

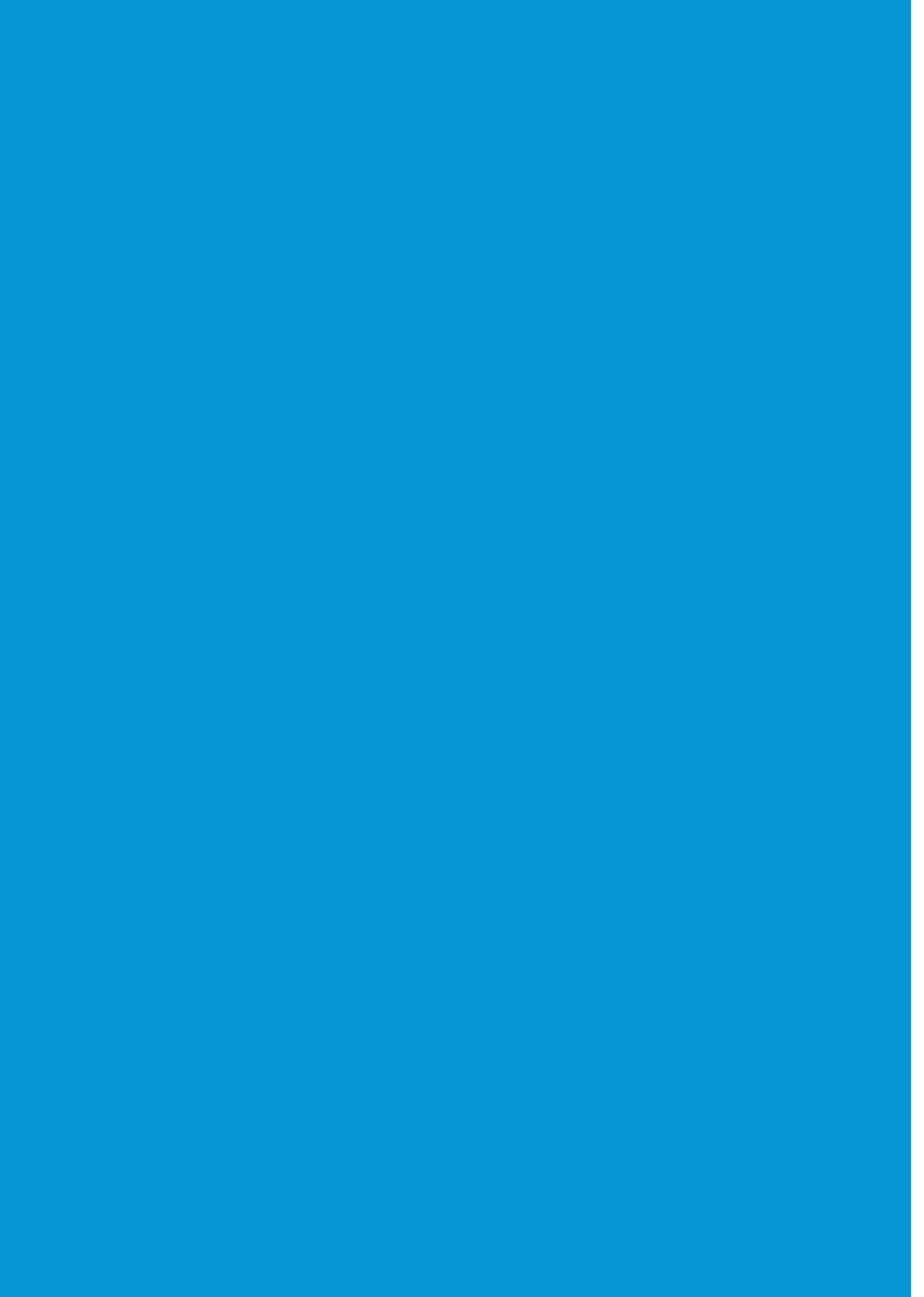


Making Every Penny Count

Efficiency and effectiveness in Scottish higher education

Highlights:

- Scottish universities achieved a total factor productivity of 3.1 per cent over the last ten years.
- When compared with other OECD countries, Scotland's productivity is significantly better than the OECD average.
- Higher education has improved its productivity faster than any other public service in Scotland in recent years.
- Scotland produces more academic papers and citations per 10,000 of the population than any other country in the world.
- Scotland ranks first in the world for the number of academic papers produced and is the second most frequently cited country per \$1million spent.
- Scottish universities are more efficient in knowledge transfer than the top US universities.
- Measures of teaching quality in Scottish universities have steadily increased over the last ten years.
- The proportion of students completing their higher education study in Scotland is amongst the highest in the world.



Introduction

Scotland's universities are generally regarded as efficient and effective institutions of high quality. This report attempts to benchmark Scottish universities against a number of comparators to help assess the level of quality, effectiveness and efficiency.

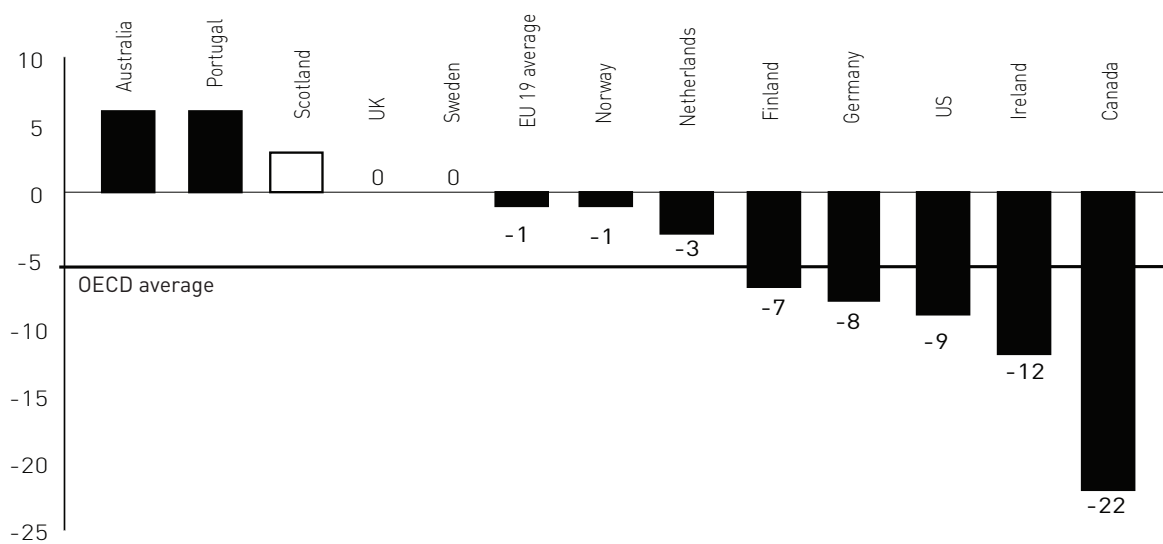
Efficient use of public money

Universities Scotland commissioned a statistician to assess the total factor productivity (the measure of how effectively an organisation uses its human and financial resources) of the Scottish higher education sector over the last ten years. The result was:

3.1 per cent total factor productivity

This compares well with other OECD countries (note the basis of the calculations of the other countries is slightly different but nevertheless gives an indication of relative performance. Scotland is also considerably above the OECD average).

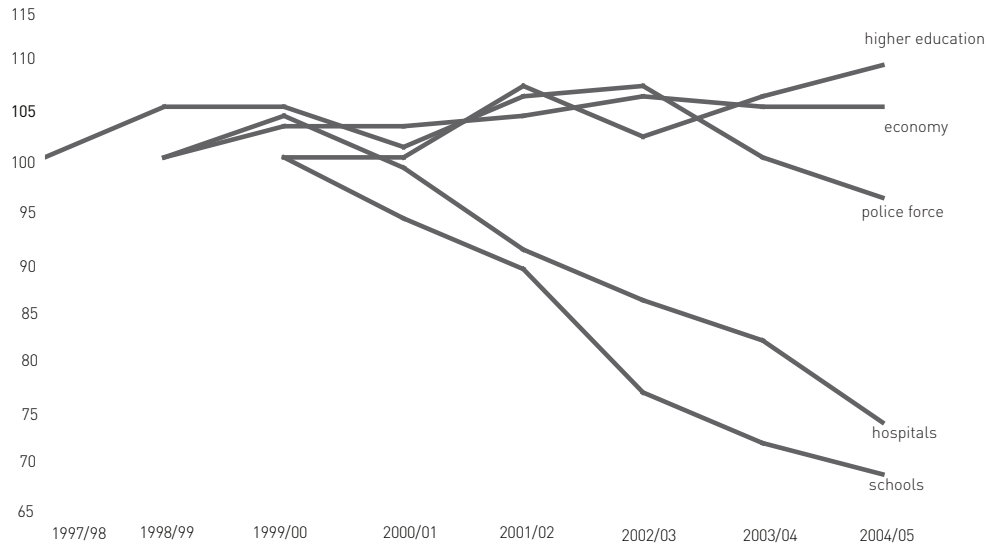
Figure 1: Comparative productivity of higher education in OECD countries 1995-2004 (relative to zero)



Source: OECD

It is also important to show how productive higher education has been when compared to other public services. The following graph has been produced using methodologies from the Office of National Statistics.

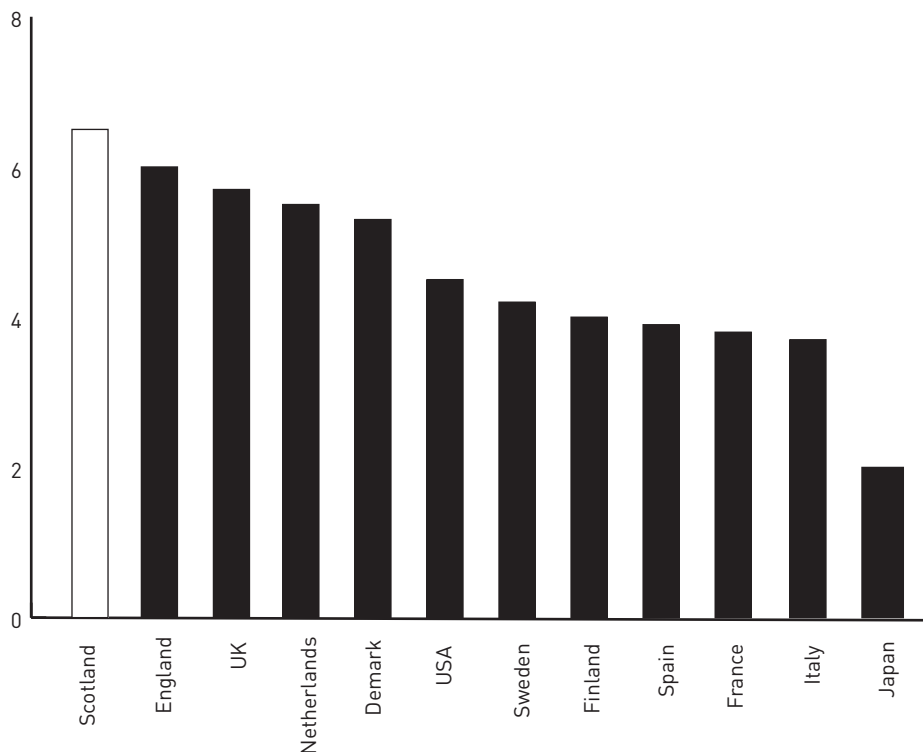
Figure 2: Productivity of Scotland's public services



Source: Scottish Government and HESA Resources

Looking at research, if we compare the number of academic papers produced per \$1million spent on higher education research we can see that Scotland is particularly efficient.

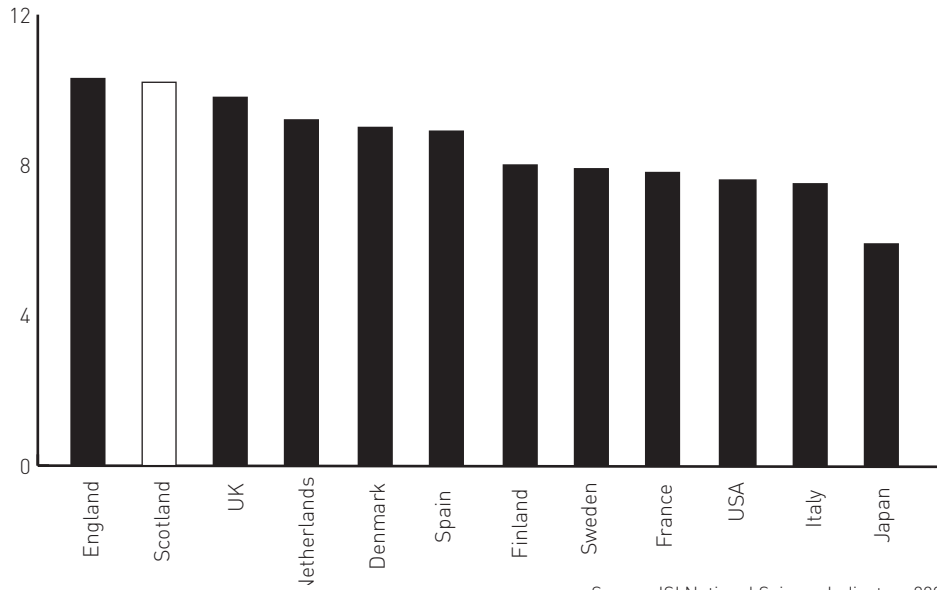
Figure 3: Academic papers per \$1 million spent on higher education



Source: ISI National Science Indicators 2005

Scotland also compares well when we look at the number of citations produced per \$1 million. A citation is a measure of how influential a piece of research has been among the academic community and is therefore a good measure of quality.

Figure 4: Citations per \$1 million spent on research



The final area we looked at is the sector's performance in knowledge transfer. In this we compare ourselves with the world leaders, the USA. The following graphs show that, when it comes to producing spin-outs, licences, disclosures and patents Scotland's eight research intensive universities get more value per \$150 million invested than even the top 11 US universities.

Figure 5: Number of disclosures per \$150 million sponsored research

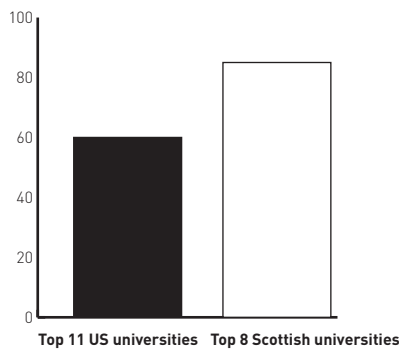


Figure 6: Number licences per \$150 million sponsored research

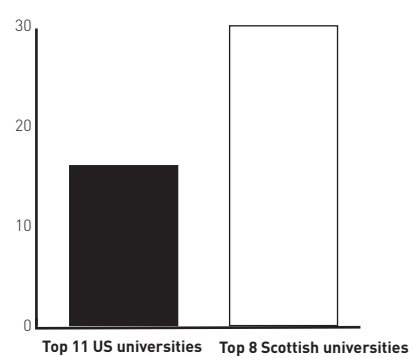


Figure 7: Number of spin-outs per \$150 million sponsored research

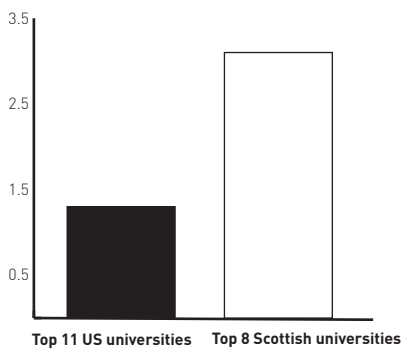
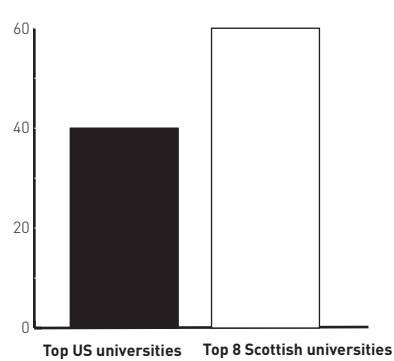


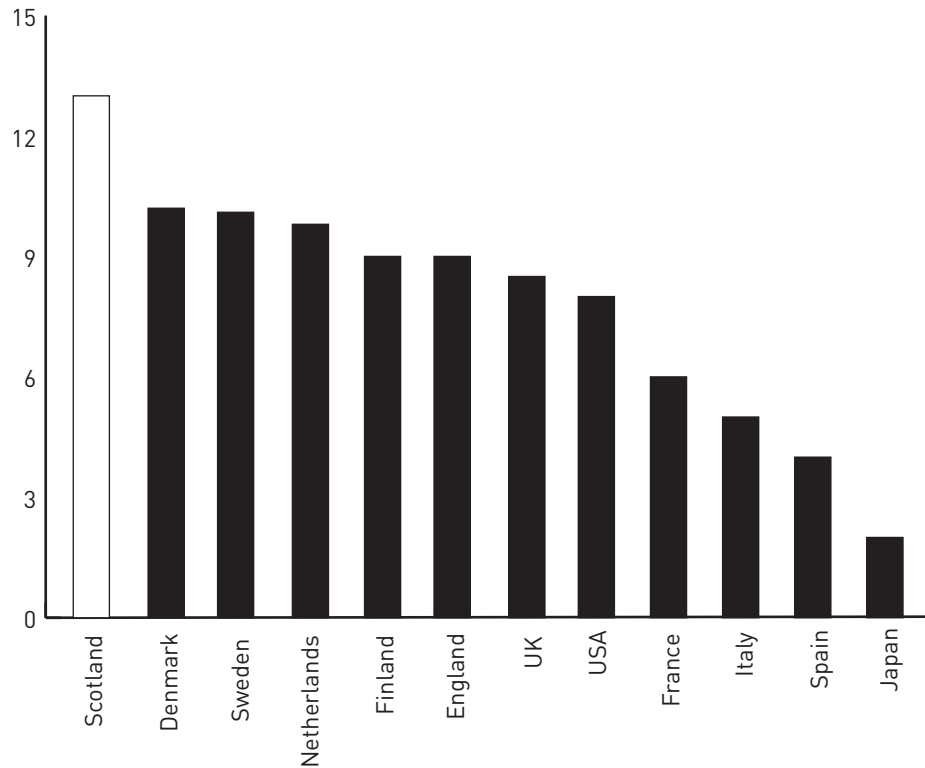
Figure 8: Number of patents per \$150 million sponsored research



Effective use of public money

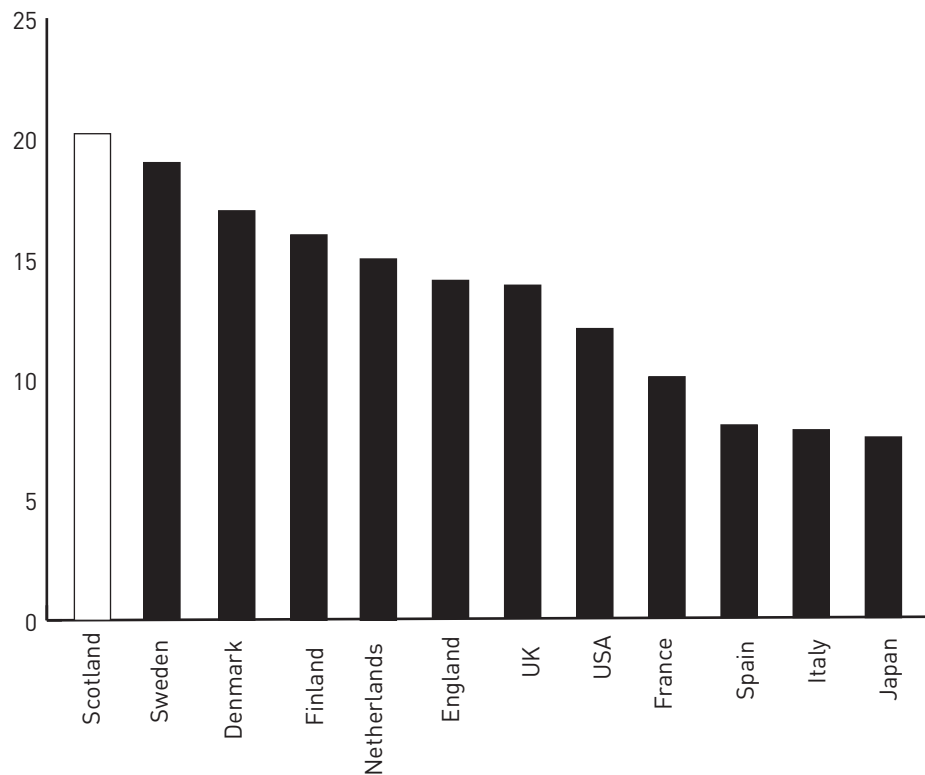
Similarly, our research would mean nothing if it was of poor quality. As can be seen from the graphs below, not only do we get good value for the investment made in Scottish research, we get high quality for our expenditure as well. It is useful to compare the number of academic papers produced with the size of the country and the number of citations. This illustrates that, as a nation, Scotland is remarkably productive in high-quality research

Figure 9: Academic papers produced per 10,000 population



Source: ISI Thomson Science Indicators 2005

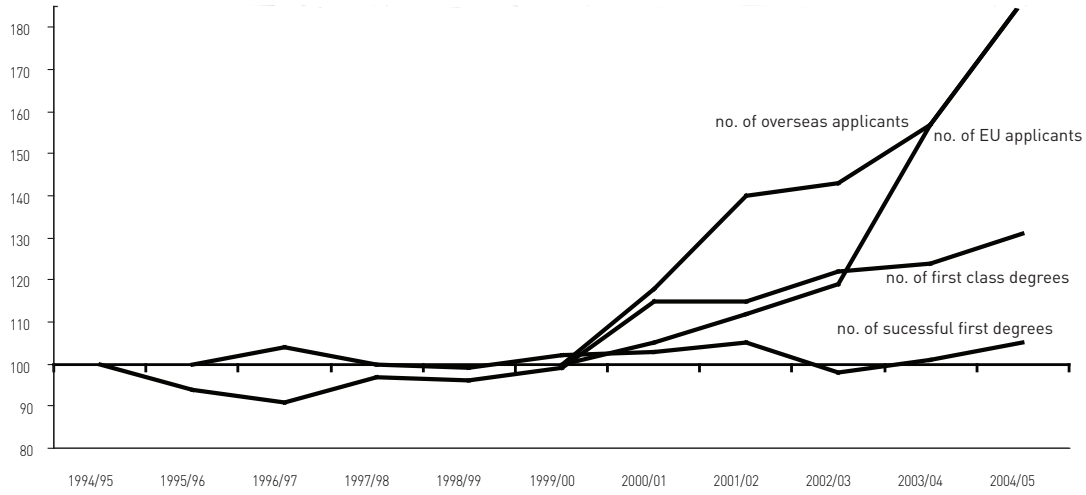
Figure 10: Number of citations per 10,000 population



Source: ISI Thomson Science Indicators 2005

Quality of teaching is also important. The next graph selects four measures of the performance of the higher education sector over ten years which give an indication of teaching quality. Those are the number of overseas and EU students applying to study in Scotland, the number of first class degrees and the number of successful first degrees. As we can see, there has been a significant improvement in all four measures.

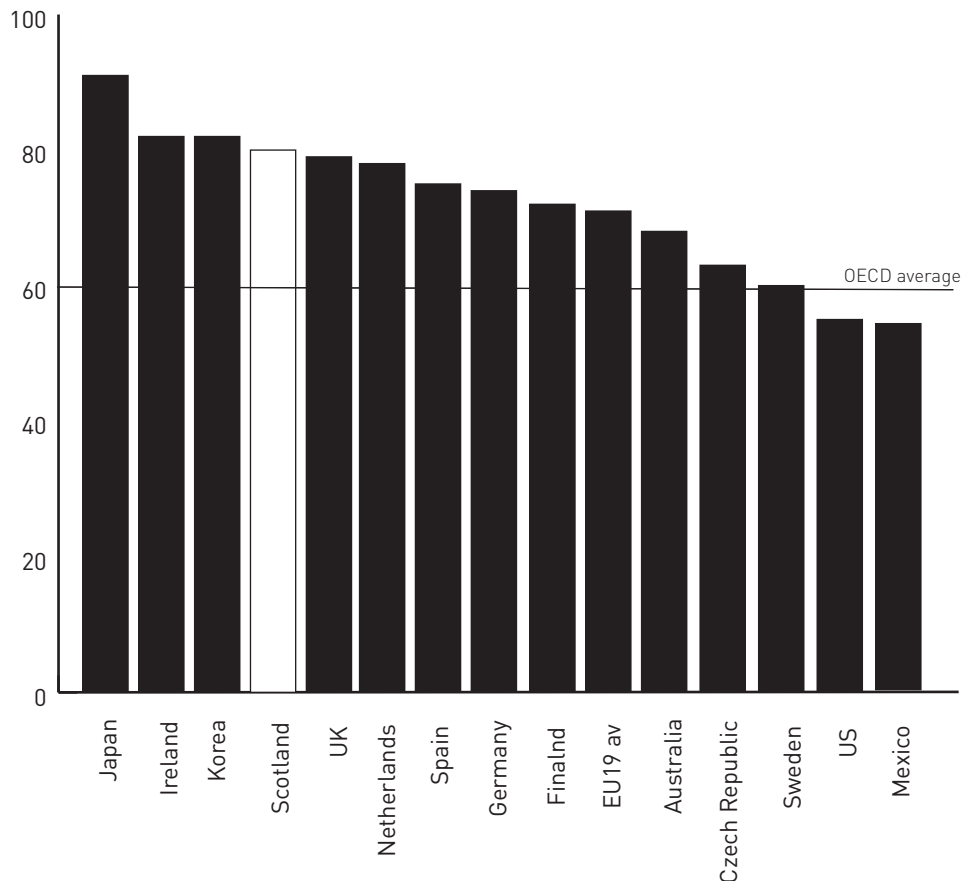
Figure 11: Quality measures of teaching in Scottish universities 1994-2005



Source: HESA and UCAS

The higher education sector in Scotland prides itself on the support and guidance provided to students throughout their time at university. The graph below illustrates that Scotland has one of the highest percentage rates of students completing their course throughout Europe and is well about the OECD average.

Figure 12: Percentage of higher education students that complete higher education courses in 2004



Source: OECD and Scottish Government

