Measuring the worth of a university degree

By Robin Naylor and Jeremy Smith

Has the dramatic rise in the number of students attending university led to a fall in the graduate earnings premium?

DOES IT PAY to get a degree? The short answer, based on evidence for the UK, is: "Yes." The raw median earnings differential between graduates and non-graduates who left school with GCSEs or A-levels is about 35 percent. Estimates of the average graduate earnings premium are in the range of 15 percent to 20 percent, after the inclusion of controls for factors such as university course and institution and limiting the comparison to a more similar peer group, those with at least two or more A-levels.

A more informative answer is: "It depends." The graduate earnings premium varies widely depending on the subject studied, the higher education institution attended, family background, gender, prior qualifications and degree class awarded. For some, a degree brings huge returns. For others, returns are likely to be very low or, potentially, even negative.

Directly or indirectly, individual decisions about whether to invest in a university education will be informed by perceptions of likely returns. It is therefore important that evidence-based information is available to young people and their families. Detailed information on the distribution of the earnings premium for a university education is important for making decisions on university finance, evaluating funding arrangements, and understanding the nature of the impact of higher education on dimensions of inter-generational socio-economic mobility. This is particularly true at a time when a greater number of young people than ever before are pursuing a university education, and, as a result, the relevance of evidence on outcomes of graduates from previous cohorts is fading. For these reasons, the questions surrounding the "worth" of a university degree continue to be the subject of analysis, and key researchers in this field are issuing a cri de cœur for relevant UK agencies to allow more forensic use of, and linkages among, key data sources that are crucial to understanding the earnings premia associated with a university degree, and with certain degree classes.

Variations in the graduate earnings premium

To set the scene, let's first consider variations for earlier cohorts. Blundell et al. (2000) provide estimates for the cohort born in 1958, when roughly 14 percent attended university. Relying on UK National Child Development Study data, which are rich in information on cognitive and other ability measures, they estimate that by age 33, the earnings premium for a degree is 17 percent for men and 37 percent for women.

Does earning a "first" or a "second" make a difference to graduate earnings?

But by the late 1980s, things changed. The number of students expanded dramatically, with university participation more than doubling to over 30 percent by the mid-1990s, and with women more likely than men to pursue a university education. Meanwhile, political leaders increasingly began to urge greater participation in higher education. For example, within one week of becoming Prime Minister in 2007, Gordon Brown announced a target of 50 percent of young people pursuing higher education by 2010.

Our recent research with Shqiponja Telhaj examines the question of the earnings premium associated with a university degree for a generation of young people born in the 1970s and who came of age just as student numbers were beginning to take off. We find that the graduate earnings premium for men in this cohort remained broadly unchanged at roughly 17 percent. Meanwhile, the premium for women fell to be essentially the same as that for men. This is perhaps not surprising; the participation rate for men had not changed substantially, while female participation had been rising substantially relative to the 1958 birth cohort.

Did dramatic increases in student numbers affect the graduate pay premium?

An obvious question is whether the dramatic expansion of student numbers through the early 1990s led this earnings premium to fall. Walker and Zhu (2008) investigate this using UK Labour Force Survey data with which they construct birth cohorts and examine whether estimates of the graduate earnings premium change over cohorts immediately before and straight after expansion. Perhaps surprisingly, they find that, at least for men, the premium continued to be broadly constant across these cohorts on average, though with a rise in the premium for the top quartile of male graduates. They explain the constancy as resulting from an approximate balance between the forces of increased relative graduate supply and skill-biased technical change that increased relative demand. Consistent with this interpretation, Blundell et al. (2016) report that increases in university attendance have not been associated with substantial decline in graduates' wages relative to those of school leavers with at least GCSEs but without degrees. This also holds true through the post-2007 period of recession. Their explanation for the long-term constancy observed to date is similar to that of Walker and Zhu, but focuses on how firms have responded to a rising supply of graduates by adopting more decentralised organisational structures which tend to favour more highly skilled workers. ▶

Variations by subject studied, institution, gender and family background

Britton et al. (2016) turn to other factors that might affect the graduate earnings premium for the group of students entering university from the late 1990s, the period after the most dramatic expansion. They examine gender, family background, the higher education institution attended, and the subject studied. The great innovation of this paper is the use of high-quality earnings data from Her Majesty's Revenue and Customs (HMRC) matched to student record data from the Higher Education Statistics Agency (HESA). They find huge variations in graduate earnings, even between graduates attending the same institution and registered for the same degree subject, though much of the variation can be attributed to differences in student characteristics. Economics and Medicine emerge as high-earning outliers relative to all other subjects. Graduates' family backgrounds also have a large influence on outcomes beyond graduation, with those from higher-income backgrounds receiving on average 10 percent higher earnings than those from lower-income backgrounds, after taking account of observed student characteristics, subject studied, and the institution attended.

For graduates from similar cohorts, our work in 2002 had similarly found earnings to be greater for those from higher social-class backgrounds, based on full-population student records data containing very precise information on prior qualifications and other personal, university, course and school characteristics, though with more limited data on earnings. We also found that, on average, graduates who had attended independent schools prior to university received earnings significantly greater than their peers from local education authority schools, other things equal. Intriguingly, we found that the estimated independent school earnings premium among graduates increases with school fees but has no association with measures of school-level academic performance.

Does degree class matter for graduate pay?

Estimates of returns to education tend to measure education either by years of schooling or by the highest level of qualification attained (for example, GCSE, A-level, bachelor's degree, etc). There is surprisingly little analysis of how returns vary by the level of academic performance (for example, GCSE or A-level grades or the graduate's grade point average). Yet students in the UK commonly perceive that post-university career prospects depend on the class of degree they achieve. In our recent research, we investigate the extent to which graduate returns vary by degree class, and how this variation has evolved over time as higher education has expanded. We find that prior to expansion, there was no substantial additional premium for those graduates who had achieved a first or an upper-second class honours degree relative to those awarded lower classes. However, as the number of workers with degrees has expanded, so has the earnings premium associated with a good degree class.

Better understanding of what determines the relative value of a university degree could lead to lead to insights about the impact of higher education on inter-generational socio-economic mobility.

The Figure shows how graduate earnings became increasingly sensitive to the class of degree awarded over time as university attendance rates increased. Relative to the default case of an upper-second, the premium for a first-class degree was less than 1 percent for 1985 graduates, but rose to 4 percent for the 1993 cohort. Perhaps more strikingly, the span in earnings between graduates with a first and those with a third-class degree widened from 4 percent to 12 percent over these graduate cohorts. This phenomenon surfaced even though the proportion of good degrees awarded was also increasing. It can be viewed as consistent with a job market in which, intuitively, the value of a good degree increases as a higher proportion of the cohort obtains a degree. For those graduating after the take-off in university attendance, we estimate that the overall graduate earnings premium of about 15 percent (relative to non-graduates with at least two A-levels) represents an average of an estimated premium of a little less than 20 percent associated with a good degree, and of a little over 10 percent for a lower degree class. That is, as a ballpark figure, a good degree can almost double your graduate premium. Of course, this is very unlikely to be a causal effect – although it's worth noting that the estimates come from birth cohort data rich in ability and background characteristics. Feng and Graetz (2017) attempt to identify the causal impact of degree class on earnings by comparing earnings of those who fall either side of a degree class boundary. They find that degree classes affect wages, earnings, and the likelihood that graduates work in a high-wage industry.

In current work with Gianna Boero, we are adopting a similar approach to examine how degree classes enter into the picture for a full population of students from a particular UK university. The key issue concerns whether the achievement of a first-class degree, say, conveys a signal of ability to employers, thereby yielding an earnings premium relative to

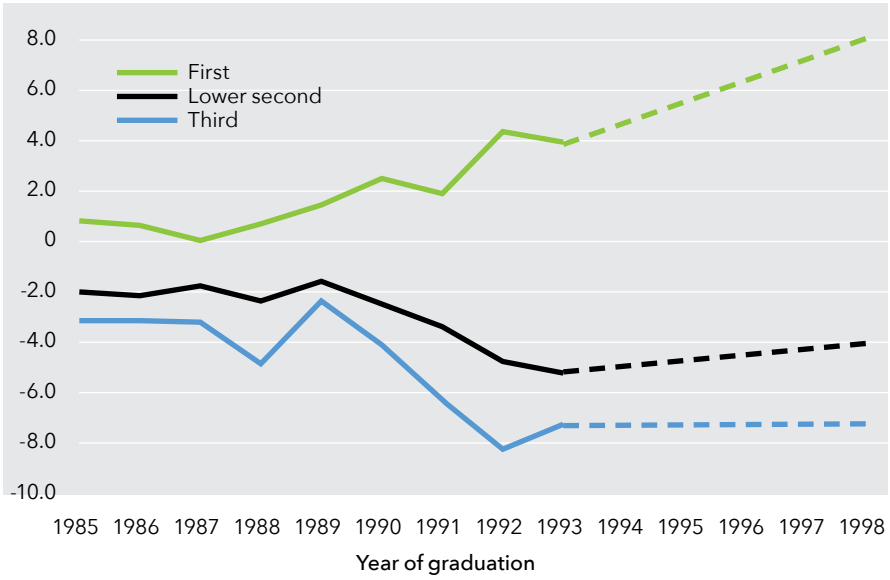
Better access to and linkages among key UK and university data sources would allow researchers to conduct more rigorous analysis.

an upper-second. A causal effect can be established only if the data include information on the graduates' underlying marks, enabling us both to control for any effects of marks on earnings and to identify students close to degree-class boundaries. Our preliminary results suggest that only for science students is there evidence that class of degree itself has an impact on subsequent earnings over and above the effects of students' underlying marks.

Future research

Better understanding of the forces that affect the earnings premium associated with a university degree would enhance public policy. We echo the appeal of Britton et al. (2016) in their call for permissions to be granted to link data available data from various key sources (the Higher Education Statistics Agency, the National Pupil Database, and Her Majesty's Revenue and Customs). This would enable much more rigorous analysis of variations around the average earnings premium associated with a university degree, and would equip researchers with better measures of prior qualifications and background characteristics. In addition, HMRC data could be linked to detailed student record data (such as students' examination marks), which are held at the individual institution, but are not part of the centralised records. This would enhance current research on the causal impact of factors such as degree class awarded on graduate earnings). ◀

Figure 1: The figure shows trends over graduate cohorts in the earnings premia for different classes of degree, relative to the default case of an upper second, based on estimates reported in Naylor, Smith and Telhaj (2016).



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The Authors

Robin Naylor is a Professor of Economics at the University of Warwick and a research associate of Centre for Competitive Advantage in the Global Economy. Jeremy Smith is a Professor of Economics and Head of Department of Economics at the University of Warwick.

Publications Details

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