

**A SMART, SUCCESSFUL SCOTLAND**

Measuring Progress Towards a Smart, Successful  
Scotland: 2005





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Scotland: 2005

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ISBN: 0-7559-4887-4

Scottish Executive  
St Andrew's House  
Edinburgh  
EH1 3DG

Produced for the Scottish Executive by Astron B44179 11/05

Published by the Scottish Executive, November, 2005

Further copies are available from  
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## **JOINT PERFORMANCE TEAM INTRODUCTION**

### **Background**

'*A Smart, Successful Scotland*' (SSS), which was first published in 2001 and then updated in 2004, is both Scotland's enterprise strategy and the Scottish Executive's strategic direction to the Enterprise Networks.

The Joint Performance Team (JPT), which comprises senior officials from the Scottish Executive, Highlands & Islands Enterprise and Scottish Enterprise, was established in 2001 to monitor progress towards achieving the ambitions for the Scottish economy identified in SSS. The group developed progress measures for each of the twelve SSS priority areas and Scotland's performance, compared against that of OECD member nations, is assessed annually. The aspiration underlying this international benchmarking is to move towards the top quartile of OECD countries for each measure.

### **Approach to Measurement**

For each of the twelve priority areas in SSS there is currently one lead measure and two supporting measures. The lead measure is intended to meet three main requirements:

- be an appropriate overall measure of progress
- provide the right strategic steer to the Networks
- be capable of relatively straightforward international comparison.

The supporting measures are intended to provide a more rounded picture of progress to avoid the potentially distorting effects of too narrow a focus. There are also currently two overarching measures which relate to prosperity and environmental sustainability.

In tandem with the release of this year's report, a consultation paper has been released. This seeks views on a number of proposed changes to Measuring Progress indicators.

### **The 2005 report**

In order to provide an independent assessment of Scotland's progress, external organisations have been contracted to analyse the data and provide commentary. This year's report was compiled by the University of Glasgow's Training and Employment Research Unit. The data used in their analysis was drawn from a range of sources, including the Scottish Executive, the Office of National Statistics and the OECD.

The nature of the measures means that progress will inevitably only become apparent in the longer term. With this in mind, the JPT decided to commission a less exhaustive report than in prior years, with the underlying data set made available on the Scottish Executive's website. Detailed independent commentary will be commissioned in future, but on a less frequent basis than before.

*Joint Performance Team  
October 2005*

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## EXECUTIVE SUMMARY

### Overview

In this section the key messages which have emerged from the measurement framework are outlined, organised by the goal areas set out in *A Smart Successful Scotland* and the lead indicators used to assess them. The chart overleaf summarises the latest position and relative change for the lead indicators, or proxies for those where the data are unavailable.

### Overall Progress

#### *Prosperity*

There has been progress in closing the prosperity gap with the top international economies, and the size of the gap to be bridged is now less challenging.

- In 2003, Scotland was in the second quartile of OECD economies on GDP per capita, and can join the first quartile if GDP per capita rises by 6%.
- Between 1999 and 2003, Scotland's GDP per capita at constant prices grew by 9% compared to the OECD average of 6%, with Scotland moving from the third to the second quartile.
- In 2003, GVA per capita in Scotland was the fourth highest of the UK regions, and would reach the UK average if it grew by 4%.
- Between 1999 and 2003, GVA per capita growth equalled that for the UK at current prices.

#### *Sustainability*

Some progress has been made in decoupling economic growth and environmental impact, but Scotland's CO<sub>2</sub> emission levels per capita remain high by the standards of the top quartile international economies. However, between 1999 and 2002 Scotland's CO<sub>2</sub> emissions per capita fell by 6% compared to a 4% increase for the OECD economies as a whole.

### Progress by Theme

On ***Growing Business*** lead indicators, there is some evidence of improvements since 1999.

- On entrepreneurialism, the gap with the international top quartile and the UK average has narrowed.
- Scotland's position relative to the UK average has improved for both businesses online and business R&D as a percentage of GDP.

The ***Global Connections*** indicators also show up a number of gains on the international and UK fronts, since 1999.

- The gap with the OECD top quartile average has narrowed on broadband coverage, graduates in the workforce and net migration.
- In relation to the UK, the gap has narrowed for all the indicators except exports as a percentage of GDP where Scotland's lead has increased.

***Skills and Learning*** is generally viewed as one of the strong areas of Scotland's economy, and here also performance has improved since 1999.

- Scotland has narrowed the gap with the OECD top quartile average on all three indicators – and is now above the average for the proportion of adults in training.
- At the UK level, the gap has narrowed since 1999 for the NEET group and turned into a small lead for the employment rate and the proportion of adults in training.

## Latest Available Position and Relative Change for Lead Indicators since 1999

Indicator	International Quartile Position	Change in Gap Since 1999		
		With UK	International Comparators	
			1st Quartile Average	Number of Comparators
<b>Overall Progress</b>				
1a: Gross Domestic Product per Head of Population	2	–	▲	30
<b>Growing Businesses</b>				
2b: New Business Starts per 10,000 /TEA	3	▲	▲	18
3a: Percentage of Businesses Trading Online	1	▲	▼	10
4a: Business Research and Development as % of GDP	3	▲	–	23
5a: Relative Productivity Levels in Scottish Industry	2	▼	▼	27
<b>Global Connections</b>				
6a: Cost and Coverage of Broadband	2	▲	▲	10
7a: Proportion of Employers Exporting	1	▲	▼	29
8a: Graduates as a Percentage of the Workforce	2	▲	▲	28
9a: Net Migration as a Percentage of the Population	3	▲	▲	28
<b>Skills and Learning</b>				
10a: Employment Rate	1	▲	▲	30
11a: Proportion of 16-19 Year Olds Who are NEET	3	▲	▲	30
12a: Reducing the Gap in Unemployment	NA	NA	NA	NA
13a: Proportion in Employment Undertaking Training	1	▲	▲	26

### Notes.

- The gap since 1999 is calculated on the basis of the Scottish value of the indicator as a percentage of the OECD first quartile and UK averages for the latest available year compared to 1999. The percentages are rounded to whole numbers to exclude minor shifts.
- ▲ indicates the gap narrowed, or advantaged increased, ▼ Indicates the gap widened, and – indicates no change.
- While Indicator 2b is not a lead indicator, the figures are included as no internationally comparable data were available for Indicator 2a (high growth firms (business starts)). UK comparisons refer to VAT registrations per 10,000 population and international comparisons to the Global Entrepreneurship Monitor Total Entrepreneurial Activity (TEA) Index.
- Under Indicator 6a, data refer to broadband coverage. Cost data are available for only a limited number of countries.
- International and regional comparisons are not available for Indicator 12a which seeks to measure variations in unemployment within Scotland.

### *Overview of Goal Areas*

Looking at the three goal areas we can summarise progress towards *A Smart, Successful Scotland* in the following way.

- It is weakest on ***Growing Business*** measures.
- It has become stronger on ***Global Connections*** measures.
- It is strongest on ***Skills and Learning*** measures, but with significant issues to be resolved around addressing the problems of the NEET group

Perhaps the most encouraging evidence is that Scotland has been progressing against the OECD competition **and** the UK benchmark on a number of key economic indicators – and so global advancement is not simply on the UK's coat tails. The caveat here is that regions like Scotland tend to do relatively well after periods of prolonged expansion in the UK economy, and so the gains may be cyclical.

A significant challenge that remains is to achieve a decisive and sustained breakthrough in the indicators of the strength of Scotland's business base, through building up the stock of businesses, raising their levels of innovation and productivity and increasing their global competitiveness.

## 1. PROSPERITY AND SUSTAINABILITY

### Impacts and Indicators

The overarching goal of *A Smart Successful Scotland* is to raise the level of prosperity in Scotland, while reducing the potentially negative aspects on the environment associated with higher growth rates. There are two key indicators.

- Prosperity is captured using the standard international measure of Gross Domestic Product (GDP) per head of population.
- Environmental sustainability is measured by CO<sub>2</sub> emissions per head of population.

### Prosperity

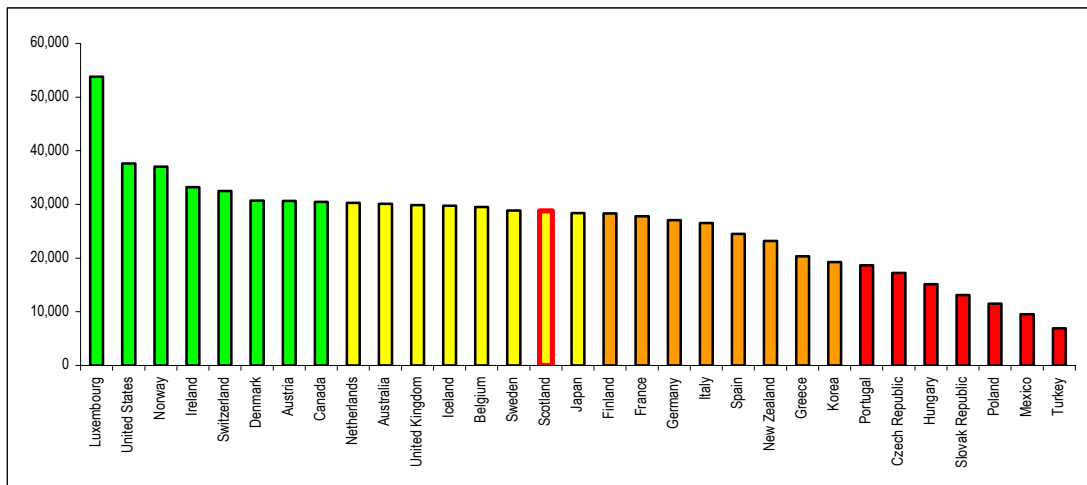
Chart 1 benchmarks Scotland's GDP per head against a large number of OECD economies.

- Scotland is in the second quartile of comparator economies.
- Scotland's GDP per capita is \$28,800 in current prices. To join the top quartile, GDP per capita would need to rise by \$1,675 (6%).

A key feature of the figure is the 'bunching' of economies in the middle ranges, which means modest changes in relative growth rates can lead to big changes in the ranking of an economy.

Between 1999 and 2003, Scotland's GDP per head, measured at constant prices, rose by 9% compared to the overall OECD average increase of 6%.

**Chart 1: GDP per Head at Current Prices and Current PPPs (US\$), 2003**



*Source:* OECD (2005) OECD Statistical Compendium. Scotland figure derived from ONS indices of GVA per head.

*Notes:* 1. Quartile position colour codes are indicated below:



2. Purchasing Power Parities (PPP's) are the rates of currency conversion, used instead of exchange rates, that equalise the purchasing power of different currencies by taking into account differences in price levels between countries. This is done by comparing the price of a 'basket' of goods in different countries.

For regional analysis Gross Value Added (GVA) is used, which is essentially GDP minus all taxes and subsidies. Within the UK:

- Scotland's GVA per capita in 2003 was the fourth highest of all UK regions.
- Scotland's GVA per capita at current prices rose by 20% between 1999 and 2003, the same as the increase for the UK as a whole, assuming no variation in inflation rates across regions.
- To close the gap with the UK average, GVA per capita in Scotland would need to increase by £570 (4%).

## Sustainability

Over the longer term (1990 onwards) progress has been made in loosening the relationship between economic growth and CO<sub>2</sub> emissions in Scotland. The ratio of CO<sub>2</sub> emissions to GDP fell by:

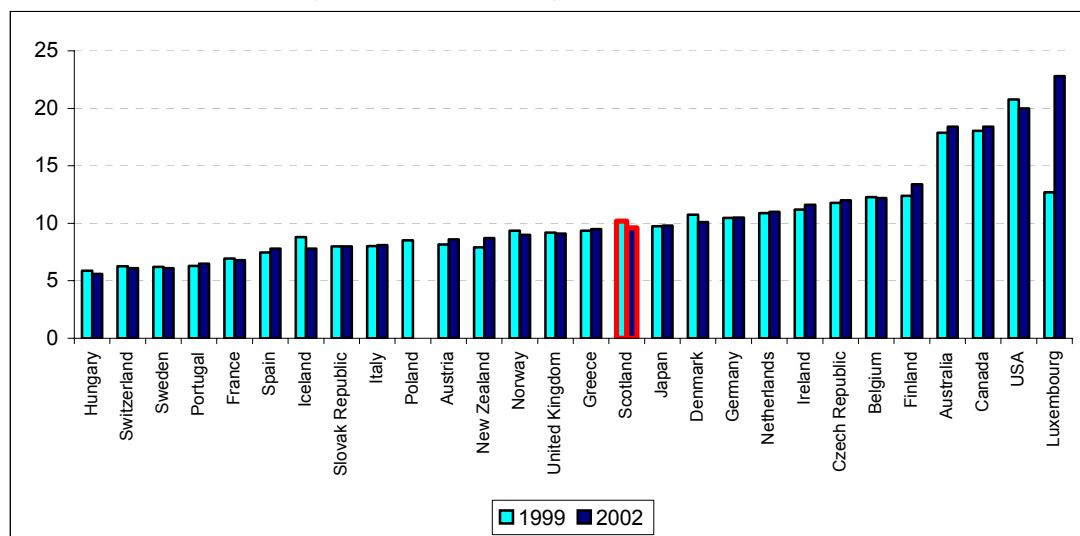
- 15% between 1990 and 1999;
- 11% between 1999 and 2002.

In terms of international comparisons:

- in 2002, Scotland is in the third quartile of comparator economies;
- to reach the first quartile Scotland's CO<sub>2</sub> emissions would need to fall by 1.8 tonnes per person (19%).

Since 1999, Scotland's CO<sub>2</sub> emissions per person fell by 6%, compared to a 4% increase for the average of OECD economies reporting.

**Chart 2: CO<sub>2</sub> Emissions (Tonnes Per Person), 1999 and 2002**



Source: UN Millennium indicators (2004); NETCEN (2004); GROS (2005)

Note: Excludes land use and forestry emissions.

## Summary Position

Progress has been made on both the prosperity and sustainability measures.

- Scotland has moved from the 3<sup>rd</sup> to 2<sup>nd</sup> quartile on GDP per capita, with a 9% rise in GDP per capita since 1999 compared to the OECD average increase of 6% - although there has been no closing of the gap with the UK average.
- The improvement in relative GDP per capita has been achieved while simultaneously recording a 6% decline in CO<sub>2</sub> emissions per capita against a backdrop of a 4% increase across the OECD as a whole.

## 2. ENTREPRENEURIAL DYNAMISM AND CREATIVITY

### Impacts and Indicators

Entrepreneurial drive generates new business starts, but can also promote the growth of businesses once started. When entrepreneurship converts into a higher level of business starts this helps to grow employment, and the increased competition can drive productivity gains across the economy. Three indicators capture these effects.

- High growth firms from business starts.
- New business starts per 10,000 population.
- The proportion of innovative businesses.

### High Growth Firms (Business Starts)

The 'refreshed' *A Smart Successful Scotland* (2004) placed a greater emphasis on the need for more 'businesses of scale'. Although no evidence is available for other UK regions or international economies, a statistical analysis for Scotland shows that:

- 0.5% of all new VAT registrations in 1999 with less than five employees had grown to employ more than 15 people in 2002. This corresponds to 50 businesses;
- on the same definitions, 0.7% of 2001 new starts employed more than 15 people by 2004, equivalent to 55 businesses.

### Entrepreneurial Activity and Business Starts

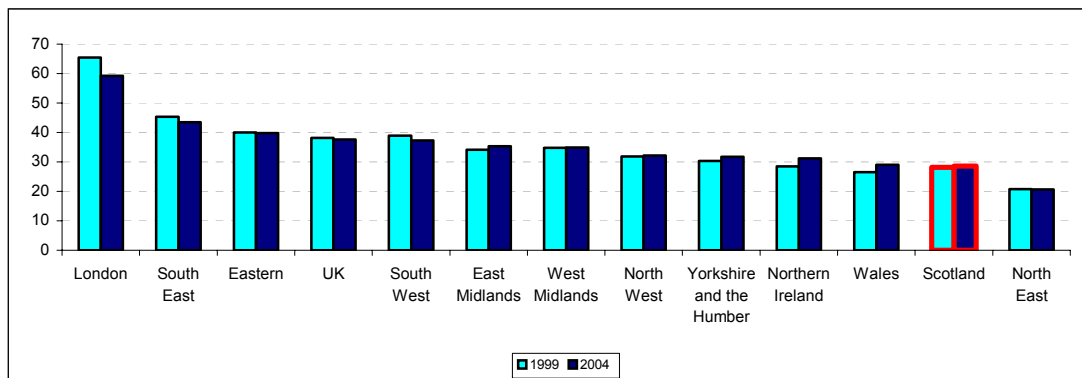
Entrepreneurial activity is benchmarked internationally using the Global Entrepreneurship Monitor's Total Entrepreneurial Activity index, defined as the proportion of the working age population taking steps towards setting up, or who have recently set up in business.

- In 2004, the index was 5.1% for Scotland, up from 4% in 2000. The corresponding UK figures are 6.3% and 6.9%
- Scotland was bottom of a league of 15 comparator economies in 2000, but by 2004 it had risen to the third quartile of 23 economies, and 6 of the economies below Scotland in 2004 were also included in 2000.

A more comprehensive indicator of business starts is the number of new VAT registrations per 10,000 of the adult population, although this misses out businesses which trade at below the VAT threshold.

- In 2004, Scotland had 28.6 business starts per 10,000 adult population, an increase over the 1999 figure of 28.1. As the UK average for business starts declined modestly between 1999 and 2004, the gap narrowed slightly.
- To close the gap with the UK average, the number of VAT registrations would need to increase by 31%.

**Chart 3: VAT Registrations per 10,000 Adults, 1999 and 2004**



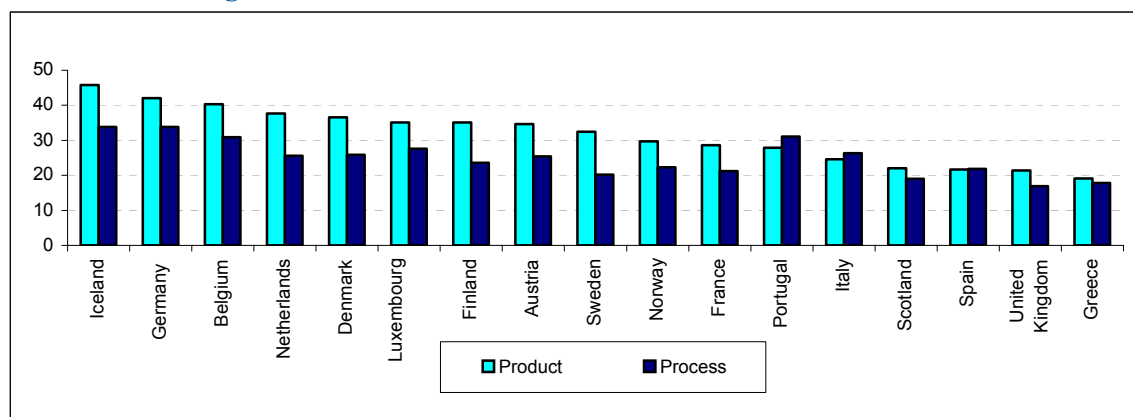
Source: SBS and DTI

### Innovative Firms

To survive and to grow, businesses need to be innovative, reaching new markets and increasing productivity through developing new products/services and processes. Data for 2000 show where Scotland stands.

- Scotland was in the fourth quartile of international economies for the proportion of its businesses (22%) which were product innovators, above the UK average of (21%). The leading economies were Iceland, Germany and Belgium all with 40% or more of their businesses product innovators.
- Scotland was in the fourth quartile for the proportion its businesses (19%) described as process innovators, compared to the UK average of 17%. The leading countries were Iceland, Germany, Portugal and Belgium with 30% or more of their business process innovators.
- To join the first quartile for product innovation, the number of product innovators would need to increase by 66%.
- To join the first quartile for process innovation, the number of process innovators would need to increase by 36%.

**Chart 4: Percentage of Innovative Businesses, 2000**



Source: Eurostat (2004) NewCronos database and DTI analysis

### Summary Position

Business start up and business growth continue to be weak areas of the Scottish economy.

- On the entrepreneurial index, Scotland has been improving, whereas the UK has declined, but is still in the third quartile in international comparisons.
- Business start up rates have risen, but Scotland still lags well behind the UK average and is second from bottom of the UK regional league table.
- On product and process innovations, Scotland's businesses outperform the UK as a whole but are in the fourth quartile in international comparisons.
- Once started, the proportions and absolute numbers of businesses reaching even a modest scale over a three year period are small, but have grown a little since 1999.

Achieving significant and sustained increases in business starts, business innovation and business growth remains a central challenge for economic development in Scotland.

### 3. CREATING MORE E-BUSINESS

#### Impacts and Indicators

E-business is now accepted as a critical component of modern business practice. While the focus tends to be on the potential of e-business to open up global markets to businesses, there are also efficiency gains which can be realised if technologies are adopted and used effectively in business processes. A positive performance on this measure should help to feed through to both improved productivity and greater global connections, two of the central elements of the *Smart Successful Scotland* vision. Three indicators measure these impacts.

- The proportion of businesses trading online.
- The proportion of business activity transacted through e-business.
- The proportion of businesses using broadband.

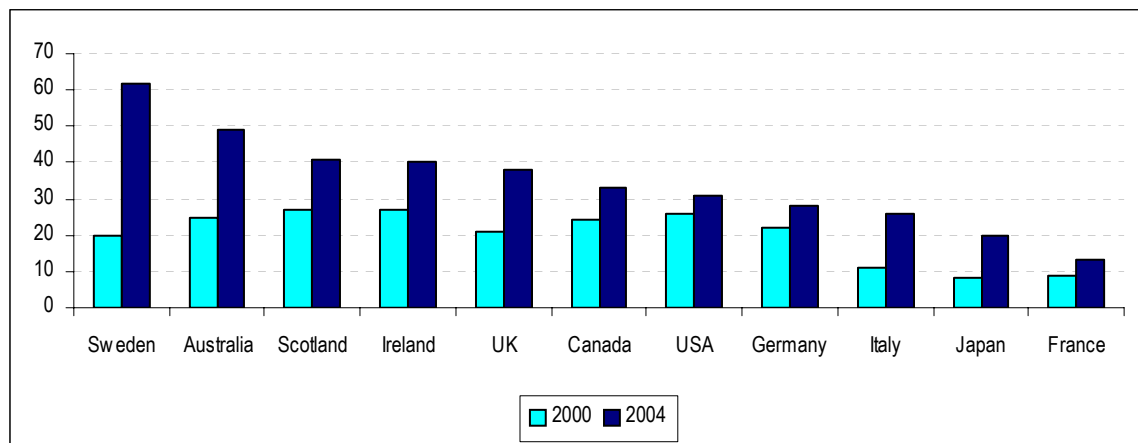
#### Businesses Trading Online

The data on online trading are drawn from an annual DTI survey of businesses where the sample sizes for Scotland are relatively small, and this means variations across countries and time needed to be treated with caution. Taking the figures at face value:

- In 2004, Scotland was in the top quartile for business trading online, ranked third highest in a group of 11 economies having been equal top (with the UK as a whole) in 2000.
- 41% of Scotland's employment is in businesses trading online compared to an overall average of 35%.

Since 2000, the incidence of online trading in Scotland has risen by 52% compared to an average increase across the comparator economies of 81%. Growth of online trading in Sweden has been dramatic since 2000.

**Chart 5: % of Employment in Businesses Trading Online, 2000 and 2004**



Source: DTI

Note: Date for Australia and Ireland compare 2001 and 2004 data.

Within the UK:

- In 2004, Scotland is ranked equal second of the UK regions, moving up from equal fourth in 2000.
- Scotland's 41% of employment in businesses trading online compares with a UK regional average of 35%.

### Business Activity Transacted Through E-business

This indicator proxies the extent to which businesses with online trading capacity exploit it effectively. The same caveats apply about the need for caution given the small survey sample sizes for Scotland.

- In 2004, Scotland was in the top quartile of international economies, ranked third highest on this indicator, the same position occupied in 2000.
- 20% of sales are online for Scottish businesses with the capacity to trade this way, compared to an international average of 18%.
- Since 2000, the incidence of online trading had risen by 18%, compared to an average increase of 19%.

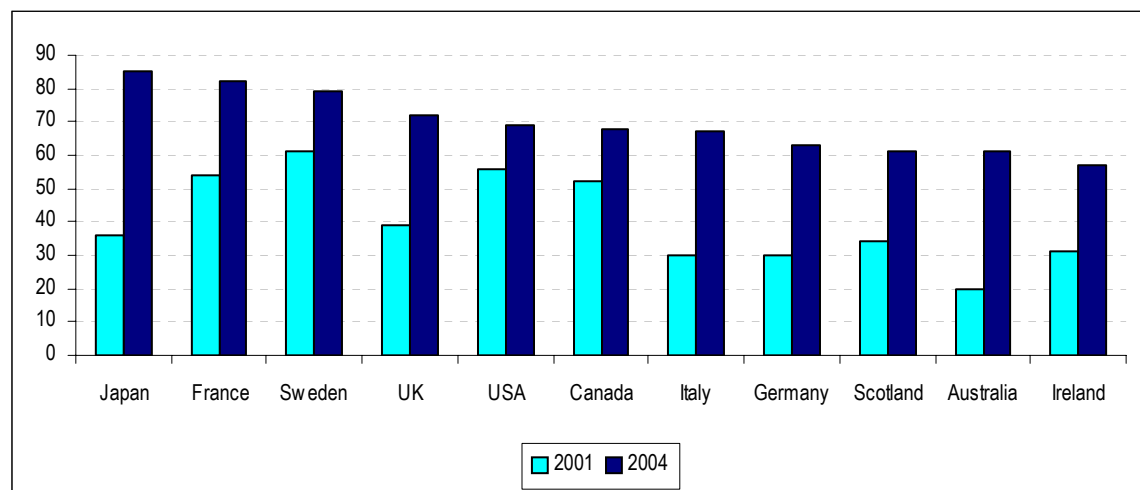
### Businesses Using Broadband

As a set of technologies, e-business tools provide the potential for major productivity gains. The more capacity the telecommunications infrastructure is able to offer, the more likely it is that these gains can be realised. Broadband infrastructures with the capacity to carry large volumes of data at high speed are a key component in the e-business toolkit, allowing businesses selling online to do more and do it more rapidly.

Using the proxy of employment in businesses with broadband as a percentage of employment in all businesses with an internet connection:

- in 2004, Scotland was in the fourth quartile, falling from the third quartile position held in 2001;
- in Scotland, the percentage of employment in business with broadband is 62%, compared to the overall average of 68%;
- since 2002, the Scottish figure has risen by 48%, compared to an average rise of 59%;
- to join the top quartile, Scotland would need to record a 31% increase in this indicator.

**Chart 6: Employment in Businesses with Broadband as % of Employment in All Internet Connected Businesses, 2001 and 2004**



Source: DTI

### Summary Position

The results on e-business are mixed.

- With respect to on-line trading, Scotland has a high ranking relative to comparator economies, but Scotland's percentage growth over time has been below the average.
- On the use of broadband in a business context, Scotland is lower down the league table, and growth over time has been lower than the average for other economies.

#### 4. INCREASED RESEARCH AND COMMERCIALISATION

##### Impacts and Indicators

The aspiration to move Scotland into the top quartile of OECD economies in terms of prosperity can be met if there is a significant increase in productivity per employee. Two ways to do this are to raise the effectiveness of business processes and to increase the share of higher value added industries in the Scottish economy. Increased R&D and the commercialisation of research have key roles to play in achieving both of these objectives. Three indicators measure the potential impacts.

- Business R&D as a proportion of GDP.
- Number of academic spinout companies.
- Number of patents filed.

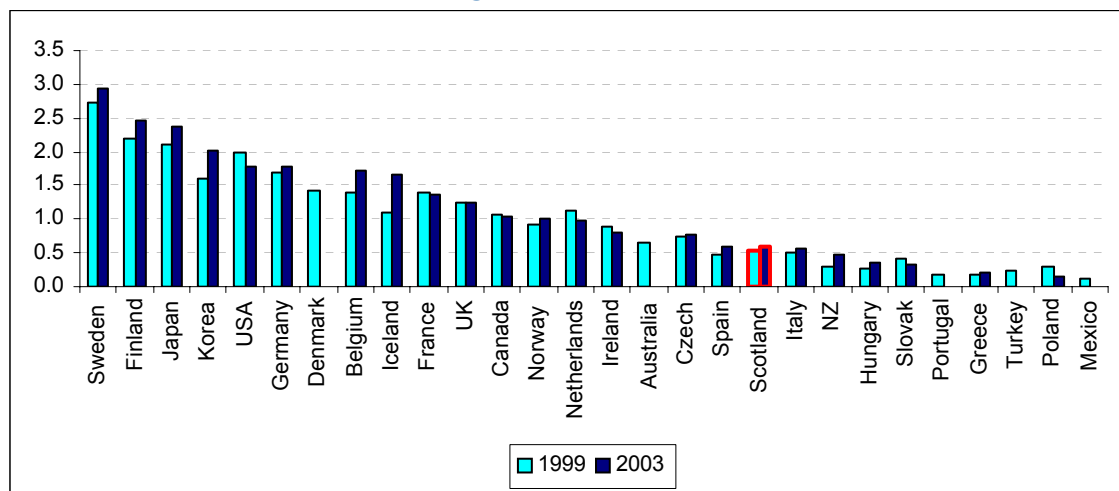
##### Business R&D

R&D spending is a proxy for the investment by businesses in developing new products and processes.

- In 2003, Scotland is towards the bottom of the third quartile of OECD economies, close to its position in 1999.
- To join the top quartile, Scotland's business spend on R&D as a percentage of GDP would need to triple from 0.59% to 1.79%.

Since 1999, Scotland's R&D business spend as a proportion of GDP has increased by 11%, compared to the OECD average increase of 19%.

**Chart 7: Business R&D as a Percentage of GDP, 1999 and 2003**



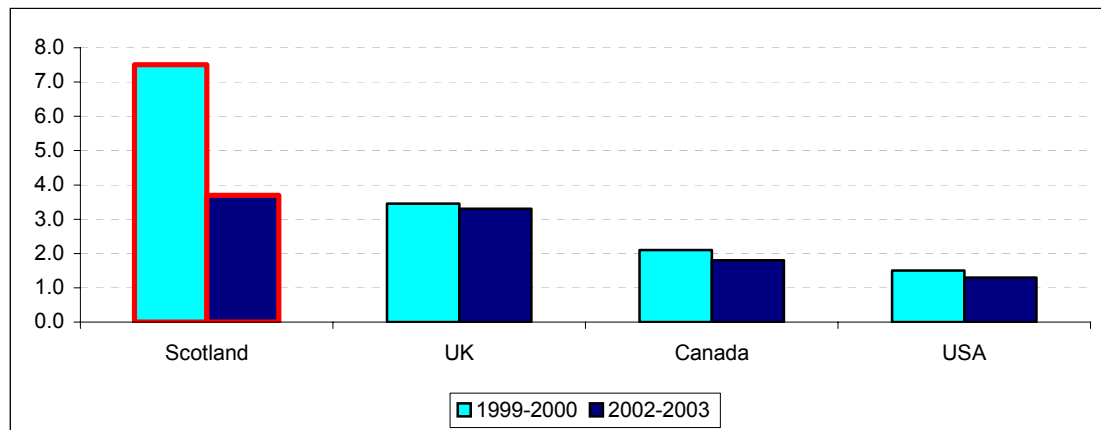
Source: OECD (2005); ONS (2005)

Note: Data for Australia, Austria, Denmark and Turkey compare 1999 and 2002.

##### Academic Spinout Companies

For a number of years a considerable effort has gone into increasing the volume and effectiveness of businesses created by commercialising university research. Comparisons of Scotland's performance on these measures with other economies is severely restricted by data availability. Chart 8 summarises the position.

- In 2002-2003, 19 businesses were created via the spinout route from Scottish universities, slightly above the UK average, corrected for population size, and well above the results for Canada and the USA.
- However, the number of spinout businesses in Scotland has halved since 1999-2000.

**Chart 8: Academic Spinouts per Million Population, 1999-2000 and 2002-2003**

Source: HEFCE (2005), AUTM (2004), GROS (2005), OECD (2005)

Within the UK context, in 2003 Scotland has the sixth largest rate of academic spinouts of the 12 regions.

### Patents Filed

Another proxy for the output of the knowledge creation process which might convert into products or process investment is the number of patents filed. With low business spend on R&D, the expectation is that this would be reflected in lower number of patents being filed.

- In 2003, 1,120 patent applications originating in Scotland were made, combining academia and industry.
- Correcting for population levels, Scotland is one of the poorer performing (fourth bottom) UK regions and has the same ranking in 2003 as in 2000.
- To reach the UK average level of patents per 10,000 population, the volume of patents filed would need to increase by 42%, or around 500 per annum.

Since 1999, the number of patents filed in Scotland increased by 2% compared to a 7% decline in the UK as a whole, and so the gap is narrowing to some extent.

### Summary Position

The messages are mixed on R&D, spinout companies and patents.

- Business investment in R&D lags well behind the investments made in comparator economies. Not only is Scotland towards the bottom of the 3<sup>rd</sup> quartile, the gap to be bridged in absolute terms is substantial.
- Scotland appears to do relatively well on spinout companies on a restricted set of external comparisons, but the number has halved since 1999/2000.
- Within the UK, the number of patents filed and originating from Scotland is well below the UK average, although the gap is narrowing.

## 5. GLOBAL SUCCESS IN KEY SECTORS

### Impacts and Indicators

Creating and sustaining globally competitive businesses and sectors depends on investing in industries with a future, but also on accelerating the growth of productivity across all our industries. The impact in the long term will come through in terms of sectors with greater value added and more sustainable employment. The key indicators here are as follows.

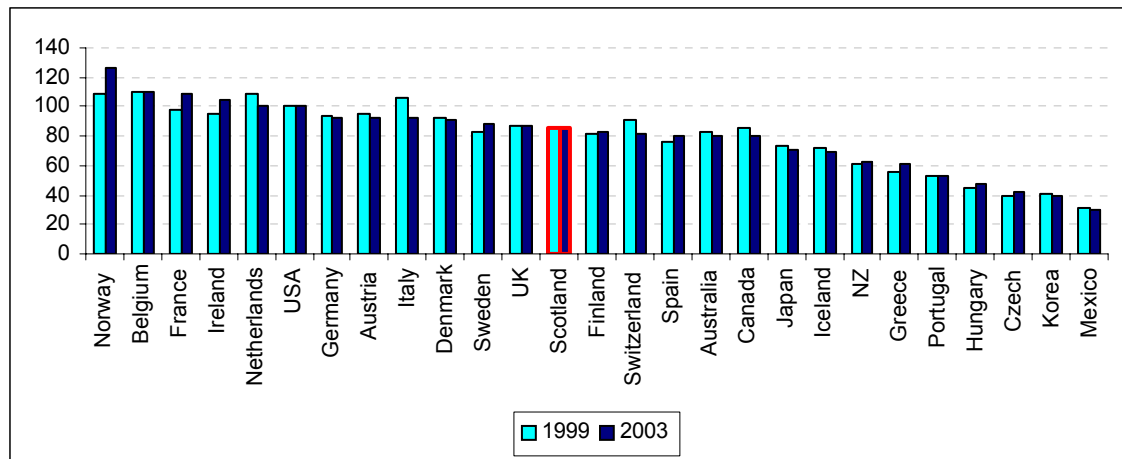
- GDP per hour worked.
- Percentage of GVA from knowledge-intensive industries.
- Number of new global/European HQs.

### Productivity

The international productivity comparisons are based on indexing each country's performance to the US level. The figures also come with a severe health warning from ONS who describe them as 'experimental' figures. Taking the data at face value, Chart 9 shows the following.

- In 2003, Scotland was ranked 13<sup>th</sup> towards the bottom of the second quartile, identical to our position in 1999.
- To reach the top quartile, Scotland's productivity index would need to rise by 9%.

**Chart 9: Indices of GDP per Hour Worked (USA=100), 1999 and 2003**



Source: OECD (2005); ONS (2005)

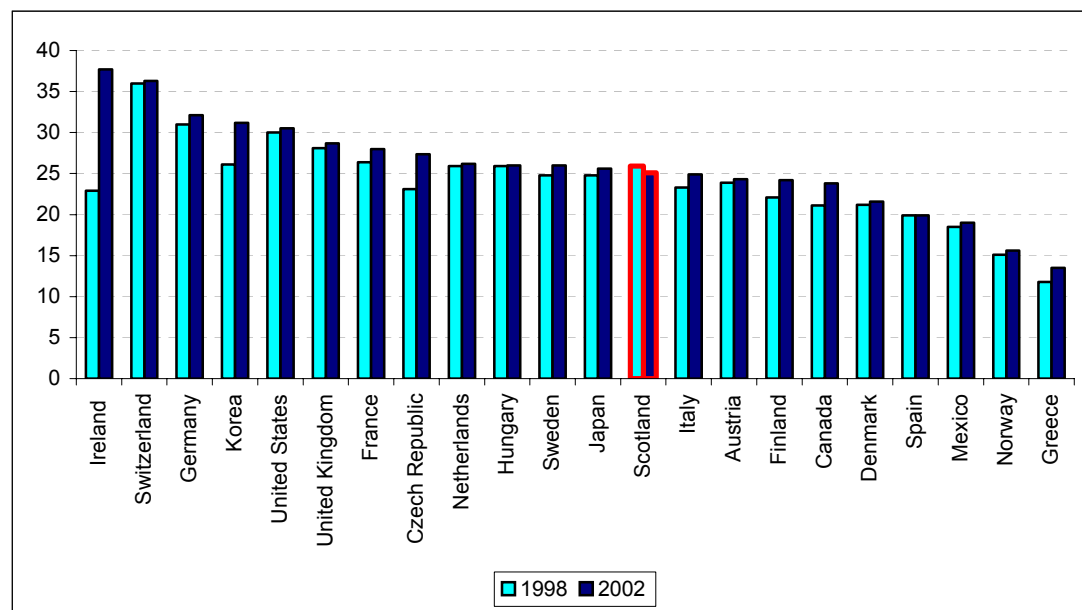
### Knowledge-based Industries

Knowledge-based industries, defined as medium/high technology manufacturing and high value added business services, are regarded as key to future economic development. Economies with a high proportion of knowledge-intensive activities are best placed to take advantage if recent growth trends continue.

Scotland's comparative position is summarised in Chart 10. However, due to data limitations, the comments are based on 2001 data for Scotland.

- Scotland is in third quartile of international comparators.
- To reach the top quartile, Scotland's share of GVA in knowledge-intensive industries would need to rise by 15%.
- To achieve the OECD average exposure to knowledge-intensive industries, Scotland's share of GVA would need to increase by 10%.
- To close the gap with the UK, the increase would need to be 14%.

**Chart 10: Share of GVA from High Technology and Knowledge-Intensive Industries, 1998 and 2002**



*Source:* OECD, Scottish Executive

*Note:* Data for Canada compare 1997 and 2001, for Czech Republic 1998 and 2000, for Ireland 1999 and 2002, and for Scotland 1998 and 2001.

### New Global/European Headquarters

High value functions, such as senior operational management and corporate strategy, combined with the tendency of new product development functions such as R&D to cluster close to corporate headquarters, provide high quality employment and a measure of the global competitiveness of a location.

Data on the location of new global and European headquarters are not available on a systematic basis. The proxy measure used here is the number of Scottish companies listed in the Business Week 1000 per 1 million population, a list of the world's largest companies, measured by their current market value. While not ideal, this gives a measure of Scotland's position in terms of its share of globally competitive large companies.

- Scotland sits in the second quartile on this indicator. However, as this is based on only 5 companies meeting the criteria, a gain of one company would put Scotland in the middle of the first quartile.
- Between 1999 and 2004, the same five companies have counted for Scotland. In 11 of the comparator economies, the number of Business Week top 1000 companies declined.

### Summary Position

- Scotland sits towards the bottom of the second quartile in terms of the index of GDP per hour worked, but a 9% increase would move Scotland into the first quartile.
- The position on the share of knowledge-based industries in the Scottish economy is weaker, with Scotland in the third quartile. An increase in the index of around 15% is required to reach the top quartile of international economies, and to close the gap with the UK average.
- Scotland is in the second quartile for the number of global economies head-quartered in Scotland - but this is based on 5 businesses. A change in the status of one of these businesses would change Scotland's ranking significantly.

## 6. DIGITAL CONNECTIVITY

### Impacts and Indicators

Digital connectivity is increasingly important in raising the competitiveness of businesses in national and global marketplaces, as well as the employability of people in the labour market. Effective connectivity also has a role to play regenerating Scotland's poorer communities and sustaining many rural communities. The key indicators here are as follows.

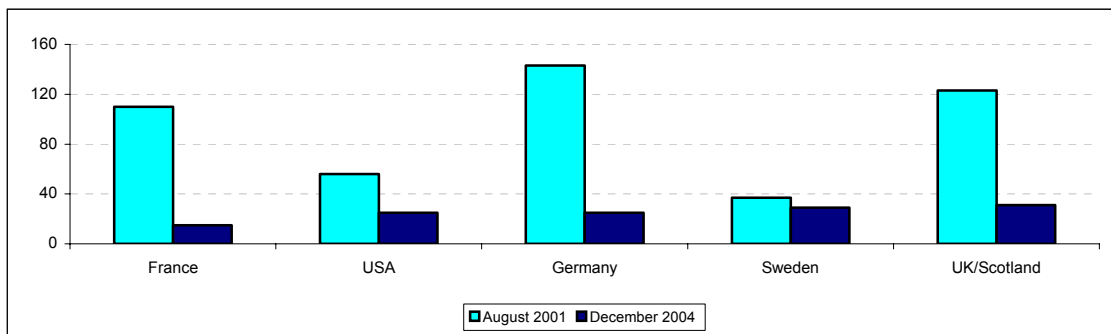
- Cost and coverage of broadband.
- Share of the population online.
- Share of excluded areas and groups with internet access.

### Cost and Coverage of Broadband

The cost of accessing broadband is likely to influence the use of broadband by businesses and, of course, is one component of their cost structure that will impact on margins.

- In December 2004, the cost of business broadband access for Scotland, proxied by the UK figure, was £31 per month, the dearest of the small number of comparators.
- 2004 prices in Scotland were only 25% of the 2001 figure, but for Germany and France the fall in price was even steeper.

**Chart 11: Business Broadband Access Costs (UK£ per month), August 2001 and December 2004 (current prices and exchange rates)**



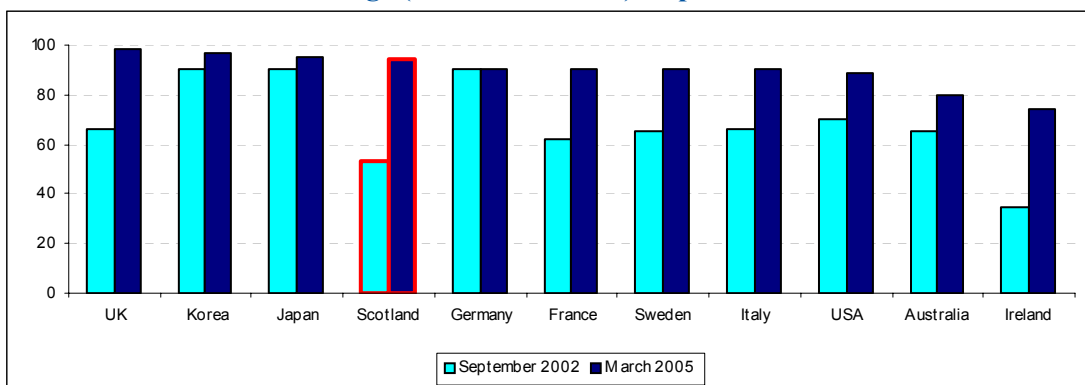
Source: OFCOM (2005)

Note: Costs are for minimum geometric mean speed of 500 kbits per second.

The ability to access broadband is clearly dependent on the coverage available.

- Between 2002 and 2005 broadband access in Scotland rose from 53% to 94%, of households, taking Scotland into the second quartile based on 11 economies.
- Over time Scotland moved from 10<sup>th</sup> to 4<sup>th</sup> in the league table of 11 economies.
- To reach the UK average, coverage in Scotland would need to increase by 3%.

**Chart 12: Broadband Coverage (% of Households), September 2002 and March 2005**



Source: Analysys (2004); Ovum (2005)

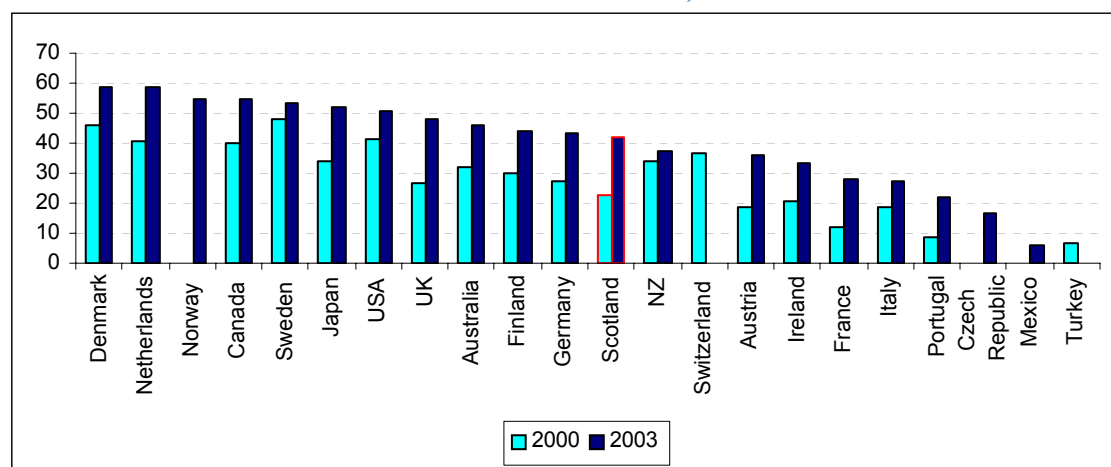
### Share of Population Online

The share of the population online is a good indicator of digital connectivity, at least in terms of its potential. The chart below shows the percentage of households with access to the internet.

- In 2003 Scotland was in the second quartile of 10 OECD economies for which data were available.
- 42% of Scottish households had access to internet, above the OECD average of 40.7% but below the UK's 48%.
- To join the top quartile, the percentage of Scottish households with internet access would need to rise by 30%.

Between 2000 and 2003, Scotland's percentage of households online almost doubled from 23% to 42%, going from below to above the OECD average over that period.

**Chart 13: % of Households with Access to the Internet, 2000 and 2003**



Source: OECD (2004); Scottish Household Survey (2004)

Note: Data for Australia, Czech Republic, Denmark, Finland, Germany and Italy compare 2000 and 2002. Data for Mexico, New Zealand, Sweden and USA compare 2000 and 2001.

### Share of Excluded Areas and Groups with Internet Access

Digital inclusion was highlighted at an early stage as a critical process for helping regenerate Scotland's poorer communities. Variations across income bands proxy changing effectiveness.

- Between 1999 and 2002, PC ownership increased from 30% to 46% for Scotland as a whole, and from 12% to 20% for households in the lowest (below £6,000) income band. So although the proportionate gap narrowed a little the absolute gap widened.
- Between 1999 and 2003, the percentage of households with internet access increased in Scotland from 14% to 42%, and for households in the lowest income band from 5% to 16%. Again there has been a modest narrowing in the proportionate difference, but a significant increase in the absolute difference.

### Summary Position

- Broadband access costs have fallen sharply, but are still high relative to a small group of competitors.
- On broadband coverage, Scotland is now in the second quartile of international competitors.
- Scotland is in the second quartile for the share of households online, but is well below the UK average.
- The gap between low and average income households with internet access has closed marginally in proportionate terms, but increased significantly in absolute terms.

## 7. INVOLVEMENT IN GLOBAL MARKETS

### Impacts and Indicators

Although globalisation poses threats it also creates opportunities for economies such as Scotland's. Many of these opportunities are in traditional areas of exporting and attracting global investment. Additionally in the modern world alliances between businesses across national boundaries are an increasingly important way of doing business effectively in the global marketplace. The key indicators here are as follows.

- Exports as a percentage of GDP.
- The proportion of employers with international relationships.
- Export sales per worker.

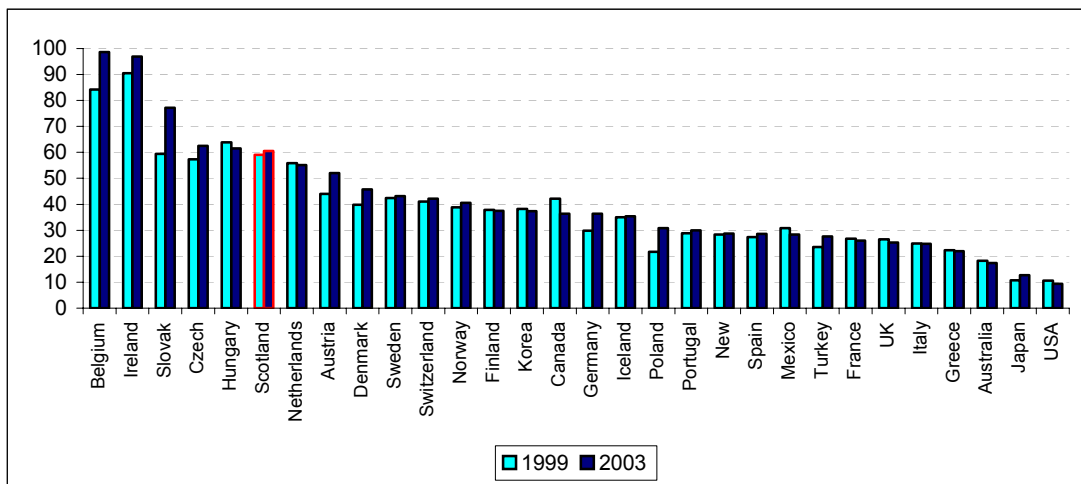
### Exports as a Percentage of GDP

Including export sales to the rest of the UK, in 2003:

- Scotland is in the top quartile of OECD comparators;
- Scotland's export share in GDP at 60.5% is well above the OECD average of 42%.

Between 1999 and 2003, Scotland has retained its top quartile ranking but the share of exports in GDP has risen by only 2.4% over the period compared to an overall OECD increase of 8%.

**Chart 16: Exports as Percentage of GDP, 1999 and 2003**



Source: OECD (2005); SCDI (2001); Scottish Executive (2005).

Note: Scottish figure includes estimates of sales to the rest of the UK. Figures exclude oil and gas

### Businesses with International Relationships

Many businesses seek to raise their competitive edge by forging strategic relationships with the businesses engaged in their own or other marketplaces. This can range from loose alliances to mergers and acquisitions. The Scottish Executive's *Global Connections Survey* for 2003 suggests the following.

- 9% of companies responding to the survey had some form of international relationships.
- Over a third of international relationships are delivered through a representative office or agency.
- At the other extreme, only 3% of relationships involve overseas manufacturing subsidiaries.

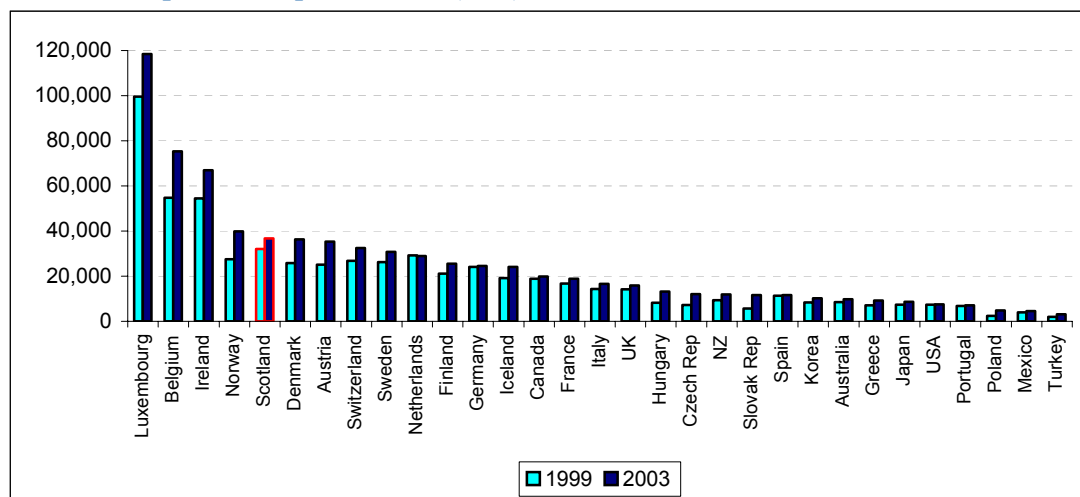
### Export Sales per Worker

Export sales per worker are another indicator of the significance of exporting for Scotland's economy.

- In 2003, Scotland is in the top quartile, a position it also occupied in 1999.
- Scottish export sales per worker of \$36,700 in 2003 compare with the OECD average of \$11,900.

Between 1999 and 2003, export sales per worker in Scotland grew by 14% compared to 12% across OECD as a whole, but 26% for the top quartile economies.

**Chart 17: Export Sales per Worker (\$US), 1999 and 2003**



Sources: OECD (2004; 2005); Scottish Executive (2005)

Notes: Data shown are presented in current prices and at current exchange rates. Data for Ireland, Netherlands, Portugal and Spain compare 1999 and 2002.

### Summary Position

- Scotland's export performance as a share of GDP is in the top quartile of international comparators, but growth in this share is lagging behind rivals.
- Scotland is also in the top quartile for export sales per worker, but growth over time lags the top-performing OECD economies.
- A third of international relationships for Scotland's businesses involves representative offices or agencies in other economies.

## 8. GLOBALLY ATTRACTIVE LOCATION

### Impacts and Indicators

In a global marketplace local, regional and national economies are in competition for mobile investment and for labour with higher level skills. Building up Scotland's asset base, as a place from which to do business effectively and as a desirable location for senior managers and key professionals, can yield long-term benefit in terms of both the volume and quality of economic activity. The key indicators here are as follows.

- Graduates as a percentage of the workforce.
- Availability, frequency and cost of direct international transport links.
- Overseas and British tourist expenditure.

### Graduates in the Workforce

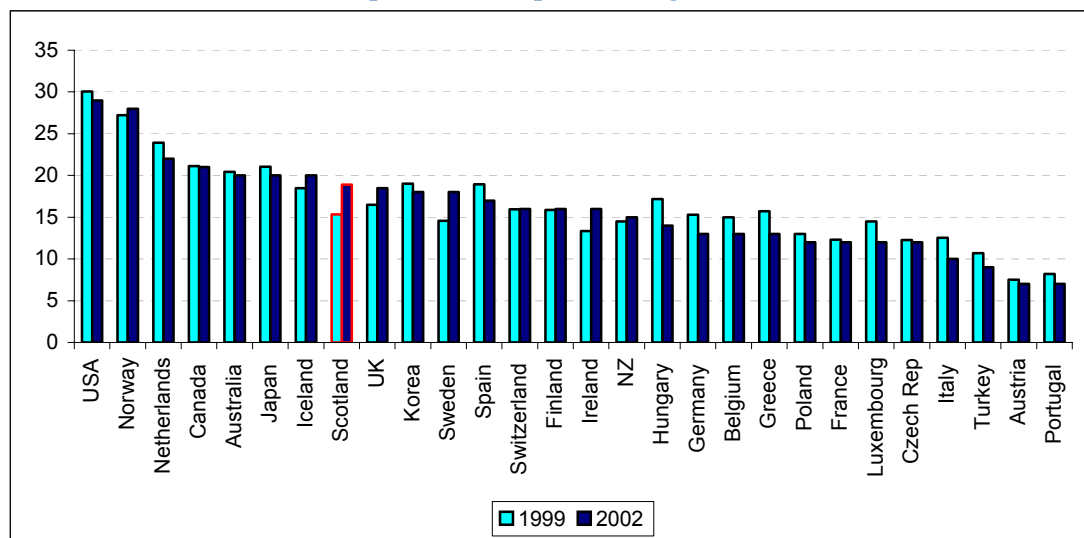
Particularly where Scotland is trying to build up its base of knowledge-intensive industries, a good supply of graduate-level labour can be a significant attraction for mobile investment.

- In 2002, Scotland was at the top of the second quartile of OECD economies.
- Scotland's proportion of graduates (18.9%) in the population aged 25-64 is well above the OECD average of 16%, and also above the UK average (18.5%).

Since 1999:

- Scotland has risen from the top half of the third quartile to the top of the second quartile of OECD economies;
- Scotland's proportion of graduates has increased from 93% to 102% of the UK figure.

**Chart 18: Graduates as a Proportion of Population Aged 25-64, 1999 and 2002**



Source: OECD (2004) and Labour Force Survey

Note: Graduate qualification taken as ISCED Level 5a or 6 qualifications

### Direct International Transport Links

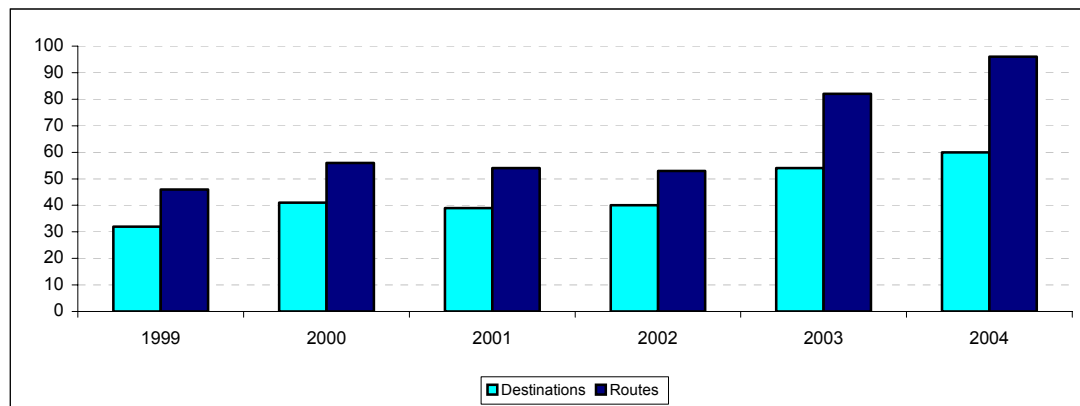
External air flights have been shown in a number of studies to influence critically the decisions of global businesses to locate in particular localities - and this applies particularly to higher level functions such as HQs and R & D facilities, which are often co-located in any event. This is to economise on the time of senior, global managers and increase their connectivity.

Although comparative material on this is difficult to source, Chart 19 shows changes over time for Scottish airports. Between 1999 and 2004:

- the number of international destinations accessible directly from Scottish airports almost doubled, rising from 32 to 60;
- the number of routes doubled over the same period.

Although not charted here, the number of passengers (inbound and outbound) on direct flights increased from 2.6 million to 5.1 million.

**Chart 19: Direct International Routes and Destinations from Scottish Airports, 1999-2004**



Source: Calculated from CAA figures

### Overseas and British Tourist Expenditure

One of the benefits of creating a more attractive location is that it promotes tourism and visitor expenditure, both from individuals/households and businesses. This means that tourist expenditure is a good proxy for place attractiveness.

- In 2003, ONS estimate that overseas tourist expenditure in Scotland was £166 per head of resident population - the highest for all UK regions except London.
- Between 1999 and 2003 Scotland's share of UK overseas tourist expenditure rose from 6.6% to 7.1%, although Scotland's (higher) share of the domestic tourist marketplace fell from 14.0% to 13.8%.

### Summary Position

This is a very mixed set of indicators, but it is a reflection of the difficulty involved in measuring the attractiveness of a location.

- Scotland is top of the second quartile of international economies for the proportion of graduates in the workforce, and there has been solid improvement over time.
- The number of destinations accessible directly from Scottish airports has doubled since 1999.
- Scotland's share of UK overseas tourist expenditure is rising, but there has been a slight decline in the share of the domestic tourist market place.

## 9. CHOOSING TO LIVE AND WORK IN SCOTLAND

### Impacts and Indicators

One way to define globalisation is in terms of reducing barriers to and increased movement in investment capital – but also in population. Historically, population movements have been driven strongly by economic factors – and so it is today. Due to the threat of population decline and the desire to attract talent that can help stimulate more economic activity, there is now a policy in Scotland to promote in-migration, but this depends on providing the working and living package that makes Scotland an attractive location. The key indicators here are as follows.

- Net migration as a percentage of population.
- Working age in-migration
- Working age population change within Scotland.

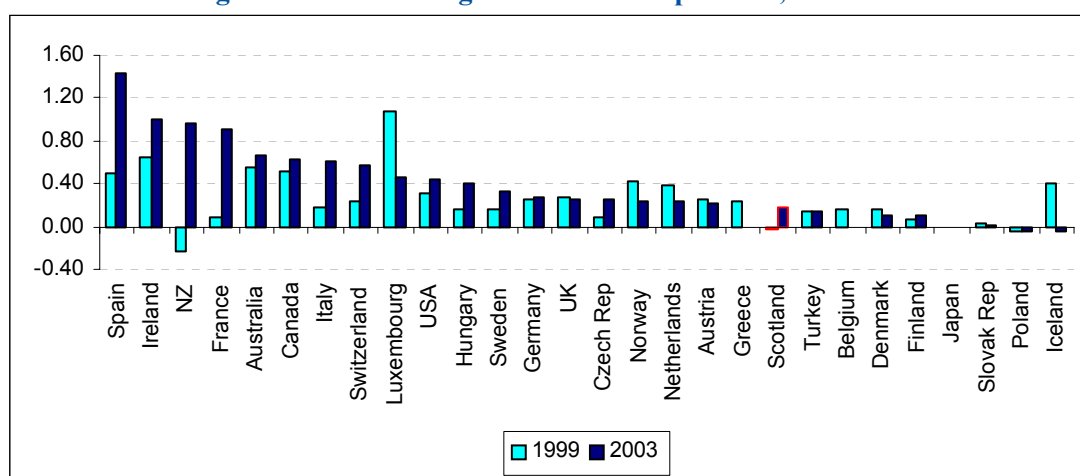
### Net Migration

Net migration statistics balance out the numbers flowing into and out of Scotland.

- In 2003, Scotland had a small positive net migration of almost 9,000, or 0.18% of the total population. This puts Scotland in the third quartile of OECD economies.
- To reach the top quartile, the net migration rate would need to rise by 0.4 (322%)
- Scotland's net migration rate is below the average UK regional rate of net migration of 0.25%.

Between 1999 and 2003 Scotland has moved from a small net outflow to a net inflow, and has risen from the fourth to the third quartile.

**Chart 20: Net Migration as Percentage of Resident Population, 1999 and 2003**

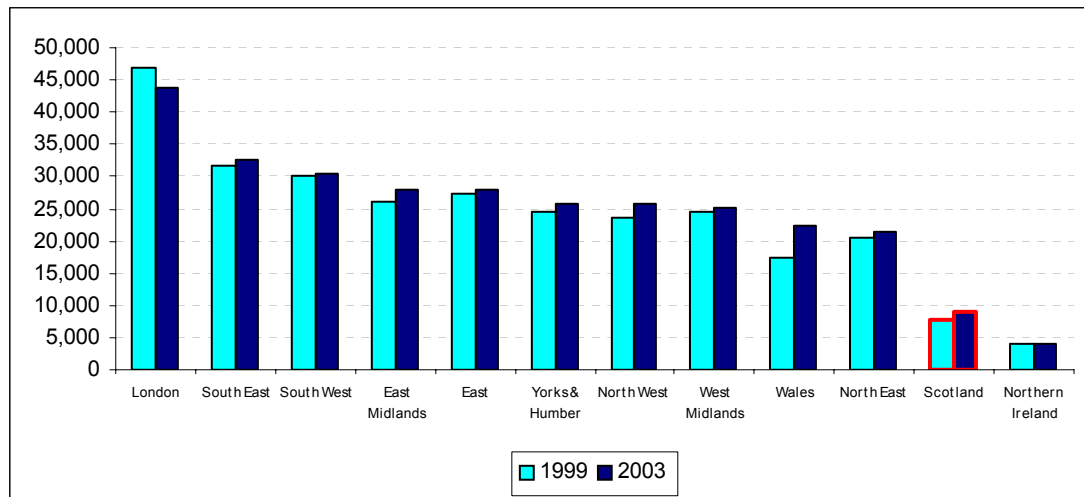


Source: OECD (2005); ONS (2005)

### Working Age In-Migration

To promote economic development, it is important to attract working age migrants, with the skills in short supply in the Scottish economy. Chart 21 shows where Scotland stands on this relative to other UK regions.

- Scotland has the second lowest rate of working age in-migration, after Northern Ireland.
- Scotland was in the same place in the regional league table in 1999. However, between 1999 and 2003, the rate of working age in-migration in Scotland increased by 16%, well ahead of the UK average growth of 3%.
- To reach the UK regional average, Scotland's annual working age in-migration would need to increase by 93,400 (206%).

**Chart 21: Resident Working Age In-Migrants per Million Residents, 1999 and 2003**

Source: ONS Migration Statistics Unit

### Working Age Population Change by Local Authority District

The population dynamic within Scotland is very diverse. Between 1999 and 2004:

- the change in working age population ranged from +2.8% in West Lothian to -6.5% in Aberdeen City;
- apart from West Lothian, growing working age population was recorded only in the cities of Edinburgh and Glasgow, Fife, the Borders, East Lothian and Falkirk.

### Summary Position

- Scotland now has a positive net migration, but it is in the third quartile of OECD economies.
- Working age in-migration has grown strongly relative to the UK, but compared to all other UK regions, except Northern Ireland, working age in-migration rates are low.
- Most local authority areas record declines in working age population over time, but there is strong growth in a small number of areas, including Edinburgh and Glasgow.

## 10. IMPROVING OPERATION OF LABOUR MARKET

### Impacts and Indicators

An effective labour market is critical to achieving the central goals of *A Smart Successful Scotland*. By improving the matching of jobs and workers, it reduces the volume of hard to fill vacancies and reduces the level of joblessness - so raising GDP. Additionally, to the extent that people and jobs are matched more effectively it may help improve productivity. There are three indicators of labour market performance.

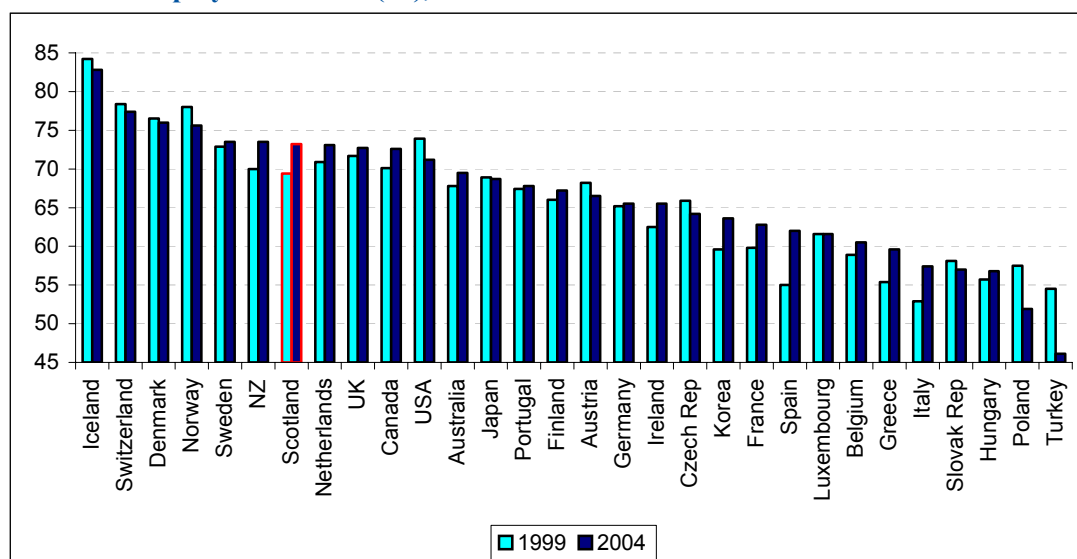
- The employment rate.
- Skill shortage vacancies as a percentage of employment.
- The ratio of unemployment to notified vacancies.

### Employment Rates

The employment rate is the proportion of the working age population in employment. Increasing the employment rate will raise GDP per capita, other things being equal.

- In 2004, Scotland is in the top quartile of OECD economies, up from the second quartile in 1999.
- Although the rise is partly a UK-wide phenomenon, Scotland's employment rate relative to the UK's rose from 97% in 1999 to 101% in 2004.

Chart 22: Employment Rates (%), 1999 and 2004

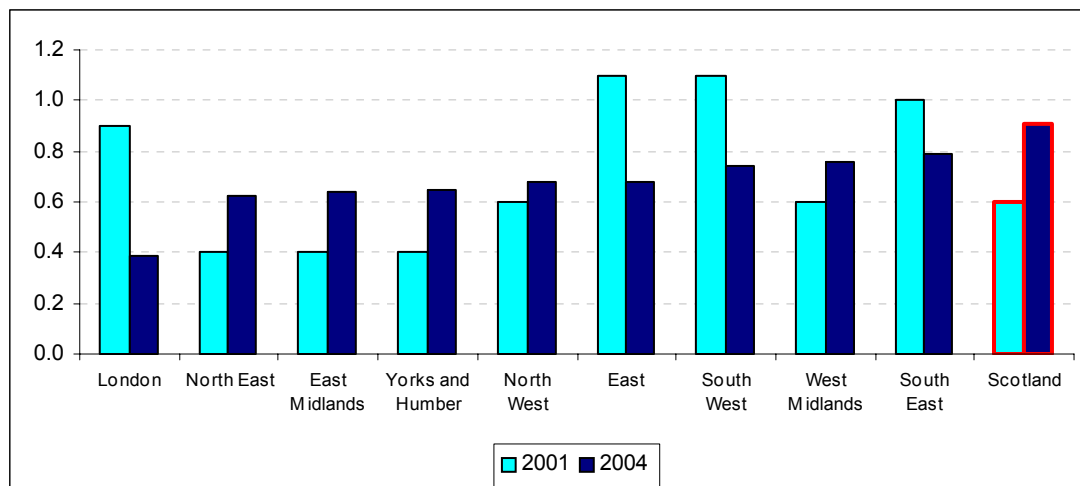


Source: OECD (2004) and Labour Force Survey

### Skill Shortages Vacancies

Skill shortages can result from inefficiencies in the operation of the labour market, but they may also simply reflect circumstances where the aggregate demand for labour is strong relative to aggregate supply. Relative to other UK regions:

- Scotland's skill shortage vacancies as a percentage of employment in 2004 are the highest – but it is important to note that these vacancies are less than 1% of total employment;
- since 2001, Scotland has moved from the fifth highest in the rankings of skills shortages to the top.

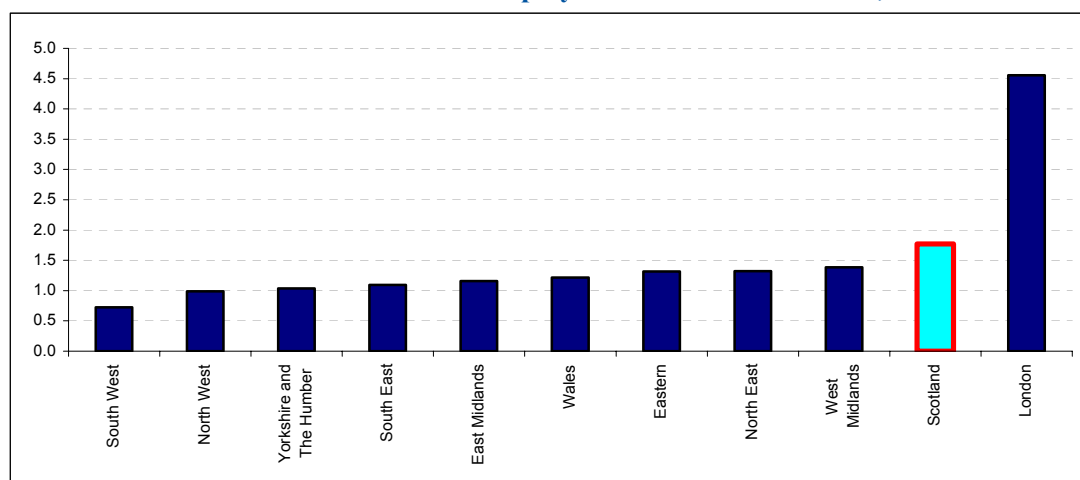
**Chart 23: Skill Shortage Vacancies as % of Employment, 2001 and 2004**

Source: Futureskills Scotland (2005), LSC (2005) National Employers Survey

Note: Data for Scotland compare 2002 and 2004.

### Unemployment and Unfilled Vacancies

Where large numbers of vacancies co-exist with large numbers of unemployed, it may be indicative of labour market mis-matches. The ratio of unemployed to unfilled vacancies is, however, a weak indicator, and more generally it is likely to reflect the extent to which labour markets are slack or tight. Scotland has the second highest ratio of unemployment to unfilled vacancies among the UK regions.

**Chart 24: Ratio of Claimant Count Unemployed to Unfilled Vacancies, 2004/05**

Source: NOMIS

Note: Figures are averages from November 2004 to July 2005

### Summary Position

- Scotland's employment rate has strengthened comparatively with other economies and over time.
- In 2004, Scotland had the highest percentage of skill shortage vacancies to employment of all UK regions, a marked change since 2001.
- On the ratio of unemployment to unfilled vacancies, the indications are that there is still a bit of slack in the Scottish labour market relative to other regions.

## 11. BEST START FOR ALL OUR YOUNG PEOPLE

### Impacts and Indicators

The early experiences of young people in making the transition from education to the labour market are crucial for the longer term development of the Scottish economy. If the quality of their experience is poor it can have negative impacts on the skills and attitudes to work they develop. This in turn will influence both their future productivity in the workforce and the extent to which they participate in the labour market over their working lives. The three key performance indicators are as follows.

- Proportion of 16-19s not in education, employment or training (NEET).
- Proportion of 20-24s achieving VQ Level 3 or above.
- Proportion of young people with adequate transferable skills.

### The NEET Group

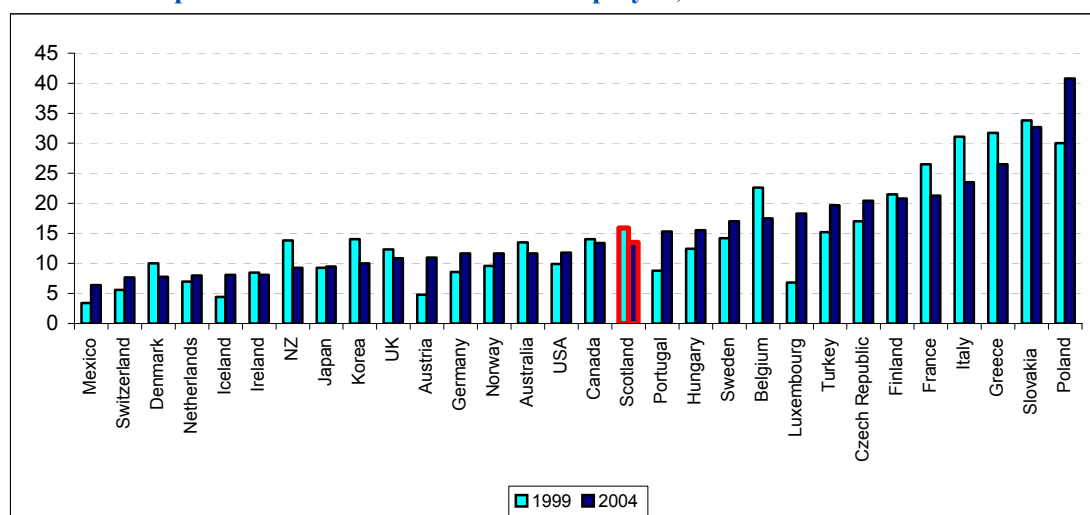
The NEET group is a particular concern because of its potential long-term consequences for both the young people involved and the economy as a whole, aside from any adverse social impacts flowing from the group.

- In 2004, 13.2% of all 16-19s were in the NEET Group, down from 14.9% in 1999. The corresponding figures for the UK are 11.3% and 11.4%.
- Although the gap with the UK average has narrowed over time, to achieve the UK average, the proportion in the NEET Group will need to fall by 14%.
- For 2004, the Annual Population Survey estimated that there are around 35,000 young people in the NEET group, so this number needs to fall by around 5,000.

Unemployment rates among 15-24 year olds can be used as a proxy for the size of the NEET group to generate international comparisons.

- In 2004, Scotland sits at the top of the third quartile in relation to the rate of youth unemployment, a slight improvement in ranking since 1999.
- In 1999, Scotland's youth unemployment rate was 10% above the OECD average, but by 2004 it was 12% below the average - so significant progress has been made.
- To reach the top quartile, the youth unemployment rate in Scotland would need to fall by 30%.

**Chart 25: Proportion of 15-24 Year Olds Unemployed, 1999 and 2004**



Source: OECD (2005) and Labour Force Survey

### Percentage of 20-24 Year Olds Achieving VQ Level 3 or Above

A proxy for the skill levels of young people is the qualifications achieved.

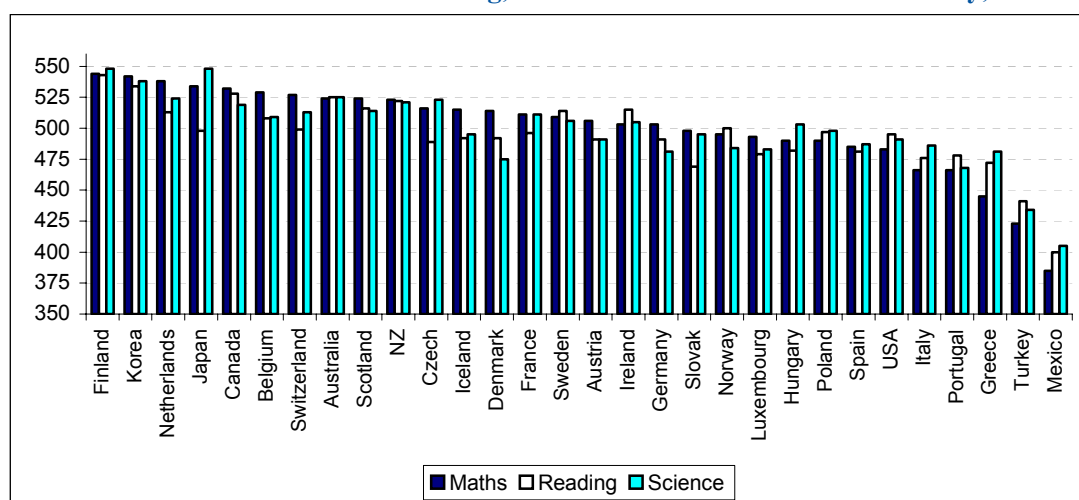
- In 2004, Scotland is top of the UK regional league table on this indicator, with 65% of 20-24s achieving VQ Level 3 or above, compared to a UK average of 57%.
- Scotland also occupied the top position in 1999, and has maintained the gap with the UK as a whole. Since 1999, the proportion in Scotland qualified to VQ Level 3 or above has increased by 1%, against an increase in the UK figure by 0.5%.

### Young People with Adequate Transferable Skills

There has been a growing focus on the issue of basic skills as significant progress has been demonstrated in Scotland and the UK in relation to educational and vocational qualifications. The Programme for International Student Assessment (PISA) provides a standardised set of literacy tests which allow international comparisons. Average test scores for reading, mathematical and scientific literacy allow direct comparisons of the performance of 15 year olds. The PISA measure used in the discussion below is the mean test score across all three subject areas.

- Scotland is towards the top of the second quartile on the average score for three transferable skills.
- On maths, Scotland scores (524) well above the OECD average (500), but Scotland's score declined by 9 points between 2000 and 2003.
- On reading, Scotland again scores (516) well above the OECD average (488). Although Scotland's score fell by 10 points since 2000, this is mirrored across OECD economies.
- On science, Scotland (514) out-performed the OECD average (499), but Scotland's performance weakened relative to OECD over time.

**Chart 26: Mean PISA scores in Reading, Mathematical and Scientific Literacy, 2003**



Source: OECD (2004)

Note: Countries are ranked according to their mathematical literacy score. UK 2003 data withheld by OECD as figures were statistically unreliable

### Summary Position

- Scotland's NEET Group is large by UK standards.
- Although youth unemployment has improved, Scotland still sits in the third quartile.
- Scotland does well in relation to young people with VQ Level 3 or above.
- Scotland also scores well on transferable skills although the position is weakening slightly.

## 12. NARROWING THE GAP IN UNEMPLOYMENT

### Impacts and Indicators

One of the central objectives of *A Smart Successful Scotland* is to 'narrow the gap', internally as well as in relation to our external competitors. There is a sound economic as well as social rationale for this. As some local labour markets tighten and as labour supply generally becomes a potential constraint due to population decline, it is essential to raise labour market participation in Scotland's more disadvantaged communities and groups. The key indicators here are as follows.

- The gap in unemployment rates between the 'worst' 10% of areas and the Scottish average.
- The number of working age people in education, employment or training.
- Employment rates for more disadvantaged groups

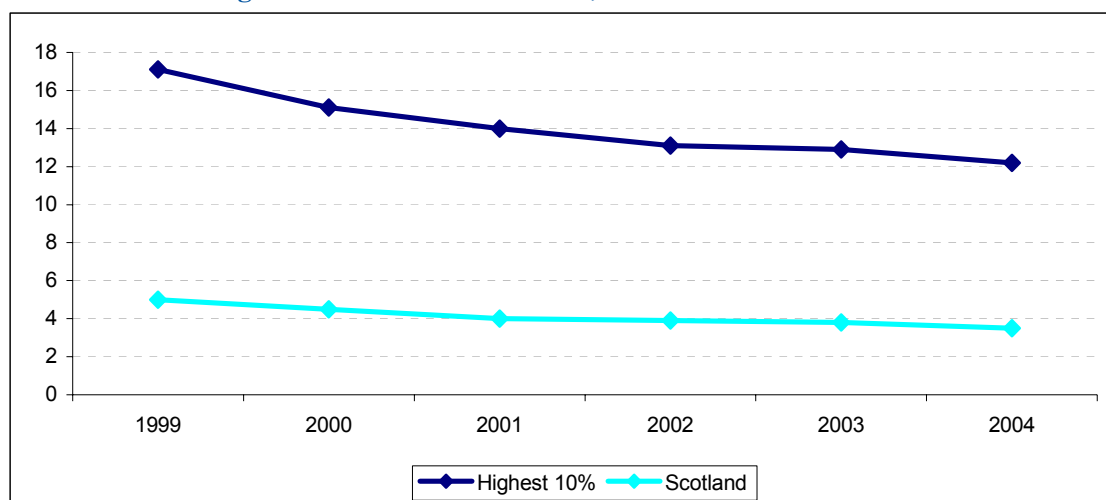
### Gap in Unemployment Between Worst 10% of Areas and Scottish Average

The difficulty with this indicator is down to interpretation.

- The gap between the areas with the highest unemployment rates and the average has closed - from 12.1 to 8.7 percentage points - between 1999 and 2003.
- Measured in proportionate terms, however, the rate in the high unemployment wards has risen from 3.4 to 3.5 times the Scottish average.

It is important to see improvements in the proportionate gap over time as, if unemployment rises, the absolute gap may simply open up again.

**Chart 27: Claimant Count Unemployment Rate (%) for Scotland and in 10% of Wards with Highest Claimant Count Rates, 1999 and 2004**



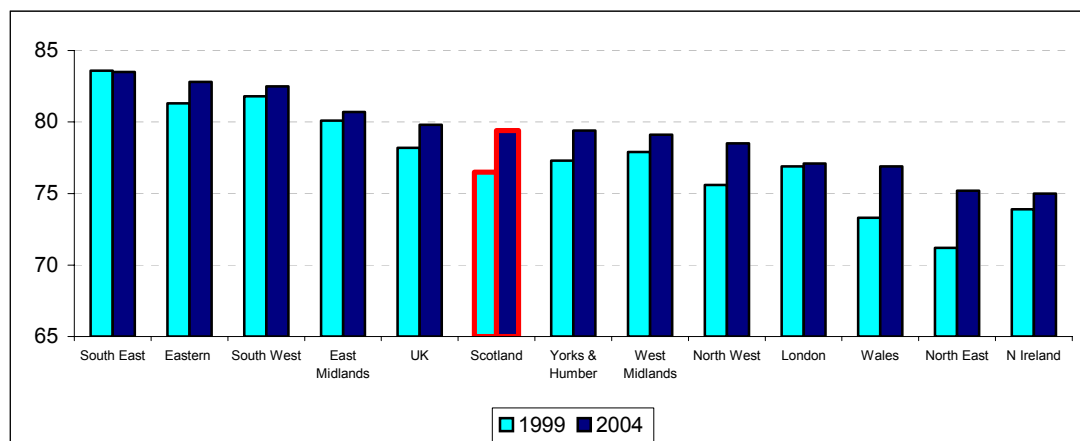
Source: Scottish Executive (2005)

### Working Age People in Education, Employment or Training (EET)

This measure is the positive specification of the NEET concept applied to 16-19s.

- In 2004, Scotland was sixth of the 12 UK regions with 79.4% actively engaged in education, employment or training. Scotland moved up from 8<sup>th</sup> place in 1999. The South East has the highest proportion at 83.5%.
- To achieve the UK average, Scotland's numbers engaged actively in education, employment and training would need to rise by 0.5%.

**Chart 28: Proportion of Working Age People in Education, Employment or Training, 1999 and 2004**



Source: Labour Force Survey; Annual Population Survey

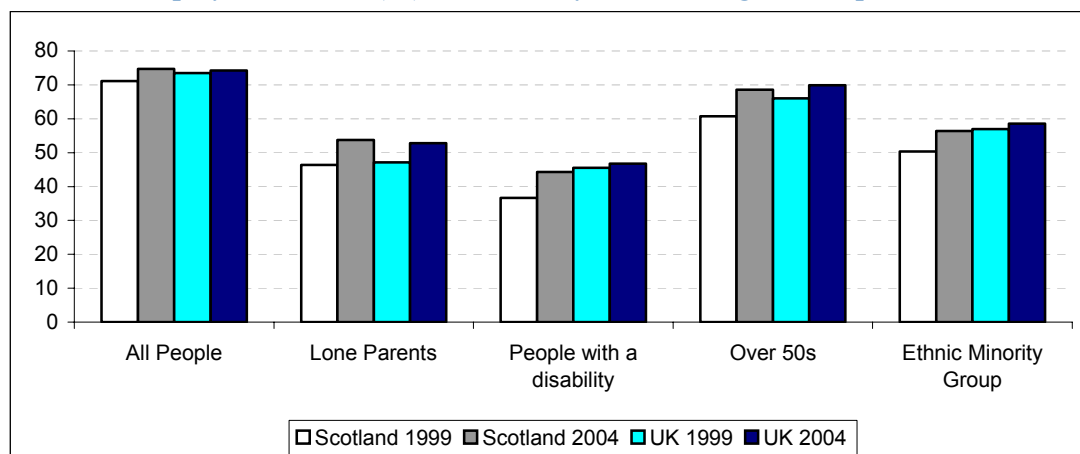
### Employment Rates of Relatively Disadvantaged Groups

There is significant variation in employment rates across different groups of the population. This creates potential to tap under-utilised labour supply resources.

- Employment rates in Scotland rose overall from 71.1% to 74.7% between 1999 and 2004.
- Employment rates rose much more significantly for specific disadvantaged groups:
  - Over 50s, up from 60.7% to 68.6%.
  - Ethnic minorities, up from 50.3% to 56.4%.
  - Lone parents, up from 46.4% to 53.7%.
  - People with a disability, up from 36.6% to 44.3%.

These figures show clearly a significant narrowing of the gap, and inspection of the chart shows that this is much more marked in Scotland than in the UK as a whole.

**Chart 29: Employment Rates (%) of Relatively Disadvantaged Groups, 1999 and 2004**



Source: Labour Force Survey; Annual Population Survey

### Summary Position

- The gap between the poorest and the average areas has closed in absolute terms, but widened slightly in relative terms.
- Scotland's performance is average in relation to working age people engaged in education, employment and training.
- Employment rates have risen significantly among disadvantaged groups compared to the overall average increase.

### 13. IMPROVING DEMAND FOR HIGH QUALITY IN-WORK TRAINING

#### Impacts and Indicators

At any one time, the great majority of the potential workforce is employed. To raise the skills of the workforce and Scotland's global competitiveness there needs to be substantial investment in the training of employees. The key indicators here are as follows.

- Proportion of those in employment undertaking training
- Organisations accredited as Investors in People
- Demand for learning to enhance transferable skills

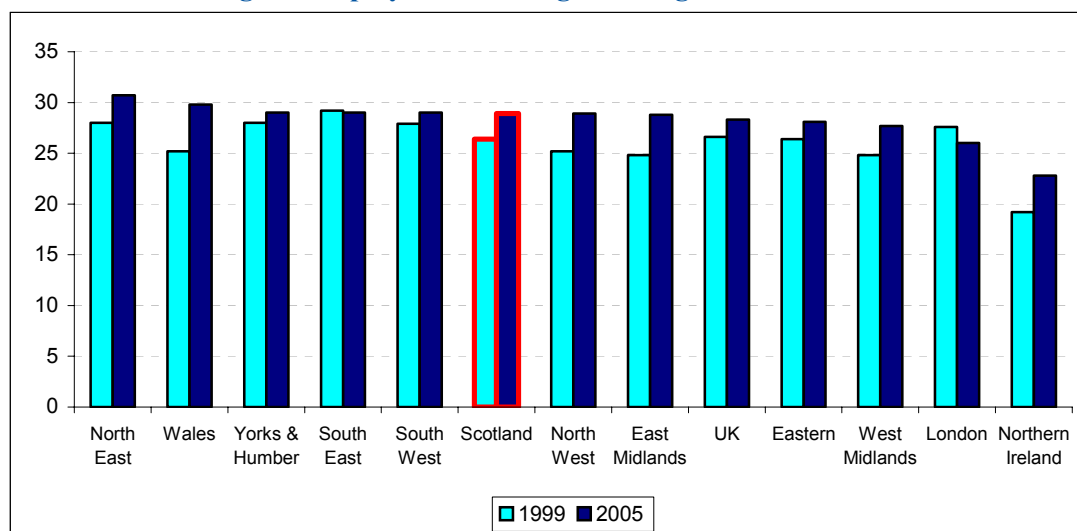
#### Proportion of Employees in Training

A slightly different measure enables comparisons to be drawn with other UK regions, covering a 13 week period. In 2005:

- Scotland is sixth of the 12 regions in terms of the percentage of employees undertaking training;
- Scotland's proportion (28.9%) is above the UK average of 28.3%.

Since 1999, the proportion of employees undertaking training rose by 9.5% in Scotland relative to 6.4% for the UK.

**Chart 30: Percentage of Employees Receiving Training in Last 13 Weeks, 1999 and 2005**



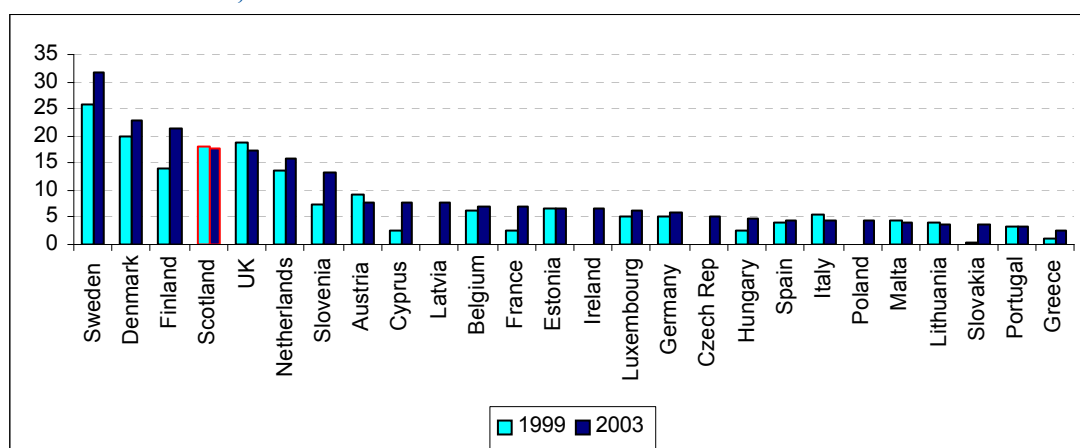
Source: Labour Force Survey

Although no OECD comparator data is available, Scotland can be benchmarked against the EU economies.

- Scotland is in the top quartile of EU economies for education and training for adults, maintaining the ranking held in 1999.
- 17.6% of adults were engaged in education or training in the four weeks prior to survey compared to the EU average of 7.9%.
- In part, Scotland's strong performance is a UK-wide phenomenon, The UK figure for adult learning participation is 17.5%.

Between 1999 and 2003, Scotland's proportion of adults in learning dipped slightly, by 2%. For the UK, the fall was 6%.

**Chart 31: Percentage of Adults (25-64) Participating in Education and Training in Last 4 Weeks, 1999 and 2003**



Source: Eurostat

Note: Data for Malta and Slovenia compare 2000 and 2003.

### Investors in People Accredited Employers

Investors in People is a national standard for the management of an organisation's human resources. To be accredited as Investors in People, organisations are externally assessed, and re-assessed.

- Scotland's 2.6% of employers accredited puts it second top of the GB regional league table, and well above the GB average of 1.9%.
- In terms of employee coverage by Investors in People accredited organisations, however, Scotland is second bottom of the league table, with only 19.1% of employees covered relative to the GB average of 26.8%.

### Demand for Learning to Enhance Transferable Core Skills

The demand for learning to enhance transferable skills should be one of the key drivers for Scotland's lifelong learning effort, and will feed through into workforce competitiveness. Learning participation and interventions proxy this. The NIACE studies show that:

- In terms of the current/recent proportion in learning in 2005, Scotland is at the bottom of the regional league table, but ranks higher on future intentions. Scotland's 36% currently or recently engaged compares with the UK average of 42% and 47% in the top region, the South West.
- Scotland's ranking on current/recent participation fell from 10<sup>th</sup> to 12<sup>th</sup> between 2003 and 2005.

The sample sizes on which the regional percentages are based are relatively modest, and so the results need to be treated with some caution.

### Summary Position

- Scotland is in the top quartile of EU economies for education and training for its employees, but is only a little better than average in the UK context.
- Although Scotland ranks high among UK regions in terms of the proportion of organisations accredited as Investors in People, the number of employees covered is towards the bottom of the regional league table.
- Scotland is towards the bottom of the UK regional league table for current and recent participation in learning among the working age population.

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ISBN 0-7559-4887-4

