A flaky signal? A critical analysis of UK degree classification schemes

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Despite degree class being a commonly used criterion in job adverts in the graduate labour market, universities across the UK employ different rules to assign degree classes. I present evidence from examining LSE student records that shows different degree classification rules lead to different degree classes being awarded in a large number of cases. I also show that degree classes are not a stable indicator of performance, with more than a quarter of students at risk of seeing their degree class change after a minor change in performance in one exam. Furthermore, I replicate findings that identify a positive effect of obtaining a first class degree on the probability of working in a high wage industry, using a more robust estimation strategy. Tests to ascertain, whether changes in the classification rules itself change the value of obtaining a degree class, are inconclusive.

I therefore recommend a more detailed review of the rationale behind the LSE's degree classification rules and its implications for the labour market outcomes of LSE graduates.

Degree classifications serve as a double-edged sword. At best, they summarise information about students' academic performance in a way that is easily understood and consistent across different universities. At worst, degree classes oversimplify graduates' academic performance and obscure relevant information on students' performance in particular subjects.

Degree classifications are neither consistently awarded across UK institutions...

Whilst degree classes are intended to be a consistent measure of a graduate's performance, the rules on how degree classes in the UK are assigned are anything but consistent. LSE degree classification rules between 2005 and 2010 assigned degree classes by ranking the marks an undergraduate obtained in their eight second- and third-year courses plus their first year average mark. Graduates would be assigned a first class degree if their fifth highest (ie. median) mark was 70 or better or if they had at least four marks above 70 and a sufficiently high average mark. Meanwhile at Kings College, degree classes are decided based on a student's average performance across all their courses. But undergraduates have their average mark in effect "rounded up" if they perform strongly in their final year. A similar scheme is in place at University College London, which all but entirely assigns degree classes as a function of an undergraduate's average course mark. Despite each scheme awarding the same degree classes, their results vary wildly. Examining LSE student records covering the years 2005 to 2010, I find that 593 undergraduates would have obtained a first class degree under either the LSE classification rules or alternative classification rules that

award degree classes purely based on a student's median or average mark. Of those 593, only around half would have obtained the same degree class under each scheme. For the remainder, the administrative quirks of each scheme decided their degree class rather than their academic performance.

...nor are they a stable indicator of an undergraduate's academic performance

Even minor shocks to the exam performance of a student have significant effects on their eventual degree classification. Using LSE student records between 2005 and 2010 I run 1000 simulations of a shock to one randomly selected course mark and recalculate the student's degree classification. Since a number of LSE courses are graded by a single exam, the simulated shock is comparable to a student encountering one unusually easy or difficult question in one of their exams.

I find that under the LSE rules on average 5% of students are assigned a different degree as a result of a single shock. As much as 29% of students in total are at risk of seeing their degree class change after a single unexpected exam question. Classification rules that consider only the median course mark come with a slightly higher overall probability of a degree class change. However, the proportion of students at risk of having their degree class changed by a minor shock is lower. A classification rule based on the average course mark does worse on both counts.

	Probability of any change in degree class	Proportion of students whose degree class changed at least once in 1000 simulations	Proportion of students whose degree class is vulnerable to shocks at all
Degree class determined by average mark	7.1%	58.2%	97.8%
Degree class determined by median mark	6.1%	22.4%	22.7%
LSE rules	5.2%	28.9%	38.5%

Degree classes are not a neutral summary statistic but have an effect of their own on a graduate's labour market outcomes. Regression Discontinuity Designs can estimate the value of a degree class by separating it from the effect of higher academic ability on labour market outcomes, if degree classes are awarded as good as random for a sufficiently large subset of students. The results above suggest there are indeed a large number of students for which this is the case.

A graduate's degree class is highly relevant for their future career

In a CEP discussion paper Andy Feng and Georg Graetz match LSE administrative data to data from the Destination of Leavers from Higher Education survey and estimate that

obtaining a first class degree raises the probability of employment in a high wage industry by thirteen percentage points.[1] However, their results are drawn from a linear regression model, which whilst providing a useful approximation, cannot give a consistent and unbiased estimate because probability models are inherently non-linear.

I test the robustness of their results by using a conditional logistic regression, which yields consistent estimates in the presence of fixed effects and a binary outcome variable. My results are largely in line with the results by Feng and Graetz. Obtaining a first class degree increases the probability of working in a high wage industry by around 70 percent. Notably the differential effect size by gender is even stronger than reported by Feng and Graetz, with virtually the entire effect driven by men.

Results from a similar regression using alternative classification schemes are inconclusive. The estimated value of a first class degree under a new set of rules may differ from previous estimates either if the new set of rules systematically changes the make-up of the group of "first class graduates" or if the newly defined first class degree itself has a different signalling benefit. Since I only have access to data on six cohorts of LSE students, I would not expect to pick up any such effects and indeed do not find any. However, it seems plausible that a study on student registers across different universities may find such differences.

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[1] Feng, A. and Graetz, G., "A Question of Degree: The Effects of Degree Class on Labor Market Outcomes", Centre for Economic Performance Discussion Paper No. 1221, 2015