4
Sacramento--Arden-Arcade--Roseville, US	3,437	128.4	24	121.1	24	121.2	24	121.2	24	121.2	24	121.2	86,225	18	125.0	16	131.2	10	-2
Salt Lake City, US	2,968	110.9	51	102.5	58	103.5	56	103.5	56	103.5	56	103.5	70,637	67	102.8	56	104.0	56	-11
San Antonio, US	2,904	108.5	53	98.3	67	98.8	65	98.8	65	98.8	65	98.8	71,687	64	109.7	36	111.9	32	-28
San Diego-Carlsbad-San Marcos, US	3,760	140.5	14	123.2	63	125.5	22	125.5	22	125.5	22	125.5	83,833	119.0	123.4	17	128.6	12	-7
San Francisco-Oakland-Fremont, US	4,592	171.5	3	173.8	1	189.0	1	189.0	1	189.0	1	189.0	97,021	6	137.7	7	140.0	5	1

Region	Earnings (US \$)					Regional Economy Outputs: Mean Gross Monthly Earnings					Regional Economy Outputs: Labour Productivity				
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	
San Jose-Sunnyvale-Santa Clara, US	5,485	204.9	1	-	-	-	-	99,959	141.9	5	-	-	-	-	
Seattle-Tacoma-Bellevue, US	4,014	149.9	9	135.5	9	140.3	8	86,341	122.6	17	126.9	14	125.8	13	
St. Louis, US	3,302	123.4	27	115.2	29	116.7	30	67,363	95.6	77	102.1	59	103.5	57	
Tampa-St. Petersburg-Clearwater, US	3,035	113.4	48	101.6	61	103.0	59	76,139	108.1	39	99.7	66	100.1	64	
Virginia Beach-Norfolk-Newport News, US	3,254	121.6	30	95.8	74	94.5	76	74,604	105.9	45	118.9	26	119.6	24	
Washington-Arlington-Alexandria, US	4,441	165.9	5	141.9	6	140.8	7	87,227	123.8	16	123.1	18	123.6	18	
Alberta, Canada	2,041	76.2	99	84.9	100	91.1	86	73,212	103.9	53	109.2	39	110.7	37	
British Columbia, Canada	2,443	91.3	66	87.1	96	88.1	90	56,299	79.9	106	84.0	93	84.0	100	
Manitoba, Canada	1,887	70.5	107	72.6	113	75.9	108	54,784	77.8	107	81.7	100	75.6	109	
Ontario, Canada	1,784	66.6	110	94.0	79	98.3	66	64,506	91.6	84	96.2	72	91.5	83	
Quebec, Canada	2,205	82.4	87	78.5	110	82.1	102	57,435	81.5	101	85.7	89	79.9	107	
Saskatchewan, Canada	2,264	84.6	81	68.7	115	71.8	113	59,714	84.8	95	89.1	84	89.6	87	
Brussels, Belgium	5,096	190.4	2	151.3	4	151.4	4	170,968	242.7	1	236.8	1	228.8	2	
Vlaams Gewest, Belgium	1,943	72.6	105	94.9	78	95.0	75	70,708	100.4	66	98.0	69	96.6	70	
Denmark	2,562	95.7	62	97.5	70	96.6	70	63,989	90.8	85	88.0	86	88.0	90	
Baden-Württemberg, Germany	2,421	90.4	68	102.3	59	101.6	60	70,154	99.6	68	96.8	71	95.2	75	
Bayern, Germany	2,226	83.1	86	96.3	71	95.5	73	69,442	98.6	71	95.3	74	94.6	77	
Berlin, Germany	2,176	81.3	89	95.2	76	97.3	67	58,935	83.7	96	82.7	96	80.7	105	
Bremen, Germany	3,200	119.6	39	107.2	49	106.6	49	94,094	133.6	9	128.6	13	95.1	76	
Hamburg, Germany	3,032	113.3	49	108.4	46	108.0	48	102,732	145.8	4	143.0	6	116.2	27	
Hessen, Germany	2,457	91.8	65	103.3	56	103.0	58	76,863	109.1	38	105.0	49	102.6	59	
Niedersachsen, Germany	2,091	78.1	96	93.6	81	93.8	81	60,699	86.2	89	83.4	94	85.4	93	
Nordrhein-Westfalen, Germany	2,391	89.3	69	100.7	62	100.9	61	68,654	97.5	75	95.8	73	92.1	81	
Saarland, Germany	2,390	89.3	71	95.3	75	95.9	71	64,928	92.2	83	88.4	85	80.3	106	
Schleswig-Holstein, Germany	1,971	73.6	104	88.9	94	89.7	87	60,153	85.4	93	80.9	103	84.4	98	
Noreste, Spain	1,982	74.0	102	93.8	80	91.8	85	63,645	90.4	86	93.7	77	88.1	89	
Comunidad de Madrid, Spain	2,270	84.8	80	106.5	50	104.2	55	69,213	98.3	73	101.3	61	97.5	68	
Île de France, France	3,087	115.3	44	140.7	7	139.9	9	96,880	137.5	7	131.0	11	129.3	11	
Centre-est, France	2,153	80.4	92	97.8	69	97.2	69	71,771	101.9	63	94.3	75	95.5	74	
Ireland	1,974	73.7	103	86.2	98	81.9	104	72,338	102.7	58	109.3	38	102.9	58	
Central, Italy	1,565	58.5	114	77.8	111	77.2	107	70,009	99.4	69	100.9	63	96.7	69	
Emilia-Romagna, Italy	1,662	62.1	113	82.3	107	82.0	103	75,421	107.1	43	110.7	35	102.5	61	
Lazio, Italy	1,933	72.2	106	92.0	87	91.9	84	80,097	113.7	32	114.4	32	104.7	53	
Lombardia, Italy	1,864	69.6	108	92.6	84	92.3	82	80,848	114.8	29	117.2	29	111.0	35	
North East, Italy	1,665	62.2	112	84.3	102	84.0	97	73,317	104.1	52	105.4	46	102.6	60	
North West, Italy	1,671	62.4	111	86.9	97	86.4	94	74,010	105.1	50	108.2	40	106.1	46	
Luxembourg	4,226	157.9	8	130.3	17	125.8	21	125,443	178.1	2	187.3	2	131.2	9	
North, Netherlands	2,030	75.8	101	92.4	85	92.1	83	73,318	104.1	51	92.7	95	85.1	95	
West, Netherlands	2,602	97.2	60	95.2	77	93.9	80	79,484	112.8	34	92.9	79	96.6	71	
South Netherlands	2,233	83.4	83	81.1	108	79.9	105	68,988	97.9	74	82.3	98	85.5	92	
East, Austria	2,180	81.4	88	112.0	39	110.3	43	67,356	95.6	78	100.9	62	104.9	51	
West, Austria	2,036	76.1	100	98.8	66	97.3	68	63,246	89.8	87	93.4	78	96.0	72	
Uusimaa, Finland	2,247	84.0	82	103.4	55	100.4	63	67,077	95.2	79	102.5	58	104.8	52	

Region	Expenditure (US \$)					Regional Economy Outputs: Per Capita Public Expenditure on Primary and secondary Education					Regional Economy Outputs: Unemployment rate (Reversed)										
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Change in Rank 2005	
Atlanta-Sandy Springs-Marietta, US	1,172	123.3	38	156.3	6	135.4	17	136.6	16	136.6	16	136.6	16	136.6	16	136.6	16	136.6	16	-14	-14
Austin-Round Rock, US	1,222	128.5	30	144.5	17	136.6	15	136.6	44	113.9	44	113.9	44	113.9	44	113.9	44	113.9	44	-3	-3
Baltimore-Towson, US	1,294	136.1	19	-	-	-	-	-	6	154.1	6	154.1	6	154.1	6	154.1	6	154.1	6	-1	-1
Boston-Cambridge-Quincy, US	1,423	149.6	8	154.5	9	143.6	11	143.6	7	154.1	7	154.1	7	154.1	7	154.1	7	154.1	7	-3	-3
Buffalo-Niagara Falls, US	1,613	169.6	5	178.7	2	172.3	3	172.3	13	108.5	13	108.5	13	108.5	13	108.5	13	108.5	13	-12	-12
Charlotte-Gastonia-Concord, US	1,001	105.2	56	115.2	44	109.8	50	109.8	28	136.6	28	136.6	28	136.6	28	136.6	28	136.6	28	-7	-7
Chicago-Naperville-Joliet, US	1,244	130.8	21	137.0	29	133.6	22	133.6	26	131.4	26	131.4	26	131.4	26	131.4	26	131.4	26	-12	-12
Cincinnati-Middletown, US	1,174	123.5	37	136.0	30	126.9	28	126.9	25	131.4	25	131.4	25	131.4	25	131.4	25	131.4	25	-14	-14
Cleveland-Elyria-Mentor, US	1,218	128.0	32	143.2	20	131.4	26	131.4	16	136.6	16	136.6	16	136.6	16	136.6	16	136.6	16	-14	-14
Columbus, US	1,218	128.0	32	143.2	20	131.4	26	131.4	16	136.6	16	136.6	16	136.6	16	136.6	16	136.6	16	-14	-14
Dallas-Fort Worth-Arlington, US	1,222	128.5	31	144.5	17	136.6	16	136.6	44	113.9	44	113.9	44	113.9	44	113.9	44	113.9	44	-3	-3
Denver-Aurora, US	1,058	111.2	51	112.9	48	113.9	44	113.9	6	154.1	6	154.1	6	154.1	6	154.1	6	154.1	6	-1	-1
Detroit-Warren-Livonia, US	1,418	149.1	9	154.8	7	154.1	7	154.1	7	154.1	7	154.1	7	154.1	7	154.1	7	154.1	7	-3	-3
Grand Rapids, US	1,418	149.1	9	154.8	7	154.1	7	154.1	7	154.1	7	154.1	7	154.1	7	154.1	7	154.1	7	-3	-3
Greensboro-High Point, US	988	103.9	58	113.6	46	108.5	52	108.5	52	108.5	52	108.5	52	108.5	52	108.5	52	108.5	52	-12	-12
Hartford, US	1,699	178.7	3	184.6	1	176.7	1	176.7	1	176.7	1	176.7	1	176.7	1	176.7	1	176.7	1	-2	-2
Houston-Sugar Land-Baytown, US	1,222	128.5	28	144.5	15	136.6	13	136.6	13	136.6	13	136.6	13	136.6	13	136.6	13	136.6	13	-13	-13
Indianapolis, US	1,211	127.4	34	145.0	14	137.1	12	137.1	12	137.1	12	137.1	12	137.1	12	137.1	12	137.1	12	-20	-20
Jacksonville, US	901	94.7	66	110.0	51	104.1	59	104.1	59	104.1	59	104.1	59	104.1	59	104.1	59	104.1	59	-15	-15
Kansas City, US	1,123	118.1	44	119.6	40	120.2	34	120.2	34	120.2	34	120.2	34	120.2	34	120.2	34	120.2	34	-4	-4
Las Vegas-Paradise, US	912	95.9	65	121.1	39	110.6	48	110.6	48	110.6	48	110.6	48	110.6	48	110.6	48	110.6	48	-26	-26
Los Angeles-Long Beach-Santa Ana, US	1,226	129.0	25	142.1	21	134.0	18	134.0	18	134.0	18	134.0	18	134.0	18	134.0	18	134.0	18	-4	-4
Louisville, US	1,040	109.3	55	114.5	45	113.3	45	113.3	45	113.3	45	113.3	45	113.3	45	113.3	45	113.3	45	-10	-10
Memphis, US	934	98.2	61	92.3	66	94.2	69	94.2	69	94.2	69	94.2	69	94.2	69	94.2	69	94.2	69	5	5
Miami-Fort Lauderdale-Miami Beach, US	901	94.7	69	110.0	51	104.1	60	104.1	60	104.1	60	104.1	60	104.1	60	104.1	60	104.1	60	-18	-18
Milwaukee-Waukesha-West Allis, US	1,332	140.1	15	150.9	10	144.4	9	144.4	9	144.4	9	144.4	9	144.4	9	144.4	9	144.4	9	-5	-5
Minneapolis-St. Paul-Bloomington, US	1,301	136.8	17	146.5	13	144.1	10	144.1	10	144.1	10	144.1	10	144.1	10	144.1	10	144.1	10	-4	-4
Nashville-Davidson--Murfreesboro, US	893	93.9	70	91.6	67	93.5	70	93.5	70	93.5	70	93.5	70	93.5	70	93.5	70	93.5	70	-3	-3
New York-Northern New Jersey-Long Island, US	1,778	187.0	2	174.9	4	174.0	2	174.0	2	174.0	2	174.0	2	174.0	2	174.0	2	174.0	2	2	2
Orlando-Kissimmee, US	901	94.7	68	110.0	53	104.1	61	104.1	61	104.1	61	104.1	61	104.1	61	104.1	61	104.1	61	-15	-15
Philadelphia-Camden-Williamington, US	1,329	139.8	16	147.9	12	145.1	8	145.1	8	145.1	8	145.1	8	145.1	8	145.1	8	145.1	8	-4	-4
Phoenix-Mesa-Scottsdale, US	852	89.6	74	115.6	43	106.4	56	106.4	56	106.4	56	106.4	56	106.4	56	106.4	56	106.4	56	-31	-31
Pittsburgh, US	1,208	127.1	35	138.2	26	132.0	24	132.0	24	132.0	24	132.0	24	132.0	24	132.0	24	132.0	24	-9	-9
Portland-Vancouver-Beaverton, US	1,158	121.8	39	138.1	27	125.5	30	125.5	30	125.5	30	125.5	30	125.5	30	125.5	30	125.5	30	-12	-12
Raleigh-Cary, US	988	103.9	57	113.6	46	108.5	53	108.5	53	108.5	53	108.5	53	108.5	53	108.5	53	108.5	53	-11	-11
Richmond, US	1,146	120.5	41	129.9	37	123.5	31	123.5	31	123.5	31	123.5	31	123.5	31	123.5	31	123.5	31	-4	-4
Riverside-San Bernardino-Ontario, US	1,226	129.0	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rochester, US	1,613	169.6	4	178.7	2	172.3	4	172.3	4	172.3	4	172.3	4	172.3	4	172.3	4	172.3	4	-2	-2
Sacramento-Arden-Arcade--Roseville, US	1,226	129.0	24	142.1	21	134.0	19	134.0	19	134.0	19	134.0	19	134.0	19	134.0	19	134.0	19	-3	-3
Salt Lake City, US	970	102.0	60	117.0	42	114.7	43	114.7	43	114.7	43	114.7	43	114.7	43	114.7	43	114.7	43	-18	-18
San Antonio, US	1,222	128.5	29	144.5	15	136.6	14	136.6	14	136.6	14	136.6	14	136.6	14	136.6	14	136.6	14	-14	-14
San Diego-Carlsbad-San Marcos, US	1,226	129.0	23	142.1	24	134.0	21	134.0	21	134.0	21	134.0	21	134.0	21	134.0	21	134.0	21	1	1
San Francisco-Oakland-Fremont, US	1,226	129.0	27	142.1	21	134.0	20	134.0	20	134.0	20	134.0	20	134.0	20	134.0	20	134.0	20	-6	-6

Region	Expenditure (US \$)					Regional Economy Outputs: Per Capita Public Expenditure on Primary and secondary Education					Regional Economy Outputs: Unemployment rate (Reversed)						
	Index 2005	Index 2004	Index 2003	Rank 2005	Rank 2004	Index 2005	Index 2004	Index 2003	Rank 2005	Rank 2004	Index 2005	Index 2004	Index 2003	Rank 2005	Rank 2004	Rank 2003	Change in Rank 2005
San Jose-Sunnyvale-Santa Clara, US	1,226	129.0	26	-	-	91.5	97.3	111	-	-	-	-	-	-	-	-	-
Seattle-Tacoma-Bellevue, US	1,590	167.2	6	135.9	31	126.5	29	25	25	93.3	99.2	95	82.3	99	117.1	62	4
St. Louis, US	1,114	117.2	45	118.8	41	120.4	33	-4	-4	94.6	100.6	51	98.7	71	132.9	45	20
Tampa-St. Petersburg-Clearwater, US	901	94.7	67	110.0	53	104.1	32	-14	-14	94.5	100.5	58	122.3	41	189.2	17	-17
Virginia Beach-Norfolk-Newport News, US	1,144	120.3	42	129.7	38	123.3	32	-4	-4	95.8	101.9	19	133.9	31	189.2	13	12
Washington-Arlington-Alexandria, US	1,245	130.9	20	133.4	32	132.8	23	12	12	95.9	102.0	16	139.1	27	164.0	28	11
Alberta, Canada	985	103.6	59	94.5	65	98.1	65	6	6	94.9	100.9	43	110.3	52	92.7	88	9
British Columbia, Canada	931	97.9	62	89.3	72	94.8	68	10	10	91.9	97.7	108	69.4	113	57.6	114	5
Manitoba, Canada	1,152	121.1	40	110.4	50	119.4	35	10	10	95.0	101.0	40	112.5	51	95.2	86	11
Ontario, Canada	1,125	118.3	43	107.8	56	107.9	55	13	13	93.0	98.9	100	80.4	102	69.3	104	2
Quebec, Canada	796	83.7	82	76.3	84	87.3	75	2	2	90.9	96.7	119	61.8	115	57.4	115	-4
Saskatchewan, Canada	1,081	113.6	46	103.6	58	110.4	49	12	12	94.4	100.4	62	100.5	69	86.1	89	7
Brussels, Belgium	1,053	110.7	52	83.8	75	93.0	71	23	23	84.4	89.8	124	51.1	124	43.1	123	0
Vlaams Gewest, Belgium	839	88.3	77	83.8	75	93.0	72	-2	-2	94.3	100.3	70	148.0	17	120.0	54	-53
Denmark	1,364	143.4	12	137.7	28	127.9	27	16	16	94.6	100.6	55	127.9	35	114.4	64	-20
Baden-Württemberg, Germany	775	81.5	85	69.1	98	79.3	89	13	13	94.4	100.4	61	137.2	28	114.4	65	-33
Bayern, Germany	720	75.7	97	69.1	98	79.3	90	1	1	93.8	99.8	87	130.8	32	111.8	73	-55
Berlin, Germany	705	74.2	99	69.1	98	79.3	91	-1	-1	82.5	87.7	125	45.0	125	38.4	125	0
Bremen, Germany	725	76.2	95	69.1	98	79.3	92	3	3	88.9	94.5	123	52.6	123	47.3	118	0
Hamburg, Germany	647	68.0	104	69.1	98	79.3	93	-6	-6	90.6	96.4	121	86.5	94	71.3	99	-27
Hessen, Germany	703	73.9	100	69.1	98	79.3	94	-2	-2	92.9	98.8	101	104.2	65	83.4	91	-36
Niedersachsen, Germany	755	79.4	89	69.1	98	79.3	95	9	9	91.6	97.4	110	73.1	111	65.6	107	1
Nordrhein-Westfalen, Germany	771	81.1	87	69.1	98	79.3	96	11	11	91.3	97.1	113	75.0	107	64.7	109	-6
Saarland, Germany	713	75.0	98	69.1	98	79.3	97	0	0	91.9	97.7	109	71.2	112	62.3	111	3
Schleswig-Holstein, Germany	721	75.8	96	69.1	98	79.3	98	2	2	91.3	97.1	114	79.2	103	72.3	98	-11
Noreste, Spain	561	59.0	112	60.3	112	67.0	113	0	0	92.3	98.2	106	59.8	116	51.2	117	10
Comunidad de Madrid, Spain	635	66.8	106	60.3	112	67.0	114	6	6	92.8	98.7	103	57.4	117	42.0	124	14
Île de France, France	1,077	113.2	47	96.7	63	106.0	57	16	16	90.8	96.6	120	74.0	109	57.9	112	-11
Centre-est, France	1,076	113.2	48	96.7	63	106.0	58	15	15	92.5	98.4	105	78.1	105	57.9	113	0
Ireland	855	89.9	73	77.9	80	88.8	74	7	7	95.2	101.2	35	127.9	35	111.8	74	0
Central, Italy	686	72.1	102	75.6	87	81.2	86	-15	-15	95.5	101.5	30	117.2	47	79.3	95	17
Emilia-Romagna, Italy	609	64.1	108	75.6	87	81.2	85	-21	-21	97.0	103.2	2	122.3	41	109.3	76	39
Lazio, Italy	813	85.5	80	75.6	87	81.2	87	7	7	91.3	97.1	115	54.6	118	43.1	122	3
Lombardia, Italy	688	72.3	101	75.6	87	81.2	83	-14	-14	96.4	102.5	6	140.6	22	114.4	66	16
North East, Italy	593	62.4	110	75.6	87	81.2	84	-23	-23	96.5	102.6	5	156.3	14	126.1	48	9
North West, Italy	636	66.9	105	75.6	87	81.2	82	-18	-18	94.9	100.9	44	104.2	65	69.3	102	21
Luxembourg	2,077	218.4	1	150.7	11	160.1	5	10	10	96.3	102.4	7	234.4	5	205.0	6	-2
North, Netherlands	872	91.7	71	77.7	81	86.8	76	10	10	95.7	101.8	24	148.0	17	114.4	67	-7
West, Netherlands	841	88.4	76	77.7	81	86.8	77	5	5	96.3	102.4	8	281.3	2	182.2	18	-6
South Netherlands	841	88.4	75	77.7	81	86.8	78	6	6	96.3	102.4	10	255.7	3	205.0	5	-7
East, Austria	1,075	113.0	50	97.8	61	117.0	40	11	11	94.4	100.4	64	148.0	17	114.4	68	-47
West, Austria	1,075	113.0	49	97.8	61	117.0	41	12	12	97.0	103.2	1	208.3	6	169.6	24	5
Uusimaa, Finland	921	96.9	64	85.7	74	97.6	66	10	10	94.4	100.4	63	108.2	55	84.8	90	-8

Region	Expenditure (US \$)					Regional Economy Outputs: Per Capita Public Expenditure on Primary and secondary Education					Regional Economy Outputs: Unemployment rate (Reversed)														
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Change in Rank 2005	
Stockholm, Sweden	1,205	36	133.0	33	119.1	36	119.1	33	119.1	36	100.9	42	208.3	6	132.9	44	94.9	100.9	208.3	6	132.9	44	-3	-36	
Smaaland Medoarna, Sweden	1,349	13	133.0	33	119.1	38	119.1	33	119.1	38	101.7	27	144.2	20	102.5	80	95.6	101.7	144.2	20	102.5	80	20	144.2	-7
South, Sweden	1,300	18	133.0	33	119.1	37	119.1	37	119.1	37	93.2	97	87.9	92	63.9	110	93.2	99.1	87.9	92	63.9	110	15	87.9	-5
West, Sweden	1,335	14	133.0	33	119.1	39	119.1	39	119.1	39	101.1	38	106.1	60	73.4	96	95.1	101.1	106.1	60	73.4	96	19	106.1	22
Eastern, UK	748	78.7	90	91.4	68	76.6	100	76.6	100	100	102.2	13	200.9	8	140.5	42	96.1	102.2	200.9	8	140.5	42	-22	200.9	-5
London, UK	762	80.1	88	91.4	68	76.6	101	76.6	101	101	98.9	98	98.7	71	71.3	100	93.0	98.9	98.7	71	71.3	100	-20	98.7	-27
Scotland, UK	820	86.2	79	91.4	68	76.6	103	76.6	103	102	102.2	12	255.7	3	175.7	20	94.2	102.2	255.7	3	175.7	20	-11	255.7	14
South East, UK	812	85.4	81	91.4	68	76.6	102	76.6	102	102	102.3	12	255.7	3	175.7	20	96.2	102.3	255.7	3	175.7	20	-13	255.7	-9
Norway	1,414	148.7	11	157.7	5	116.1	42	116.1	42	42	102.0	20	140.6	22	126.1	49	95.8	101.9	140.6	22	126.1	49	-6	140.6	2
Switzerland	1,492	156.9	7	139.6	25	113.2	46	113.2	46	46	102.0	18	200.9	8	175.7	21	95.9	102.0	200.9	8	175.7	21	18	200.9	-10
Bratislavský, Slovak Republic	354	37.2	117	63.3	110	73.7	107	73.7	107	107	98.8	102	67.0	114	67.4	106	92.9	98.8	67.0	114	67.4	106	-7	67.0	12
Budapest, Hungary	377	39.7	116	64.1	109	70.7	110	70.7	110	110	102.1	15	351.6	1	245.9	4	96.0	102.1	351.6	1	245.9	4	-7	351.6	-14
Prague, Czech Republic	435	45.7	115	82.7	78	89.9	73	89.9	73	73	101.9	21	187.5	10	144.7	41	95.8	101.9	187.5	10	144.7	41	-37	187.5	-11
Israel	866	91.1	72	83.0	77	68.0	112	68.0	112	112	95.1	122	53.0	122	55.3	116	89.4	95.1	53.0	122	55.3	116	5	53.0	0
New South Wales, Australia	731	76.9	94	70.1	97	74.5	106	74.5	106	3	93.8	85	78.1	104	68.3	105	93.8	99.8	78.1	104	68.3	105	3	78.1	19
Victoria, Australia	734	77.2	93	70.4	96	74.7	105	74.7	105	3	93.8	86	82.8	98	72.4	97	93.8	99.8	82.8	98	72.4	97	3	82.8	12
Western Australia	744	78.3	91	71.3	94	75.8	104	75.8	104	4	93.6	99.5	91	74.7	108	65.3	93.6	99.5	91	74.7	108	65.3	4	99.5	17
New Zealand	591	62.2	111	56.7	115	52.7	116	52.7	116	4	101.3	33	118.8	45	82.0	93	95.3	101.3	118.8	45	82.0	93	4	101.3	12
Aichi, Japan	774	81.4	86	74.2	93	80.4	88	80.4	88	7	101.7	26	140.3	26	114.4	71	95.6	101.7	140.3	26	114.4	71	7	140.3	0
Kanagawa, Japan	677	71.2	103	64.9	108	73.2	108	73.2	108	5	100.2	75	117.2	46	95.0	87	94.2	100.2	117.2	46	95.0	87	2	100.2	-29
Kyoto, Japan	792	83.3	84	75.9	86	85.2	79	85.2	79	2	98.9	99	115.6	50	115.2	63	93.0	98.9	115.6	50	115.2	63	2	115.6	-49
Osaka, Japan	795	83.6	83	76.2	85	84.7	80	84.7	80	2	97.2	112	80.4	101	70.3	101	91.4	97.2	80.4	101	70.3	101	2	80.4	-11
Shiga, Japan	1,044	109.8	54	100.1	60	108.4	54	108.4	54	6	101.2	34	156.4	13	113.9	72	95.2	101.2	156.4	13	113.9	72	6	156.4	-21
Shizuoka, Japan	833	87.6	78	79.8	79	84.6	81	84.6	81	1	101.6	29	149.0	16	147.3	38	95.5	101.6	149.0	16	147.3	38	1	149.0	-13
Tochigi, Japan	922	96.9	63	88.4	73	95.7	67	95.7	67	10	101.8	23	135.4	30	121.2	53	95.7	101.8	135.4	30	121.2	53	3	135.4	7
Tokyo, Japan	744	78.2	92	71.3	95	78.3	99	78.3	99	3	100.1	76	116.7	49	101.6	82	94.1	100.1	116.7	49	101.6	82	3	116.7	-27
Toyama, Japan	1,045	109.9	53	100.2	59	110.6	47	110.6	47	6	102.4	9	165.8	12	80.1	94	96.3	102.4	165.8	12	80.1	94	6	165.8	3
Seoul, Korea	494	51.9	114	47.3	116	50.3	117	50.3	117	2	101.6	28	125.0	39	102.5	79	95.5	101.6	125.0	39	102.5	79	2	125.0	11
Ulsan, Korea	494	51.9	113	47.3	116	50.3	118	50.3	118	3	103.1	3	181.5	11	123.0	52	96.9	103.1	181.5	11	123.0	52	3	181.5	8
Hong Kong	606	63.8	109	58.1	114	72.3	109	72.3	109	5	98.6	104	78.1	105	100.4	84	92.7	98.6	78.1	105	100.4	84	5	78.1	1
Singapore	328	34.5	118	31.5	118	65.6	115	65.6	115	0	100.8	47	127.9	35	140.5	43	94.8	100.8	127.9	35	140.5	43	0	127.9	-12
Taiwan	632	66.4	107	60.6	111	69.0	111	69.0	111	4	108.9	45	108.9	54	164.5	26	94.8	108.9	108.9	54	164.5	26	4	108.9	9
Beijing, China	277	29.1	121	24.6	121	26.1	121	26.1	121	0	100.1	77	95.3	78	83.4	92	94.1	100.1	95.3	78	83.4	92	0	95.3	1
Pearl River Delta, China	301	31.6	120	26.7	120	28.4	120	28.4	120	0	102.4	11	149.6	15	130.8	46	96.2	102.4	149.6	15	130.8	46	0	149.6	4
Shanghai, China	303	31.9	119	26.9	119	28.6	119	28.6	119	0	101.2	36	117.2	47	102.5	81	95.2	101.2	117.2	47	102.5	81	0	117.2	11
Tianjin, China	157	16.5	123	14.0	123	14.8	123	14.8	123	0	102.2	14	143.9	21	153.7	34	96.1	102.2	143.9	21	153.7	34	0	143.9	7
Bangalore, India	126	13.3	124	10.4	124	9.6	124	9.6	124	0	97.0	117	53.6	119	46.8	120	91.2	97.0	53.6	119	46.8	120	0	53.6	2
Hyderabad, India	102	10.8	125	8.4	125	7.8	125	7.8	125	0	97.0	118	53.6	119	46.8	121	91.2	97.0	53.6	119	46.8	121	0	53.6	1
Mumbai, India	194	20.4	122	15.9	122	14.9	122	14.9	122	0	97.0	116	53.6	119	46.8	119	91.2	97.0	53.6	119	46.8	119	0	53.6	3

Region	Expenditure (US \$)	Index					Rank 2003	Rank 2004	Rank 2005	Change in Rank 2005
		2005	2004	2003	2004	2005				
Stockholm, Sweden	530.3	130.3	82.8	57	94.2	52	14	14		
Smland Medoarna, Sweden	390.1	95.9	61.7	70	70.1	67	6	6		
South, Sweden	546.5	134.3	85.9	56	97.7	51	18	18		
West, Sweden	457.7	112.5	71.9	66	81.8	59	11	11		
Eastern, UK	147.3	36.2	107	20.6	114	32.9	111	7		
London, UK	300.8	73.9	42.1	89	67.3	69	7	7		
Scotland, UK	346.5	85.2	72	48.5	83	77.5	62	11		
South East, UK	182.8	44.9	104	25.6	105	40.9	96	1		
Norway	616.4	151.5	20	98.0	50	125.5	50	30		
Switzerland	609.0	149.7	23	82.2	58	62.5	73	35		
Bratislavský, Slovak Republic	204.5	50.3	100	33.4	101	32.3	113	1		
Budapest, Hungary	186.4	45.8	103	39.8	95	38.5	101	-8		
Prague, Czech Republic	248.5	61.1	94	44.4	87	43.0	93	-7		
Israel	323.3	79.5	79	57.8	74	43.8	91	-5		
New South Wales, Australia	498.5	122.5	45	89.1	55	86.3	57	10		
Victoria, Australia	539.3	132.6	41	96.4	52	93.4	55	11		
Western Australia	541.2	133.0	40	96.7	51	93.7	54	11		
New Zealand	224.0	55.1	98	40.0	94	94.2	53	-4		
Aichi, Japan	139.1	34.2	109	24.9	107	36.5	106	-2		
Kanagawa, Japan	105.9	26.0	116	18.9	116	45.5	88	0		
Kyoto, Japan	111.9	27.5	115	20.0	115	32.1	114	0		
Osaka, Japan	137.8	33.9	110	24.6	108	40.1	98	-2		
Shiga, Japan	127.0	31.2	111	22.7	109	34.4	109	-2		
Shizuoka, Japan	119.0	29.2	114	21.3	113	36.8	105	-1		
Tochigi, Japan	120.5	29.6	112	21.5	111	34.6	107	-1		
Tokyo, Japan	213.8	52.5	99	38.2	99	38.0	102	0		
Toyama, Japan	119.6	29.4	113	21.4	112	37.0	104	-1		
Seoul, Korea	46.4	11.4	123	8.3	120	8.0	120	-3		
Ulsan, Korea	46.4	11.4	122	8.3	120	8.0	121	-2		
Hong Kong	287.9	70.8	87	51.4	80	34.1	110	-7		
Singapore	283.1	69.6	88	50.6	81	57.9	76	-7		
Taiwan	344.1	84.6	73	61.5	71	39.5	99	-2		
Beijing, China	487.5	119.8	49	80.6	59	78.1	60	10		
Pearl River Delta, China	103.0	25.3	118	17.0	118	16.5	118	0		
Shanghai, China	103.8	25.5	117	17.2	117	16.6	117	0		
Tianjin, China	53.9	13.2	119	8.9	119	8.6	119	0		
Bangalore, India	31.2	7.7	124	4.8	124	4.0	124	0		
Hyderabad, India	25.3	6.2	125	3.9	125	3.3	125	0		
Mumbai, India	47.9	11.8	121	7.3	122	6.2	123	1		

Region	Expenditure (US \$)	Index					Rank 2003	Rank 2004	Rank 2005	Change in Rank 2005
		2005	2004	2003	2004	2005				
Atlanta-Sandy Springs-Marietta, US	474.0	116.5	145.2	48	140.7	49	-5			
Austin-Round Rock, US	587.0	144.3	170.3	30	165.0	30	2			
Baltimore-Towson, US	577.3	141.9	34	-	-	-	-			
Boston-Cambridge-Quincy, US	366.9	90.2	68	220.0	7	213.2	7	-61		
Buffalo-Niagara Falls, US	706.7	173.7	9	188.8	17	182.9	17	8		
Charlotte-Gastonia-Concord, US	599.9	147.4	27	171.1	27	165.8	27	0		
Chicago-Naperville-Joliet, US	486.4	119.5	50	203.6	11	197.2	11	-39		
Cincinnati-Middletown, US	579.2	142.3	33	165.3	36	160.2	36	3		
Cleveland-Elyria-Mentor, US	564.0	138.6	36	166.2	34	161.0	35	-2		
Columbus, US	563.9	138.6	37	166.2	34	161.0	34	-3		
Dallas-Fort Worth-Arlington, US	586.6	144.2	29	170.3	33	165.0	33	4		
Denver-Aurora, US	584.5	143.7	32	210.6	8	204.1	8	-24		
Detroit-Warren-Livonia, US	793.2	195.0	5	196.1	14	190.0	14	9		
Grand Rapids, US	793.9	195.1	4	196.1	14	190.0	15	10		
Greensboro-High Point, US	609.5	149.8	22	172.6	24	167.2	24	2		
Hartford, US	483.5	118.8	51	162.6	39	157.5	39	-12		
Houston-Sugar Land-Baytown, US	586.6	144.2	30	170.3	30	165.0	31	0		
Indianapolis, US	625.9	153.8	19	177.5	22	172.0	22	3		
Jacksonville, US	326.1	80.1	78	152.0	43	147.3	44	-35		
Kansas City, US	571.1	140.4	35	210.2	9	203.6	9	-29		
Las Vegas-Paradise, US	348.8	85.7	71	158.8	42	153.8	42	2		
Los Angeles-Long Beach-Santa Ana, US	648.1	159.3	15	228.8	3	221.6	3	-12		
Louisville, US	631.8	155.3	18	163.8	37	158.7	37	19		
Memphis, US	496.9	122.1	46	159.4	40	154.4	40	-6		
Miami-Fort Lauderdale-Miami Beach, US	326.3	80.2	77	152.0	43	147.3	45	-34		
Milwaukee-Waukesha-West Allis, US	700.8	172.2	10	196.6	13	190.5	13	3		
Minneapolis-St. Paul-Bloomington, US	615.5	151.3	21	204.5	10	198.2	10	-11		
Nashville-Davidson--Murfreesboro, US	419.8	103.2	59	159.3	41	154.3	41	-18		
New York-Northern New Jersey-Long Island, US	679.1	166.9	11	170.3	29	165.0	29	18		
Orlando-Kissimmee, US	326.4	80.2	76	152.0	43	147.3	46	-33		
Philadelphia-Camden-Wilmington, US	537.6	132.1	42	162.8	38	157.8	38	-4		
Phoenix-Mesa-Scottsdale, US	492.3	121.0	48	229.2	2	222.1	2	-46		
Pittsburgh, US	523.5	128.7	44	170.4	28	165.1	28	-16		
Portland-Vancouver-Beaverton, US	752.3	184.9	6	184.2	21	178.5	21	15		
Raleigh-Cary, US	608.8	149.6	24	172.6	25	167.2	25	1		
Richmond, US	607.3	149.3	25	185.2	19	179.5	19	-6		
Riverside-San Bernardino-Ontario, US	648.0	159.3	16	-	-	-	-	-		
Rochester, US	706.8	173.7	8	188.8	16	182.9	16	8		
Sacramento-Arden-Arcade--Roseville, US	648.1	159.3	14	228.8	3	221.6	4	-11		
Salt Lake City, US	898.5	220.8	2	251.8	1	244.0	1	-1		
San Antonio, US	586.6	144.2	31	170.3	30	165.0	32	-1		
San Diego-Carlsbad-San Marcos, US	648.2	159.3	12	228.8	3	221.6	6	-9		
San Francisco-Oakland-Fremont, US	648.2	159.3	13	228.8	3	221.6	5	-10		

**Regional Economy
Outputs:
Per Capita Public
Expenditure on
Higher Education**

Region	Expenditure (US \$)		Index		Rank		Index		Rank		Change in Rank	
	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2003	2005
San Jose-Sunnyvale-Santa Clara, US	647.9	159.2	17	-	-	-	-	-	-	-	-	-
Seattle-Tacoma-Bellevue, US	986.0	242.3	1	186.9	18	181.1	18	18	18	18	18	17
St. Louis, US	492.5	121.0	47	67.3	67	65.2	72	67	65.2	72	67	20
Tampa-St. Petersburg-Clearwater, US	326.5	80.2	75	152.0	47	147.3	48	47	147.3	48	48	-28
Virginia Beach-Norfolk-Newport News, US	607.0	149.2	26	185.1	20	179.3	20	20	179.3	20	20	-6
Washington-Arlington-Alexandria, US	542.8	133.4	39	199.0	12	192.8	12	12	192.8	12	12	-27
Alberta, Canada	338.5	83.2	74	60.5	72	43.7	92	72	43.7	92	92	-2
British Columbia, Canada	303.9	74.7	81	54.3	76	42.1	94	81	54.3	76	94	-5
Manitoba, Canada	355.5	87.4	70	63.5	69	47.9	83	70	63.5	69	83	-1
Ontario, Canada	293.9	72.2	84	52.5	79	44.0	90	84	52.5	79	90	-5
Quebec, Canada	440.9	108.4	57	78.8	60	48.5	82	57	78.8	60	82	3
Saskatchewan, Canada	409.9	100.7	61	73.2	64	56.3	78	61	73.2	64	78	3
Brussels, Belgium	864.1	212.4	3	139.9	49	148.1	43	3	139.9	49	43	46
Vlaams Gewest, Belgium	265.8	65.3	90	53.9	77	45.6	87	90	53.9	77	87	-13
Denmark	710.4	174.6	7	93.9	54	65.4	71	7	93.9	54	71	47
Baden-Württemberg, Germany	246.9	60.7	95	39.7	96	40.2	97	95	39.7	96	97	1
Bayern, Germany	229.5	56.4	97	36.9	100	37.3	103	97	36.9	100	103	3
Berlin, Germany	476.2	117.0	52	76.7	62	77.7	61	52	76.7	62	61	10
Bremen, Germany	459.2	112.8	54	74.1	63	75.1	63	54	74.1	63	63	9
Hamburg, Germany	455.6	112.0	56	73.1	65	74.1	64	56	73.1	65	64	9
Hessen, Germany	290.0	71.3	86	46.6	85	47.3	85	86	46.6	85	85	-1
Niedersachsen, Germany	239.0	58.7	96	38.4	98	38.9	100	96	38.4	98	100	2
Nordrhein-Westfalen, Germany	357.0	87.7	69	57.5	75	58.2	75	69	57.5	75	75	6
Saarland, Germany	251.2	61.7	93	40.5	92	41.0	95	93	40.5	92	95	-1
Schleswig-Holstein, Germany	196.9	48.4	102	31.6	103	32.1	115	102	31.6	103	115	1
Noreste, Spain	202.3	49.7	101	32.1	102	44.6	89	101	32.1	102	89	1
Comunidad de Madrid, Spain	255.1	62.7	91	40.3	93	55.9	79	91	40.3	93	79	2
Île de France, France	406.6	99.9	62	65.2	68	65.5	70	62	65.2	68	70	6
Centre-est, France	295.6	72.7	83	47.4	84	47.6	84	83	47.4	84	84	1
Ireland	370.5	91.1	66	60.1	73	71.0	65	66	60.1	73	65	7
Central, Italy	254.1	62.4	92	39.2	97	50.9	81	92	39.2	97	81	5
Emilia-Romagna, Italy	267.6	65.8	89	41.2	91	53.5	80	89	41.2	91	80	2
Lazio, Italy	291.9	71.7	85	44.9	86	58.3	74	85	44.9	86	74	1
Lombardia, Italy	172.1	42.3	105	26.5	104	34.4	108	105	26.5	104	108	-1
North East, Italy	148.3	36.4	106	25.3	106	32.8	112	106	25.3	106	112	0
North West, Italy	141.9	34.9	108	22.0	110	28.5	116	108	22.0	110	116	2
Luxembourg	49.5	12.2	120	6.8	123	6.6	122	120	6.8	123	122	3
North, Netherlands	368.8	90.6	67	50.1	82	67.6	68	67	50.1	82	68	15
West, Netherlands	386.2	94.9	65	52.5	78	70.9	66	65	52.5	78	66	13
South Netherlands	307.9	75.7	80	41.9	90	56.5	77	80	41.9	90	77	10
East, Austria	425.9	104.7	58	78.1	61	86.1	58	58	78.1	61	58	3
West, Austria	398.7	98.0	63	42.3	88	46.6	86	63	42.3	88	86	25
Uusimaa, Finland	417.6	102.6	60	94.7	53	89.5	56	60	94.7	53	56	-7

Country	Secure Servers					Secure Servers per 1,000,000 inhabitants					Internet Hosts per 1000 Inhabitants				
	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	Index 2005	Rank 2005	Index 2004	Rank 2004	Index 2003	Rank 2003	Change in Rank 2005	
Australia	404.0	197.6	5	203.9	4	213.1	3	142.4	6	159.4	8	121.6	10	2	
Austria	196.3	96.0	15	99.0	14	117.7	13	121.3	10	110.2	12	113.3	11	2	
Belgium	87.9	43.0	20	36.4	20	40.9	20	140.2	7	100.2	13	80.4	14	6	
Canada	479.5	234.6	2	211.5	3	205.3	4	101.5	15	125.0	10	244.8	3	-5	
China	0.2	0.1	30	-	-	-	-	0.1	30	0.1	29	0.1	29	-1	
Czech Republic	30.9	15.1	25	15.2	25	38.0	21	31.0	23	27.8	25	22.7	26	2	
Denmark	311.9	152.6	9	104.1	13	106.1	15	272.2	281.2	203.8	3	132.2	9	2	
Finland	240.7	117.8	12	121.0	10	152.2	7	234.8	242.6	234.8	2	246.6	2	0	
France	61.7	30.2	22	35.5	21	36.0	22	45.0	46.5	43.2	22	36.8	23	2	
Germany	159.5	78.0	16	82.1	16	89.5	16	41.5	42.8	44.1	21	67.8	15	0	
Hong Kong	144.0	70.4	18	143.1	8	164.5	6	110.1	113.7	166.6	6	181.4	5	-7	
Hungary	19.6	9.6	26	6.8	27	17.5	27	31.0	32.0	24	27.7	26	25	2	
India	0.4	0.2	29	-	-	-	-	0.1	0.1	29	26	0.1	30	2	
Ireland	300.9	147.2	10	127.8	9	126.5	11	27.9	28.9	31.6	24	46.1	21	-1	
Israel	133.7	65.4	19	46.5	19	53.5	18	78.9	81.5	17	35.6	23	38.8	6	
Italy	34.0	16.6	24	16.9	23	21.4	24	94.1	97.3	16	63.2	15	54.5	20	
Japan	153.7	75.2	17	47.4	18	44.8	19	101.6	104.9	14	84.8	14	64.9	0	
Korea	18.3	9.0	27	10.2	26	10.7	28	5.3	5.5	28	10.8	28	14.8	0	
Luxembourg	408.9	200.0	4	186.2	5	150.8	8	62.7	64.8	18	44.6	20	61.8	2	
Netherlands	221.6	108.4	14	70.2	17	74.0	17	210.7	217.7	4	167.5	5	159.0	1	
New Zealand	412.9	202.0	3	215.8	2	223.8	2	117.4	121.3	11	133.4	9	142.9	8	
Norway	245.8	120.2	11	99.0	14	115.8	14	222.0	229.3	3	174.5	4	174.5	6	
Singapore	228.1	111.6	13	109.2	12	125.5	12	116.6	120.4	12	54.2	17	59.0	5	
Slovak Republic	11.3	5.5	28	5.9	28	18.5	25	18.4	19.0	27	17.7	27	9.5	28	
Spain	67.3	32.9	21	27.9	22	31.1	23	27.6	28.5	26	52.7	18	35.2	24	
Sweden	315.4	154.3	8	118.5	11	149.1	9	171.9	177.6	5	165.3	7	238.3	4	
Switzerland	381.6	186.7	6	181.9	6	199.5	5	137.5	142.1	9	114.9	11	99.3	2	
Taiwan	40.3	19.7	23	16.1	24	18.5	26	138.5	143.1	8	61.0	16	66.4	8	
United Kingdom	342.6	167.6	7	144.7	7	148.1	10	62.6	64.6	19	52.2	19	93.6	0	
United States	679.4	332.4	1	317.3	1	326.0	1	39.2	40.5	22	393.3	1	367.9	1	
														-21	

Broadband Access per 1000 inhabitants

Country	Broadband Access	Index 2005	Rank 2005	Index 2004	Rank 2004
Australia	77.0	66.0	21	30.8	18
Austria	102.0	87.4	15	99.3	8
Belgium	156.0	133.7	7	149.0	6
Canada	178.0	152.6	5	241.3	3
China	84.0	72.0	17	49.2	16
Czech Republic	16.0	13.7	25	2.4	24
Denmark	188.0	161.2	4	158.5	5
Finland	150.0	128.6	8	78.1	12
France	106.0	90.9	13	37.8	17
Germany	84.0	72.0	18	73.3	13
Hong Kong	210.0	180.0	2	428.8	2
Hungary	36.0	30.9	23	9.5	23
India	-	-	-	-	-
Ireland	34.0	29.1	24	2.4	24
Israel	-	-	-	-	-
Italy	81.0	69.4	20	28.4	20
Japan	150.0	128.6	9	92.3	9
Korea	249.0	213.5	1	451.8	1
Luxemburg	98.0	84.0	16	14.2	22
Netherlands	190.0	162.9	3	92.3	9
New Zealand	47.0	40.3	22	26.0	21
Norway	149.0	127.7	10	63.9	14
Singapore	-	-	-	-	-
Slovak Republic	11.0	9.4	26	0.2	26
Spain	84.0	72.0	19	49.7	15
Sweden	145.0	124.3	11	165.6	4
Switzerland	173.0	148.3	6	92.3	9
Taiwan	-	-	-	-	-
United Kingdom	105.0	90.0	14	30.8	18
United States	130.0	111.4	12	132.5	7



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- New Zealand Ministry of Education (www.minedu.govt.nz)
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- National Bureau of Statistics of China (<http://www.stats.gov.cn/>)
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- Directorate of Economics and Statistics, Government of Karnataka (<http://des.kar.nic.in/>)
- Government of Andhra Pradesh (<http://www.ap.gov.in/>)
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Figures of purchasing power parities used to harmonise monetary values are available from:

- OECD (<http://www.oecd.org/std/ppp/>)
- World Bank (<http://www.worldbank.org/data/>)

Other sources include:

- United Nations Conference on Trade and Development (<http://www.unctad.org/>)
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- UNESCO (<http://www.unescostat.unesco.org>)

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