HE Update
Longitudinal Education Outcomes (LEO) data
June 2017

Background

The Department for Education has released graduate employment and salary information analysed by university and by course. This Longitudinal Education Outcomes (LEO) data was compiled by linking tax, benefits and student loans information, and relates to the 2014/15 tax year to 5 April 2015. 2012-13, 2010-11 and 2008-09 graduates were used, meaning the data shows outcomes one, three and five years after graduation respectively.

Until now, the main source of data for employment and earnings following higher education has been the Destinations of Leavers from Higher Education (DLHE) survey. Universities are required to return this survey annually, gathering information for graduates six months after they have graduated. Other differences between the DLHE and LEO are as follows:

- The DLHE is a survey based on graduates' reported outcomes, whereas LEO is based on HMRC tax data for all graduates working or claiming benefits in the UK.

- The DLHE employment measure is based on a graduate's status on a single day, whereas to be counted in LEO graduates must have sustained employment over a six-month period.

- DLHE earnings figures are usually based on those in full-time paid employment, whereas LEO does not distinguish between full-time and part-time paid employment.

- Self-employed earnings are not included in LEO, however they are in the DLHE survey.

This is the first full release of data of this nature, and as such, it should be treated with due care.

Analysis

Before providing analysis of the data, it is important to note that the LEO data is extremely complex, and requires several caveats. Firstly, the LEO publication does not include graduates who went on to forge careers outside of the UK, postgraduate students or those who had an earlier first degree. The data details raw salary information by institution and subject. Although contextual information about other factors likely to influence employment and earnings outcomes (prior educational attainment and social background) is available, it is, as yet, somewhat limited.

Furthermore, regional differences in pay can be pronounced within the UK. The data does not attempt to overcome regional distortions. In addition, the data does not show the movement of graduates between subject and industry. For example, while many Nursing graduates would be expected to go onto work as a nurse, the same cannot be said for, say, Geography students.

Finally, alongside the obvious time-lag, the data is not adjusted for inflation, and so year-to-year comparisons should take this into account.

Now, onto our guarded analysis:

The first, somewhat worrying, conclusion that can be drawn from the data is the severity of the gender pay gap. In particular, for all subjects except English Studies, male median earnings are greater than female median earnings for graduates of most institutions. Of the twenty three subjects in the data, twelve see male earnings exceed female earnings for graduates of three out of every four institutions. The pay gap is apparent just one year after graduation, and subsequently widens in many cases.

The gender gap is particularly interesting for nursing graduates, 90% of whom are female. Yet after one year, male graduates are generally likely to earn more, *see Figure 1*. As can be seen from the graph, not all institutions have enough male graduates to allow comparison.
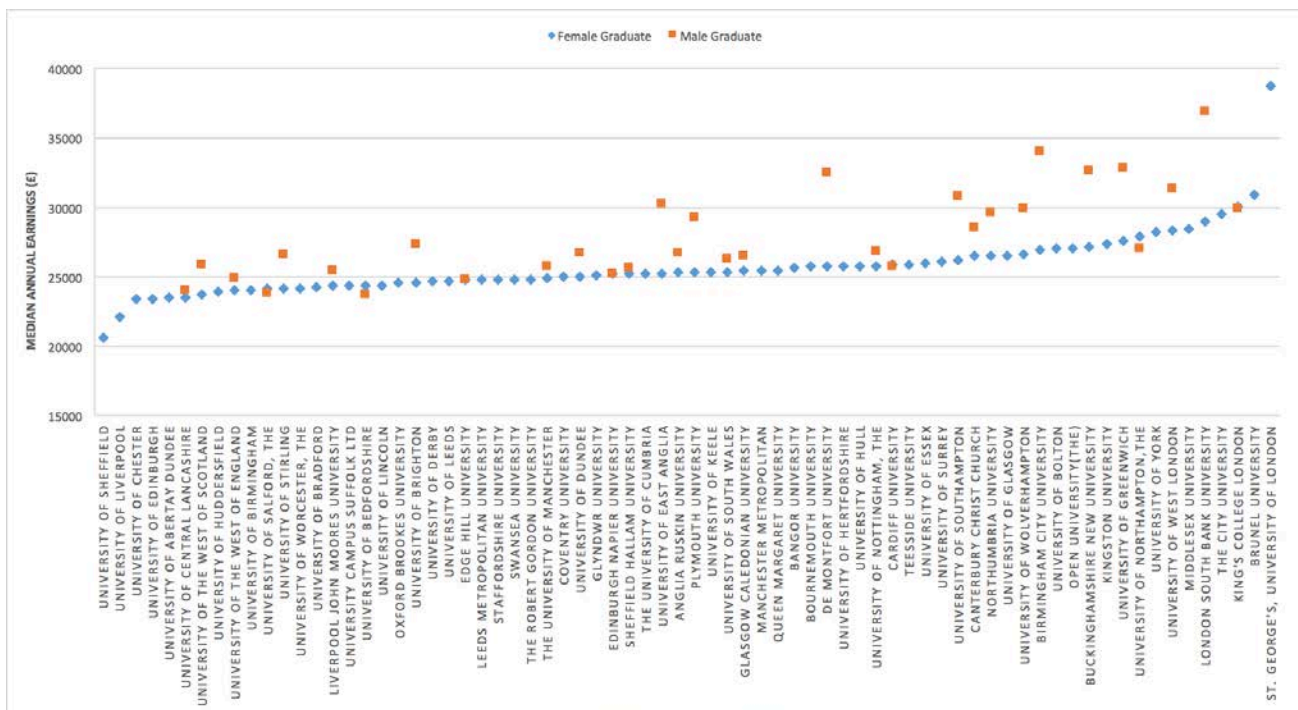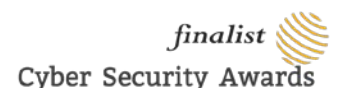

Figure 1: Comparison of median annual earnings between male and female graduates, one year after graduating

Another interesting comparison can be made of salaries by subject, five years after graduation; *see Figure 2 (taken from the DfE analysis).* As might be expected, the courses that came out on top were generally Science, Technology, Engineering and Mathematics (STEM) subjects, with Arts and Humanities subjects tending to sit below.
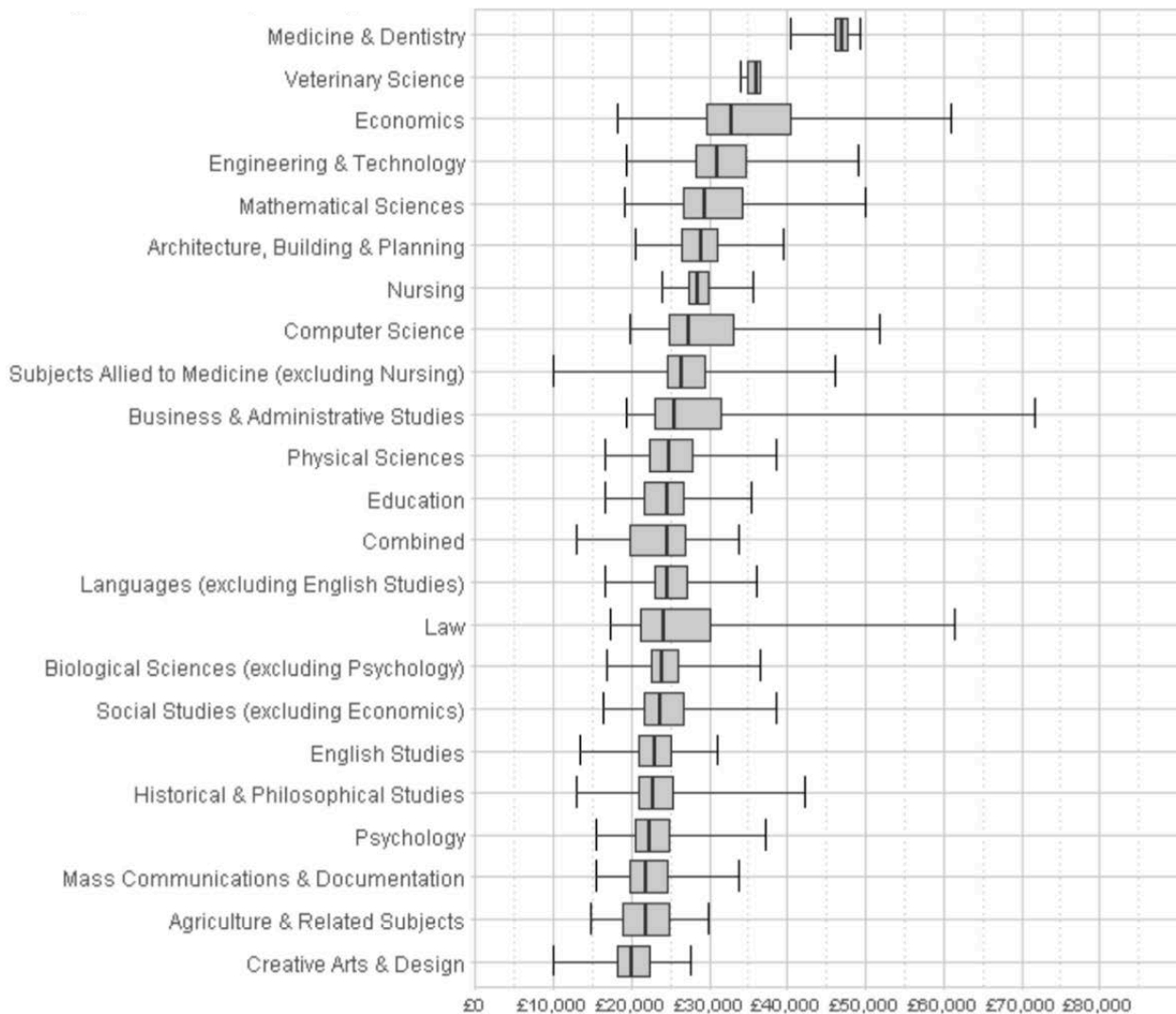

Figure 2: Distribution of mean annualised earnings across institutions for each subject area five years after graduation (minimum, lower quartile, median, upper quartile, maximum).

This is perhaps one interpretation of the current labour market's demands. However, there are interesting observations under this headline. Once medicine and veterinary sciences, both of which will have small number of graduates with unsurprisingly higher earnings in the early years after graduation, are removed from the analysis, economics graduates come out with the highest median earnings. Economics also has a high upper quartile and fairly wide range. These individuals graduated just after the 2008 financial crisis, and were perhaps able to benefit from the aftermath. Business studies and law's very high upper range and reasonable higher quartiles are also worthy of note – as is the fact that nursing has a higher median than, say, the physical sciences – albeit

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with a narrow range. The latter could be due to potential high earners in the physical sciences having continued in education following graduation (taking further taught or research programmes) so not being eligible for inclusion in this data.

It is perhaps important to note, however, that the LEO data does not include self-employed graduates. Many creative arts graduates may tend towards self-employment which may well be a factor that underpins, their lower median salary figure.

According to the Office for National Statistics, the median salary for all 25-29 year olds in work in 2014/15 was £20,800. Encouragingly the graph above shows that the median salaries for all but one subject exceeded this figure; which at the very least seems to suggest that young people are likely to be better off financially if they gain a degree.

Another statistic apparent from the data is the difference in salary between graduates of different institutions. Taking Law graduates five years after completing their studies, several conclusions can be made *(see Figure 3 below for a comparison of the top 50 institutions)*.
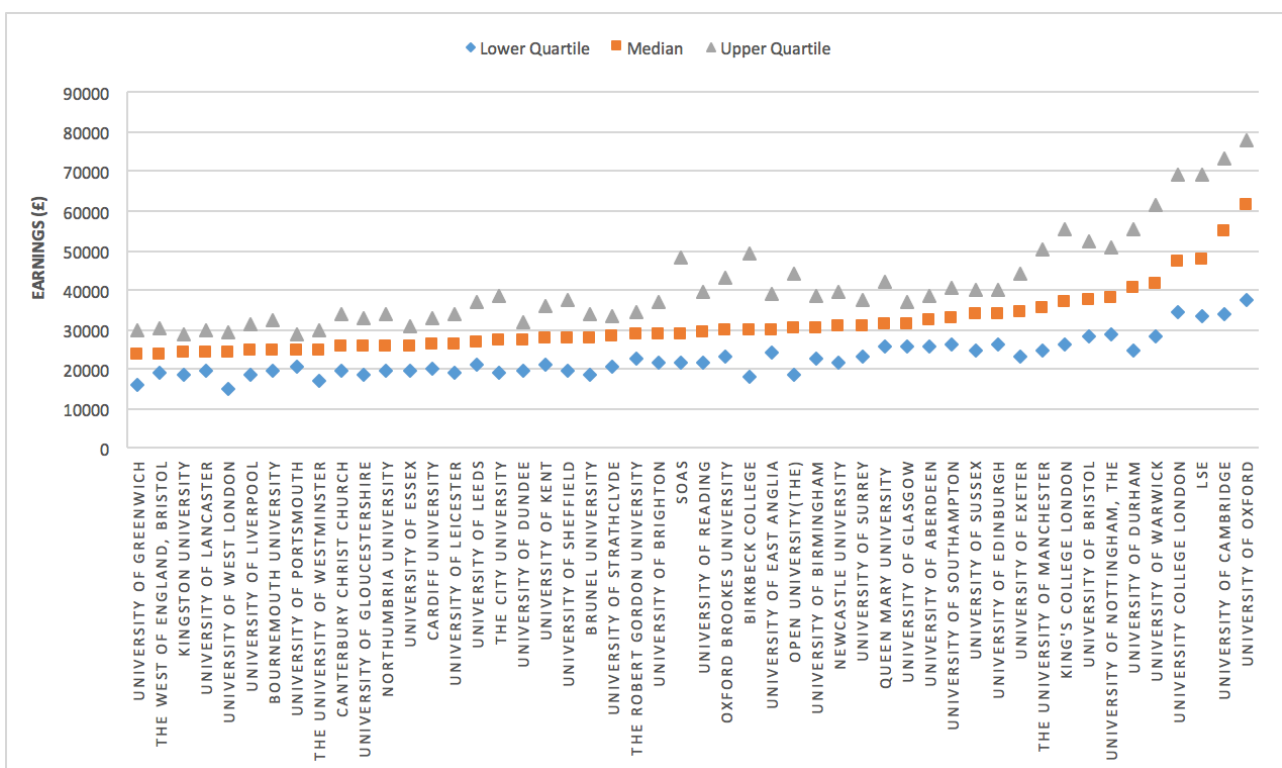

Figure 3: Comparison of Law graduates' earnings five years after graduating, male and female data combined

Firstly, it is clear that the perceived prestige of an institution seems to correlate with graduate earnings, throwing up some wide differences. The median annual salary for University of Oxford graduates is 1.5 times that of University of Durham graduates who sit 6th in the list. Oxford's lower quartile figure exceeds the upper quartile figure of the 16th institution on the list. There are also significant variances within some institutions' graduates as well. The inter-quartile range (upper

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quartile – lower quartile) for the University of Oxford is just over £40,000; a significant difference within just five years of graduation.

One slightly peculiar result that appears from the data regards the difference in annual salary between years within certain institutions and subjects. For example, mathematical sciences students from Cardiff University were recorded as earning more three years after graduating than five years after graduating, *see Figure 4.* The number of years after graduating for each gender category is in brackets. As previously mentioned, inflation has not been factored into the data. However, the differences in earnings still seem bizarre, even with inflation accounted for. Figure 5 gives the breakdown between the years in question, with a shift of around £5,000 seemingly apparent between the two cohorts. With no disparity in the number of graduates used in the data, it is unclear exactly why this is the case. As mentioned above, there are likely to be many factors in the background that are influencing this data. Alternatively, it could of course suggest that the data can be unreliable.
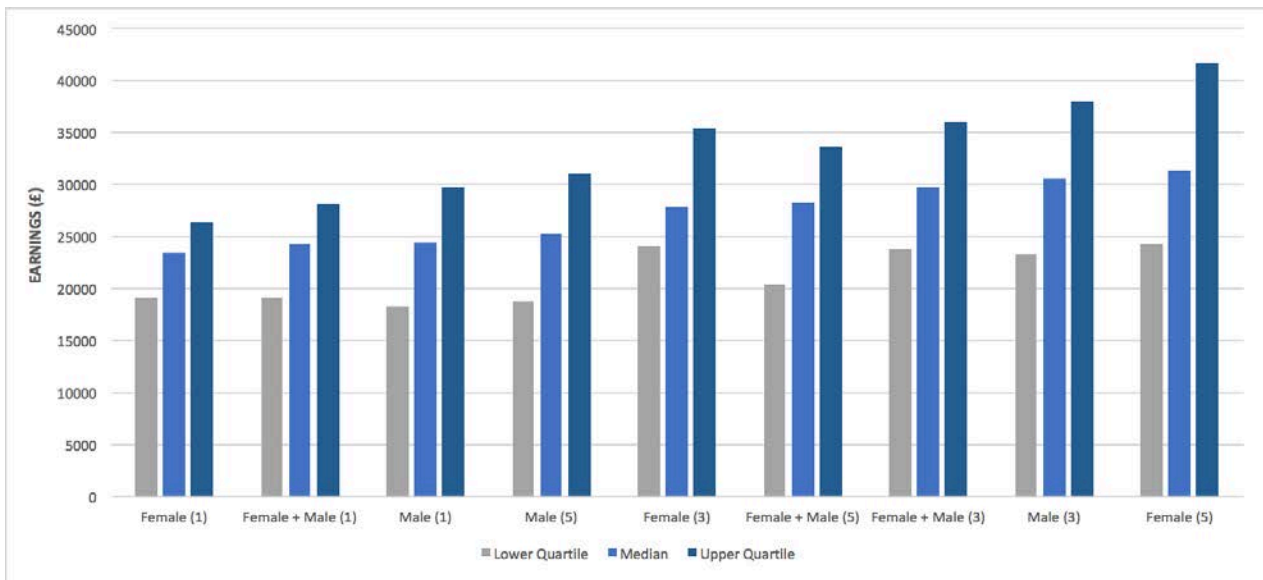

Figure 4: Comparison between the years of Cardiff University mathematical sciences graduate

Gender (years after graduating)	Earnings (£)		
	Lower Quartile	Median	Upper Quartile
Male (3)	23,300	30,500	38,000
Male (5)	18,800	25,200	31,000
Difference	4,500	5,300	7,000
Female + Male (3)	23,800	29,700	36,000
Female + Male (5)	20,400	28,300	33,700
Difference	3,400	1,400	2,300

Figure 5: Table outlining the differences in years of Cardiff University mathematical sciences graduates' earnings across the years.
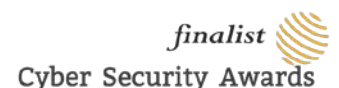
Our final piece of analysis to be mentioned is rather controversial and should be treated with extreme caution, bearing all the above caveats in mind. Wonkhe pulled together a so-called LEO League Table, carefully expressed, ranking institutions based on the LEO data. The top 10 was as follows:

1. The London School of Economics and Political Science
2. Imperial College of Science, Technology and Medicine
3. University of Oxford
4. St. George's Hospital Medical School
5. University of Cambridge
6. University College London
7. King's College London
8. The University of Warwick
9. University of Bristol
10. The University of Bath

Wonkhe state: "*Without taking into account coding discrepancies, region, ethnicity, gender, subject balance and many other well documented issues, such a table would be almost meaningless. It would be used to rank institutions unfairly and without the nuanced understanding that a representation of each institution and their unique role within the graduate economy would be.*"

It remains to be seen who else will attempt to produce a League Table such as this one, how it will be used, and the effect it may have.

Conclusions

With lots of variables, caveats and complexities, it is difficult to accurately state how well this data represents the outlook for graduates across the UK. A number of hypotheses are attached to this initial analysis, and that is currently all they are - proposed explanations made on the basis of limited evidence. There are however clear patterns that are emerging from the data, as discussed, as we are sure there are many more to come.

The release of this data will most likely elicit some important questions. What will the implications be on prospective students' decisions? What will the implications be on institutions' recruitment decisions? And perhaps the most interesting of them all: will readers of the data use it sensibly?

The data also poses some challenging questions for UK employers: more than forty years after the enactment of equal pay legislation why is there still a marked gender difference for new entrants to the workforce? Employers also need to ask themselves whether they really base their selection decisions based on graduate skills and abilities, or whether they are blinded, at least in part, by particular universities' reputations. Depressingly, the data suggests that UK employers have some distance to go in showing that they hire and reward based on genuine merit.

Whilst this data giving an insight into the destinations of graduates, it could pose some very challenging policy and reputational questions. As more data is collected, and a time series is built up over a number of years, analyses based on the date will become more useful and reliable and the significance of some of the trends will be capable of being assessed.

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In today's political climate, it is undoubtedly one way to add scrutiny to the economic value of a degree.

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