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Ten Big Questions for Higher Education

*Craig Holmes, Ken Mayhew and Ewart Keep
SKOPE, University of Oxford and Cardiff University*

Summary

The dominant assumptions about the UK higher education (HE) system are simple: graduates earn more than non-graduates, graduates have skills that make them more productive and HE is a key driver of economic growth and international competitiveness. These assumptions logically lead to a simple policy prescription: encourage young people to go to university. The Coalition government has scrapped the target of a 50 per cent participation rate and shifted a larger share of the cost onto students, but remains reliant on HE as a mechanism for raising incomes, improving social mobility and boosting productivity. This Issues Paper sets out what we consider to be the important questions for HE. For all of these questions, there is an answer which fits neatly with the story set out above. However, for all of these answers there is either a long history of academic research which directly challenges them or a notable absence of research. This paper aims to stimulate more open-minded debate.

The Questions

1. Does going to university make students more productive in the labour market?

Graduates earn more than non-graduates; a recent official estimate is that graduate average lifetime earnings are £104,000 more than the earnings of those who left education with two A-Levels (BIS 2011). Wages are usually taken as a proxy for productivity, which implies that graduates are more productive, on average, than non-graduates. One explanation is that graduates develop productivity-enhancing skills while at university which are paid a premium when they enter the labour market. However, this assumes that the only important

differences between graduates and non-graduates, other than the amount of education they have received, are observable and can be accounted for in the same calculation. Yet it seems reasonable that those young people who continue to HE have higher levels of cognitive skills as well as other traits that make them more valuable to employers. For example, the most common UCAS tariff score for those going to university is 360, while for those not going it is 240 (Thompson 2012). Therefore, differences in productivity may reflect something that existed before they entered university. Having a degree is one way of signalling this difference to employers (and receiving appropriate pay offers), but in this case it would not be the cause.

Such differences between individuals may upwardly bias any estimate of the causal effect of HE on earnings but, although this issue has generated a huge empirical literature (see Wolf 2002, for an overview), it is not even discussed in the most recent BIS estimates.

2. Are jobs which have recently tended to recruit graduates better paying, regardless of who does them?

The simplest way of thinking about degrees as a mechanism for signalling some prior difference in productive ability is that, in any job, employers can separate out graduates from non-graduates, and pay different wages reflecting the perceived difference in productivity. However, we rarely see graduates and non-graduates evenly distributed between all types of jobs. An alternative hypothesis is that jobs and occupations also vary in their potential productivity and, therefore, the wages associated with them. This



potential productivity reflects elements of a job's design, for example some jobs may make more effective use of new technology or allow greater autonomy. If employers are keen to attract graduates, then degree holders will sensibly accept offers from these higher paying jobs, meaning non-graduates end up working in other, lower productivity, lower wage occupations.

In some circumstances, a graduate is uniquely suited for particular jobs (for example, someone without degree level chemistry would probably be unable to work in a pharmaceutical company's research department). However, this is not always the case. Therefore, some of the observed difference in earnings of graduates and non-graduates reflects the types of jobs the two groups have access to, rather than the causal impact of a degree on productivity.

In addition, some new graduates may be the type of students who would, in an earlier era, have left school at 18 and entered good, non-graduate jobs. However, as participation in HE has increased, they now go to university. Employers recognise this and begin to hire graduates for their formerly non-graduate positions. This still leads to a gap in observed earnings between graduate and non-graduates, but one that results from higher-paying non-graduate jobs becoming 'graduated', rather than because being a graduate led to higher productivity and earnings.

The implication is that it is difficult to learn anything from the enormous rate-of-return literature about the effects of university attendance on productivity. That said, it is quite reasonable for an individual to be interested in the private financial benefits of going to university, regardless of whether this effect is causally connected to productivity increases or simply reflects labour market sorting. What is often forgotten is that the existence of a private benefit is not, of itself, justification for state involvement. However, graduates may generate wider social benefits.

3. Do graduates raise the productivity of those they work with?

A firm that employs graduates may be more productive than one that does not for two reasons. One reason is linked to the extra productivity of the graduates. The second relates to the potential 'spillover' effects that may result because non-graduates learn and improve in their jobs by working in close proximity to more educated colleagues. Graduates may also possess greater organisational or leadership skills which means that firms get more from all of their employees.

These arguments seem plausible. However, attempts to measure the size of any spillover effects are relatively rare. This literature focuses exclusively on the effect on wages of non-graduates in cities or regions with different levels of average educational attainment. This raises two issues similar to those mentioned above.

First, there may be unobservable productivity differences between non-graduate workers who live in areas with low numbers of graduates and those that live in areas with high numbers. Second, cities with higher overall wage levels and a greater proportion of high wage firms (regardless of the educational attainment of the population) may be more attractive to mobile graduate workers. Consequently, any causal relationship between wages and average education levels may go in the opposite direction.

In general, the research that exists does not offer resounding support for the existence of spillovers. For example, Morretti (2004) finds positive effects on non-graduate earnings from increases in the average level of education in the local labour market, while Rudd (2000) and Ciccone and Peri, (2006) do not. It should be noted that the literature focuses almost entirely on the US, so even if the results were more conclusive, they might not be relevant for the UK.

4. Does having more graduates make society function better?

The benefits of HE in terms of improved productivity is just one of the supposed advantages. It is often argued that more educated workers benefit society in ways that are less easy to quantify. Graduates tend to be healthier, less likely to be involved in crime, more engaged in community and civic activities and more likely to have stable family lives. The main issue to consider is whether, as with higher earnings, these average patterns are causally related to participating in HE. For example, educational attainment and health may both be affected by the extent to which people think about the future. Similarly, those who go to university may have, on average, a lower propensity to commit a crime. Moreover, all of these social benefits may follow on from whatever link there is between education and income, higher earning households are more able to afford gym memberships or have time to be involved with community groups.

5. Does increasing graduate numbers lead to faster economic growth or is it the other way around?

An extension of the view that higher wages reflect higher levels of productivity is that more graduates in the labour market should (everything else being equal) increase national output. However, if graduates are more productive regardless of their education, this suggests a very limited relationship between graduate share and national output. Evidence on the nature of the link between educational attainment and rates of economic growth has been widely debated, but there appears to be a significant number of studies that find that increases in the level of educational attainment are associated with higher growth rates (Krueger and Lindahl 2001, Hanuschek and Wößmann 2007).

However, most of the literature is concerned with primary and secondary schooling.

Wolf (2002) offers a sceptical take on the link between education and growth. First, she highlights countries which have had similar expansions of education numbers over the past three decades, yet very different experiences of economic development (for example, Egypt and South Korea). If HE does have an effect on growth rates, it is a necessary but not a sufficient condition. Second, Wolf points out that any correlation between economic growth and graduate numbers is potentially causally related in the 'opposite' direction if education is somewhat of a luxury good and richer countries choose to spend more on it. Unfortunately, untangling the direction of effect in cross-country data may be almost impossible.

6. Can HE ever be a source of permanently higher economic growth rates?

If increasing educational attainment levels has a positive effect on productivity (and hence raises national output), this increase in growth rates will only last as long as better educated young workers are replacing less educated older workers. Therefore, when the proportion of graduates in the population stabilises, growth rates should fall back as new graduates simply replace like-for-like in the labour market.

This point is rarely noted, instead, the typical view is that investing in HE raises growth rates. Lucas (1988) gives a model of economic development where long-run growth rates are directly related to investments in human capital. To achieve this, investing in HE must add to a stock of knowledge (the 'state-of-the-art'), a public good, and grow without limit. This view of human capital is very different to one which considers only productive skills, these cannot grow without limit as they are possessed by a single person and an individual can only learn so much. Anyone arguing that investment in HE leads to higher long-run economic growth needs to explain how learning on undergraduate courses can feed into this wider definition of human capital.

7. Does the volume of graduates in the labour market have a positive impact on innovation?

The level of technology in an economy is also considered as a productivity-enhancing public good. Hence, there are overlaps between it and the definition of human capital that includes state-of-the-art knowledge, with the former including the capabilities of physical capital (such as increased computerisation) and the latter capturing expertise over the best processes and procedures for workers to follow. However, the distinction is not clear-cut, and it makes sense to think about the two moving together. For example, the development of a new machine may require the development of new work procedures.

Other growth researchers have explicitly focused on the role of the research and development (R&D) sector (Aghion and Howitt 2005). Economies have to divert resources and workers to this sector in order to improve the level of technology available. Universities can contribute through their own research activities whilst supplying the highly trained scientists and engineers needed for technological innovation. Again, answering this question means understanding the mechanics. Increasing the number of scientists (if there are sufficient jobs which use their talents) is likely to quicken the rate of innovation. On the other hand, a large increase in the number of law graduates is not likely to have any effect.

8. What should a degree programme look like?

One concern is that throughout the expansion of university education, the dominant model remains one of three-year full-time programmes. Survey evidence (Bekhradnia *et al* 2006) reports that the average UK student spends 26 hours per week on study activities, a figure which is lower in some subject areas (social studies, business, mass communications) and which exhibits a great deal of variation across institutions. If the input requirements of the skill production process vary to such an extent, then an argument could be made on efficiency grounds for encouraging shorter, cheaper courses in some cases.

Similarly, HE courses may be taught in a variety of ways, ranging from one-on-one tutorials and supervisions, to seminars and practical classes, through to lectures for several hundred students. Different methods have different costs, and produce skills and knowledge in different ways. Are higher cost methods of teaching worth it, and do different methods of teaching substitute or complement each other?

9. Are universities always the best way of supplying skilled workers to the labour market?

Is it possible for some of the skills produced by universities to be produced more efficiently elsewhere? The rapid growth of the sector led to an increase in the number of institutions offering traditional academic courses and a move towards degree-level programmes in areas where training and education were previously more vocational. There is also some evidence that newer universities have created occupationally relevant degrees linked closely to the training needs of employers in certain sectors (Chillas 2010).

In recent years some jobs, such as nursing, have become graduate-only. Moreover, some jobs have become graduate jobs almost by default, with so many graduates applying that non-graduates do not have a chance. The presumption in the UK is that graduates are more skilled and perform better in occupations where alternative routes still exist or previously existed.

This relies on two assumptions. First, that a large HE sector is the only way to produce a high skill, high productivity workforce. In contrast, other countries (such as Germany) have shown that high quality apprenticeships can also achieve impressive outcomes, with a very different burden of costs. Even if graduates are more highly skilled and productive than other labour market entrants, it is also necessary that the jobs that graduates are now entering can be adapted to take advantage of this. There is some evidence that this is not always the case (Mason 2002).

10. Given that HE institutions have many roles and finite resources, what balance is to be struck?

Most universities have a number of roles, and undergraduate teaching for young people is only one of the ways the sector may benefit individuals in the labour market and the economy as a whole. Teaching in universities also includes sub-degree, post-graduate and research degree courses, continuing professional development and assorted lifelong learning courses. Resources are also spent on research activities, including general academic research and applied research for potentially commercial use.

The optimum mix depends on the benefits and costs of each role. For example, a greater focus on research may come at the expense of teaching effectiveness – the trade-off is between greater skill development and the potential for innovation. Answers to the previous questions feed directly into any evaluation of the tradeoffs. If undergraduate degrees are a signal of prior ability or if vocational pathways are more cost effective pathways into certain jobs, then a shift away from those activities carries relatively low costs for society.

Errors and Omissions

This Issues Paper has set out ten important questions for HE. We know there are many others. For one thing, we explicitly talk about HE as if developing skills and generating growth is its sole purpose. Policymakers often appear to do the same, but in reality there are plenty of other purposes which are ignored in this paper. There is a second, more serious omission; answers. This is deliberate. In almost all cases, the available evidence is either mixed or absent, yet these are issues that are often presented as if the facts are known, cast-iron and universal. This is an error that becomes more serious as HE is reformed. New policies, which have potentially long-term consequences and are not easily undone, are being introduced on the basis of best-case scenarios, selective reading or even blind faith. We could finish in traditional academic manner by calling for further research and, in some cases, more could be done. However, a more realistic and honest interpretation of what we already know is also necessary.

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