Since the global financial crisis hit in 2008, economists have been wondering how great a role ‘knowledge’ should play in national economies. Most agree it is critical, yet hard to quantify.

Jonathan Haskel, Professor of Economics at Imperial College Business School, explains that knowledge is inherently difficult to measure. ‘When I buy a cup of coffee or a laptop or a table we can clearly see that in the records of a company,’ he says. ‘But with knowledge it’s different. It’s not necessarily something a company buys or sells, so we have to do detective work to find its economic footprint.’

For much of the past century economic growth was driven by investment in solid objects; machines like combine harvesters, that allowed a single worker to augment their output. Today, some products of innovation such as improved computer algorithms or training plans are far more intangible and consequently difficult for economists to quantify.

It’s also not obvious which kinds of knowledge drive economic growth most effectively. In 2010, NESTA, a charity that funds innovation, asked Professor Haskel if he could work out a way to calculate the contribution of different types of knowledge to the economy. NESTA was convinced that investment by firms in areas such as the training of personnel and good design contributed to growth. They also wanted to know, however, if the huge government expenditure on scientific research also bolstered the national purse?

To answer these questions Professor Haskel first had to investigate what proportion of private sector companies’ productivity depends on knowledge. He could then compare this figure with the amount of public sector research going on, and see if the two were linked. If they were, it would provide evidence that public sector research spending fuels private sector growth.

To address the first part of the challenge, Professor Haskel gathered 20 years’ worth of data from various surveys tracking down how much money companies and institutions had made from different types of knowledge. In some cases the researchers ran new surveys to measure companies’ knowledge spending habits. Professor Haskel and his colleagues used a measurement that economists
call Multiple Factor Productivity (MFP). This divides the productivity of a company by not only the number of workers it employs but also the other assets that increase productivity, such as machines. This was the first version of MFP to separate out the contribution of intangible assets, like training and research, alongside tangible ones, like machines and computers.

Armed with this knowledge of how the private sector invests in knowledge, Professor Haskel then moved on to the second part of the question – does government spending on research feed into private sector growth?

Professor Haskel and his team looked at three ways that public money is spent on research. They first investigated research conducted by the Ministry of Defence and the Civil Service. Both of these government departments do applied research to solve specific problems. They then looked separately at research that is funded by the seven UK research councils. These bodies fund research proposals from university academics, selected by peer review. The research they fund is generally more open-ended than the defence or civil work.

In a report for NESTA entitled Investing in Innovation, Professor Haskel and colleagues showed that there is a correlation between public spending on research, but interestingly, only when the money is routed to universities via the Research Councils. For both defence and civil research spending there was no correlation with the calculated MFP index.

‘This suggests that the best way for governments to invest in knowledge is through the Research Councils,’ says Professor Haskel. ‘There are caveats though; this does not mean that other types of spending don’t contribute to growth, just that this particular analysis didn’t show evidence for it.’

This was welcome news for scientists who have long claimed that so-called ‘blue-sky’ research is valuable to the economy. Professor Haskel had provided some solid evidence to show this is the case; not only was the evidence there, it was seen by the right people. ‘When we had finished our study we placed the working paper on a discrete website where we share research across the College,’ says Professor Haskel. Even though the work was not formally published, it caught the attention of David Willets, the Minister for Universities and Science. In July 2010, soon after the paper had been posted, Mr Willets cited it as evidence that ‘government backing for research does make economic sense,’ in a speech to the Royal Institution. Later that year the coalition announced that, despite the drastic cuts to other government expenses, the budget for UK research councils would be frozen. The benefits of research can hardly be called intangible any longer.

Article by Josh Howgego

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