The Value of University

BY CONOR WALSH

Centre for Policy Studies

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Acknowledgements

Many thanks to those who have reviewed and helped on this report, not least Tom Clougherty, Alex Morton, Robyn Staveley and Robert Colvile for his excellent editing. Any mistakes are, as ever, the author's own. Thanks also to the Institute for Policy Research for their support for this project.

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Executive Summary

The Problem

- The university sector has expanded hugely in recent decades. But quantity of students has been prioritised at the expense of quality of courses.
- The result is that many students are getting a bad deal. The Institute for Fiscal Studies estimates that approximately 20% of current undergraduates will be poorer as a result of choosing higher education; others are getting relatively trivial returns given the debt they are taking on.
- There is significant variation by course, subject and gender. Men who study Creative Arts, for example, on average earn £94,000 less over their lifetimes than if they'd not studied it.
- For the bottom 20 courses, according to the Office for Students, no more than a third of the cohort can expect to complete the course and go on into graduate employment.
- Our current system leaves students heavily indebted – the typical student debt in the UK is now £45,000, compared to £28,000 in America.
- It is also leaves the taxpayer out of pocket. Because universities are incentivised to maximise student numbers rather than outcomes, many students never earn enough to repay their debts. As a result, approximately 54% of the value of students loans is written off – the equivalent of an £8 billion a year loss.
- Our graduates have among the poorest literacy and numeracy skills in the developed world, yet we have among the largest university systems. Graduates with poor basic skills are unable to exploit their higher education in the labour market.
- This punishes poor students and ethnic minorities in particular, as they are more likely to end up doing courses that do little for their prospects, rather than degree apprenticeships or other technical alternatives.
- Only 20% of the expansion of the system in the years from 1995 occurred through an increase in the number of domestic students at Russell Group universities. And the expansion has not been concentrated in sectors that meet the needs of the economy – such as STEM, law, or economics – but across the board.
- As earnings and returns are correlated, the system targets subsidy at the least productive courses, and those subjects and institutions whose graduates earn the least. For example, Creative Arts receives the largest subsidy of any subject, at £1.2 billion. This works out as £37,000 per student, vs £11,000 for engineers.

The Solution

- Going to university is not just about increasing earnings. But it is clear there is a misalignment of risk and reward: as soon as a university fills a place, it receives a tuition fee, paid by the student using a government loan, whether or not that student ever repays the government or indeed makes any return on their education.
- The university thus only has an upside in expansion. The student is largely protected from the downside by the easy terms of the student loan, leaving the taxpayer bearing most of the risk.
- We propose instead that the government loan funding to the universities, and that they lend to their students; students would then repay their universities, which would repay the government. Government would state what proportion of the loan extended to the universities it expected to be repaid.
- Universities would then have to make repayment arrangements with their students that would achieve the repayment rate demanded by the government, based on the estimated lifetime earnings trajectory for their graduates.
- We imagine most universities would offer income-sharing repayment arrangements, i.e. an arrangement in which a proportion of the graduate's income was paid to the university for a given period of time, as with current repayments to government.
- We propose to cap the amount an individual student can be expected to repay, in order to prevent universities using a small number of high earners to subsidise the rest of the cohort. That would repeat the mistakes of the current system by luring school-leavers to low-earning, low-returning courses and away from more productive alternative education, training or employment.
- Nonetheless, an element of risk-sharing among the cohort will remain, both because it's efficient to pool risk even among high earners, and to enable the universities to continue to offer subjects outside the very high earning.
- In addition, we argue that the estimated economic return by course should be published on course advertising material and accessibly by the DfE.
- The ultimate aim should be to make the system self-financing by pruning those courses which are offering students the worst returns. Universities will be free to continue offering those courses, and students free to take them, but they will do so at their own risk.
- Our proposal recognises the value of education beyond the purely economic by leaving some room for high-earning graduates to subsidise low-earning graduates, in the easy terms of the loan the government will make to the universities, and by the continued charitable status that universities will benefit from.

- Where the government considers particular courses to be especially socially valuable, it can fund them directly using bursaries. Indeed, we propose to use approximately £1bn of the long-run savings to increase teaching grants in high-value, high cost subjects, including Engineering and Medicine, which are currently relatively under-funded.
- If the system could be made completely self-financing, it would result in an additional £7 billion in savings (we accept that this is unlikely in the short or medium term). But we would hope to free up at least an extra £2 billion that could be used to increase funding for technical education, to provide school-leavers with a productive alternative to university.
- Any remaining savings we propose should be invested in research and development, mostly as grant funding to university departments, to bolster our position as a global centre of high-end innovation. This would be channelled via the Advanced Research and Invention Agency (ARIA), a promising initiative whose current funding of £800 million across the parliament is inadequate given the task it has been set.
- The result of these measures would be to redirect our educational investment from low-productivity areas to high productivity areas – in other words, to incentivise the kind of training and education that will make both those individuals and the country richer in the long run.
- We believe it would also stimulate increasing diversity in the type of university courses on offer, such as cheaper, shorter, online, and part-time courses. We also urge reform of the regulation that prevents private providers from using income-sharing repayment arrangements, and thereby from competing against traditional higher education providers.

Introduction

The university system is one of our great national assets.

The UK is home to a significant proportion of the world's best universities, which produce world-leading research – not least the work that led to the Oxford-AstraZeneca vaccine for Covid-19. In the knowledge-based economy of the 21st century, the skills these institutions impart and value they generate provide our country with a priceless advantage.

At the same time, however, the university system in England – which is the focus of this paper, due to the different arrangements in the rest of the UK – has some severe problems. Since 1997, there has been an enormous expansion in the proportion of students going to university. It was argued that this would create a more highly skilled labour force and improve social mobility. But the question nobody appears to have asked was whether the school system was producing leavers able to take advantage of these opportunities – and whether the university system was offering courses that maximised their potential.

'The Institute for Fiscal Studies (IFS) estimates that approximately 20% of current undergraduates will be poorer as a result of going to university, not least because some 36% of graduates are in non-graduate jobs'

Going to university is about more than just getting a return on investment. Indeed, the current system was deliberately designed to include an element of subsidy, on the grounds that going to university is generally a good investment both for the individual and the state, and that the country benefits more from having a broad pool of students than a pure focus on maximising financial rewards.

That said, the evidence presented by this paper is very clear: that for too many students today, going to university is a very bad deal. Economically speaking, they will have studied courses that do little or nothing to improve their long-term earnings, or even reduce them; and the Government will end up swallowing the cost of a three-year university education that either did little to raise their lifetime earnings or, in extreme cases, actively reduced them.

The statistics are stark. The Institute for Fiscal Studies (IFS) estimates that approximately 20% of current undergraduates will be poorer as a result of going to university, not least because some 36% of graduates are in non-graduate jobs.[1]

1 Office for National Statistics, *Employed graduates in non-graduate roles, parts of the UK, 2015 to 2019.* Link

As low-earning graduates make little or no repayment of their student loans, the taxpayer foots the bill to the extent of £8bn annually in un-repaid loans.

The core problem here is a mismatch between risk and reward. When a university fills a place, it receives a tuition fee, irrespective of whether the student later repays the loan. As such, it has only an upside in expansion, so long as the fee covers the cost of provision, while all of the downside risk is borne by the taxpayer. It is also heavily incentivised to provide courses that can be provided as cheaply as possible, in order to maximise numbers, rather than those that offer a long-term return to the student – and to make unconditional offers to unsuitable students, and to invest in flashy amenities rather than core academic provision.

The result is that the present model of university financing targets the most public funding at the least productive parts of the system.

'The IFS estimates that the long-run cost to government of each undergraduate cohort is £9bn, of which £8bn is incurred as a result of un-repaid fee and maintenance loans. That £8bn loss is due to the fact that only 46% of the value of student loans end up being repaid'

There has recently been a row, for example, over the decision by the Office for Students (OfS) to halve its subsidy for Creative Arts students, from £243 to £121.50 per year.[2] Yet there is a strong argument that the Government should have gone much further. As we will show later in this paper, Creative Arts is the fourth largest subject by student numbers, and has the largest overall cost (£1.2 billion, accounting for 13% of overall government spending on higher education). Because of high default rates, the long-run cost of the loans issued to Creative Arts students is approximately £37,000 per head, as against approximately £11,000 for those studying Engineering. Yet for the average female student, doing a Creative Arts degree has zero impact on earnings – and for the average male graduate, it actually leaves them worse off.

Of course, the earnings uplift from a given course is not the only metric of its worth. As well as the private return to the individual student, there is also a social return: graduates tend to be healthier and less likely to commit crime, for instance. And then there are courses, such as nursing, which deliver a considerable social return, justifying bursary funding.

But by any conceivable metric, England has too many universities offering too many courses that are of too little value to their students or to society. This is also less than ideal from a social point of view: political unrest tends to be driven by those who are over-educated and under-rewarded, who have their expectations about their futures raised and then dashed.

This is obviously a thorny problem to solve: yet we believe that there is a single radical change which would dramatically shift the balance of incentives away from low-value and towards high-value courses. This would be to make the university the lender within the tuition fee system, rather than the Government. Specifically, the Government

2 Office for Students, *What is really going on with arts funding in higher education?* Link

will lend to the universities, who will loan to the students; the students will repay the universities, who will repay the Government. If the students do not earn enough to repay their debts, it will be the university which pays the price rather than the state.

To help students make informed choices, the Department for Education (DfE) should build on the graduate earnings data that is already published by publishing data on the estimated lifetime return for graduates on particular courses (at the moment it focuses on raw earnings data, which doesn't control for the characteristics of the students on entry). Universities should be required to publish this estimated return on advertising material for their courses, much like nutritional information is required to be published on food and drink packaging.

'At 46% repayment the Government subsidy is £8bn, so at 75% repayment the subsidy would be £3.7bn, i.e. a saving of £4.3bn'

Of course, those who wish to study for the love of studying, regardless of the economic return or likely later earnings, will still be able to do so. Universities would still be able to offer courses that they believed were academically or socially valuable, and to cross-subsidise from higher-paying students to cover the costs (as happens at present). The crucial difference is that they would do so at their own risk, rather than the state's.

In other words, this isn't about abolishing philosophy or theology courses: as we will see, many of the worst-performing courses are actually focused on business management and similar topics. The aim of this policy change is to weed out those courses which are offering no economic benefit to the students, and are being provided largely because universities are currently incentivised to get bodies through the door (or, more recently, faces on to the Zoom chat) regardless of the longer-term benefits either to the students or to society as a whole.

Although it is not the primary purpose, this policy change could also result in substantial savings for the Government. The IFS estimates that the long-run cost to government of each undergraduate cohort is £9bn, of which £8bn is incurred as a result of un-repaid fee and maintenance loans.[3] That £8bn loss is due to the fact that 46% of the value of student loans end up being repaid.

If the system became self-financing, the result would be £8bn in savings. Plainly, it would be unrealistic to expect this. Given the very large numbers of students who are currently defaulting on their loans, implementing a 100% repayment threshold would bankrupt many universities overnight, because they would have to axe many if not most of their courses. It would therefore be up to the Government to set the threshold and timeline, in consultation with the sector. But you can envisage a scenario in which the threshold was set at 75% after five years. At 46% repayment the Government subsidy is £8bn, so at 75% repayment the subsidy would be £3.7bn, i.e. a saving of £4.3bn. If you raised the threshold to 100%, the full £8bn would be saved.

3 The Institute for Fiscal Studies, *Where is the money going? Estimating the government cost of different university degrees.* Link

In its guidance to the OfS, the Government has stressed the importance of promoting STEM subjects and healthcare – hence the rebalancing of direct subsidy away from Creative Arts and similar topics. This is both right and welcome. If the jobs of the future are in knowledge-intensive, research-driven sectors such as technology, advanced manufacturing and the life sciences, we need to incentivise students, from all backgrounds and in all parts of the country, to get the appropriate training.

‘If the full £8bn were saved, you could allocate the savings as follows: £1bn for STEM provision, £2bn for technical education, and £5bn for university R&D’

We therefore suggest that, if savings are made on the tuition fee bill, we should use the money to increase teaching grants in high-cost-of-provision STEM courses, and to expand technical education, in order to provide school leavers with more productive alternatives. We further propose that any surplus savings should be allocated to researchers in STEM departments, via the new Advanced Research and Innovation Agency (ARIA). If the full £8bn were saved, you could allocate the savings as follows: £1bn for STEM provision, £2bn for technical education, and £5bn for university R&D. This would amount to approximately a 50% increase in the value of research and development undertaken by universities, assisting the Government with its target of doubling R&D spending without putting further strain on the public purse.

The exact details would, of course, be down to government, depending on where it sets the thresholds for repayment. But taken as a whole, such a shift would amount to a reorganisation of education finance from rewarding the least to the most productive parts of the system.

Britain has many great universities, offering great courses. But it also has far too many courses that are providing no benefit to anyone beyond the accounting departments of the universities that offer them. Ending the mismatch between courses provided and the economic need for those courses will improve the prospects of thousands of students, and provide a solid foundation for economic growth.

Part 1: The State of the University System

Before the coronavirus hit, in 2019/20, there were 2,530,000 students studying at English universities.[4] Of these 1,889,000 were undergraduates, 1,589,000 from the UK and 300,000 from abroad.[5]

This system, at least for domestic students, is largely funded by loans. Each student pays an annual tuition fee, currently capped at £9,250 (this was intended to be a maximum, but rapidly became a default). This is covered by student loans, which also cover living costs of up to £12,382 depending on household income and whether the university is outside or inside London.[6] You have to start repaying these loans once your annual income exceeds £27,295. While you're studying, the interest rate is currently 5% (RPI + 3%). Afterwards, it reverts to the RPI rate until you hit the repayment threshold, increasing on a sliding scale to a maximum of RPI + 3%, before being written off after 30 years.

'Before the coronavirus hit, in 2019/20, there were 2,530,000 students studying at English universities. Of these 1,889,000 were undergraduates, 1,589,000 from the UK and 300,000 from abroad'

This system is unfair in several ways. For one thing, it lands English students with extremely high debts. The US has a reputation for ruinously high tuition fees. Yet in the US, average debt on graduation is £28,000.[7] In Britain, that figure is currently £45,000.[8] Though our graduates almost never actually repay, those that do pay high interest rates, which are in place to compensate for the lack of repayments among the rest of the cohort.

The effect is especially pernicious for those that repay slowly: a banker, for instance, who makes lots of money early in his career will pay off his loan quickly, therefore paying little interest and less overall relative to, say, a doctor, whose income only increases later in life, and therefore who accrues more interest and repays more overall.

From the Government's point of view, the system is less than ideal, in that it only recovers approximately 46% of the loan value.[9] But arguably the most fundamental objection is that too many students are getting a very bad deal.

4 Higher Education Statistics Agency, *Who's studying in HE?* Link

5 Higher Education Statistics Agency, *Where do HE students come from?* Link

6 The Department for Education, *Student Finance.* Link

7 North Western Mutual, *Planning and Progress Study 2018.* Link

8 House of Commons Library, *Student Loan Statistics.* Link

9 The Institute for Fiscal Studies, *Where is the money going? Estimating the government cost of different university degrees.* Link

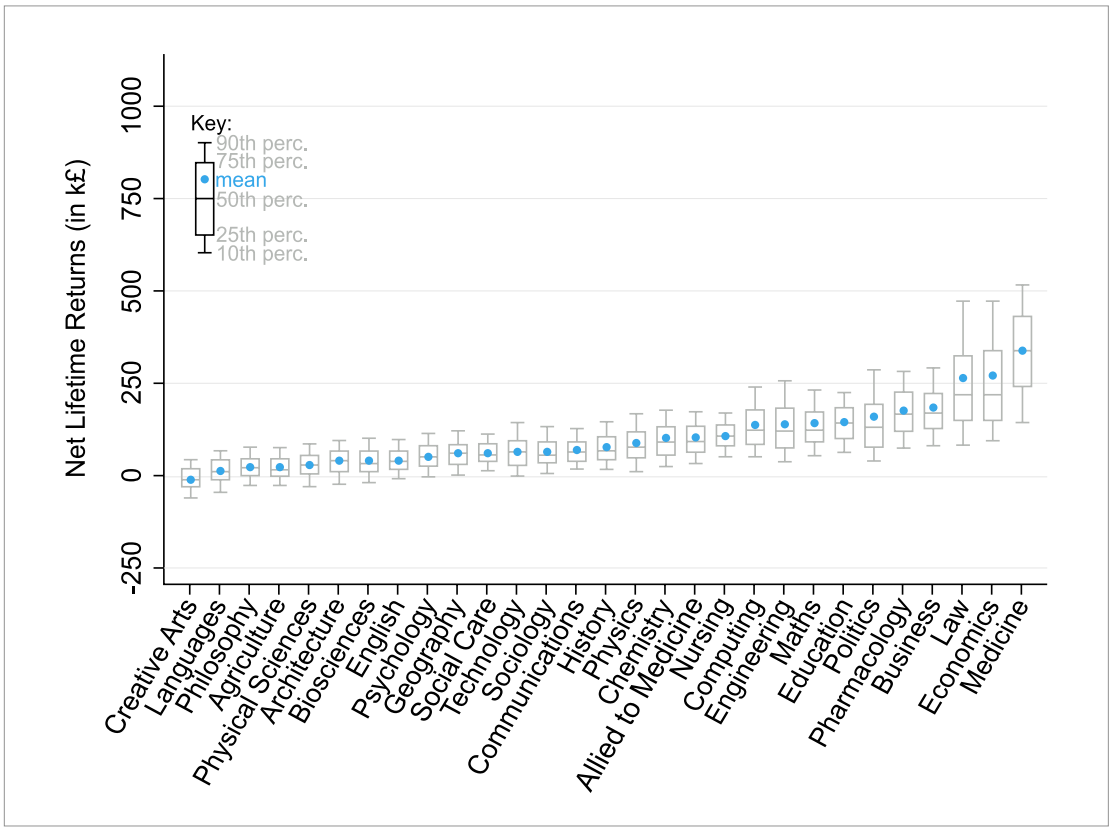
The Return for Students

The Institute for Fiscal Studies (IFS) has estimated lifetime returns by subject and by institution type, where the 'return' is the estimated earnings gain from graduating: that is, the difference between the estimates of what the graduate is earning and what they would have earned had they not gone to university. As these are net lifetime returns, they account for student loan repayments, and so the cost of the education that is borne by the student.

The IFS estimates, shockingly, that approximately 20% of current students will actually be worse off for going to university.[10] For many more, the economic returns are essentially negligible.

There is a significant difference in returns by gender: for women, studying creative arts or languages yields zero economic return on average; for men, studying creative arts or social care yields negative economic returns. For both men and women, a large number of subjects have a very low positive return, and a negative return for those at or below the 10th income percentile within the cohort.[11] The best returns for women go to those who studied medicine, and to a lesser extent economics and law; by far the largest returns are gained by men who study economics and medicine.

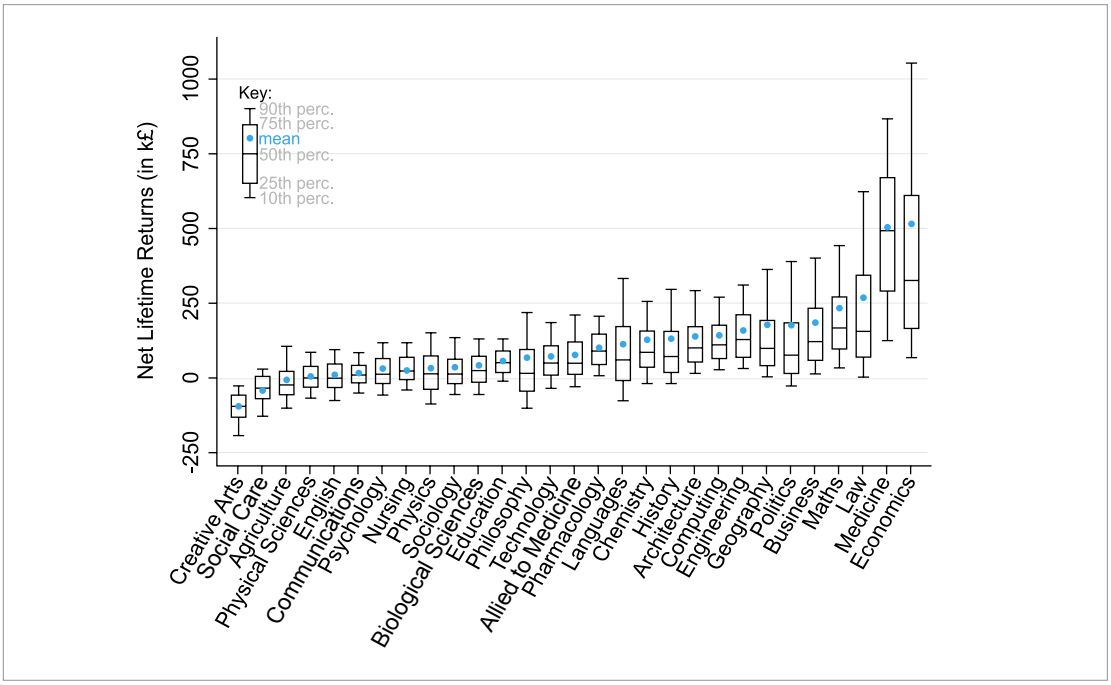
IFS Figure 1: Lifetime Return by Subject for Women



10 The Institute for Fiscal Studies, *The impact of undergraduate degrees on lifetime earnings.* Link

11 The Institute for Fiscal Studies, *The impact of undergraduate degrees on lifetime earnings.* Link

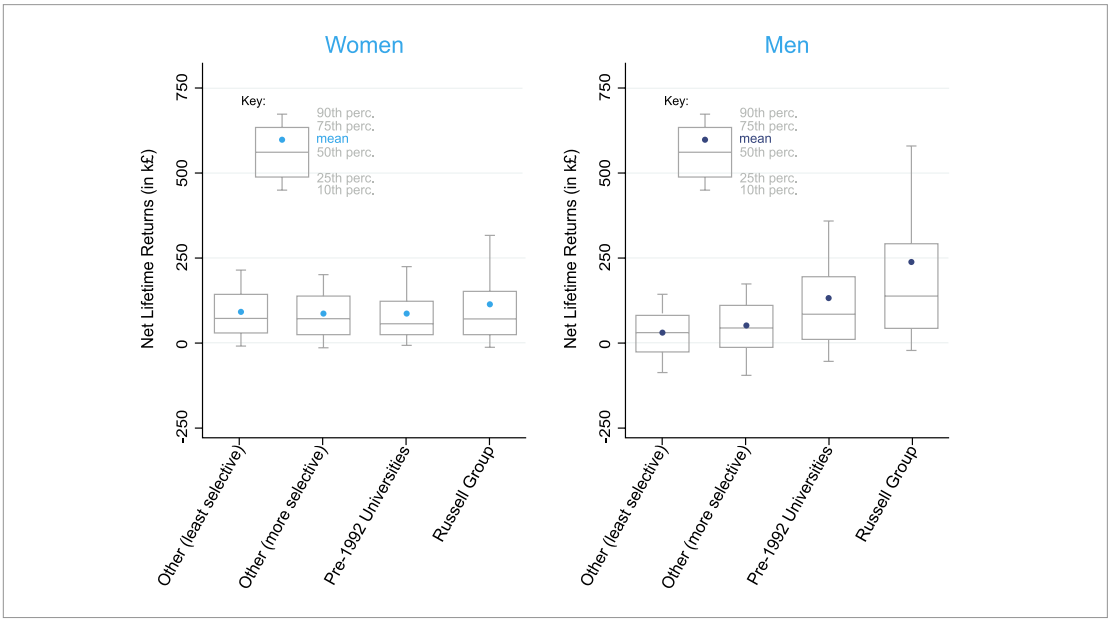
IFS Figure 2: Lifetime Return by Subject for Men



However, it is not just about the subject you choose, but where you study it. Returns also differ by institution type, although much more for men than for women.

On average, women will end up with net lifetime earnings that are approximately £100,000 higher for having gone to university, and more for having gone to a Russell Group institution.[12] For men, there is much more divergence by institution type: it is much more likely that those going to post-1992, non-Russell Group institutions will end up losing out. Men at older, Russell Group institutions earn the largest returns, though this may be slightly misleading, as it is likely that men and women who go to such universities will marry each other, so the divergence in pay is likely to be driven at least in part by childcare choices within high-earning families.

IFS Figure 3: Lifetime Return by Institution Type



12 Ibid.

The IFS lifetime returns analysis isn't broken down to the course level, but it is self-evident from the above that the worst returns will accrue to students studying low-returning subjects at low-returning institutions. Indeed, the Office for Students (OfS) is now reporting graduation rates and outcomes by course, i.e. at the subject-institution level.[13] This gives us valuable additional insight into the student experience – and demonstrates that outcomes can be vastly different for the same subject depending on the institution it's studied at.

The OfS reports the 'Proceed Rate', which is the proportion of the cohort that is projected both to graduate, i.e. complete the course, and to have a positive outcome, which is defined as 'professional employment, further study, retired, caring for someone, and travelling'.[14] Note that this says nothing about the actual salary received – it merely means that the course was completed and the student is now not unemployed.

The 20 courses with the lowest Proceed Rate are as follows:

Table 1: Bottom 20 Courses by Proceed Rate[15]

University	Subject	Proceed Rate
University of Bedfordshire	Business and Management	15
University College Birmingham	Performing Arts	15
University of Bedfordshire	Sociology, Social Policy and Anthropology	22
University of Wolverhampton	Psychology	25
University of Wolverhampton	Sociology, Social Policy and Anthropology	25
University of Wolverhampton	Business and Management	26
University of Bedfordshire	Psychology	27
London Metropolitan University	Business and Management	31
University of Central Lancashire	Sociology, Social Policy and Anthropology	31
Nelson College London Limited	Business and Management	31
The University of West London	Business and Management	32
The University of Bolton	Business and Management	32
Birkbeck College	Business and Management	32
London Metropolitan University	Education and Teaching	33
Staffordshire University	Education and Teaching	34
University of Wolverhampton	Creative Arts and Design	34
Buckinghamshire New University	Sociology, Social Policy and Anthropology	34
University of East London	Business and Management	34
Middlesex University	Business and Management	35
University College Birmingham	Sport and Exercise Sciences	35

13 Office for Students, *Projected completion and employment from entrant data (Proceed): Updated methodology and results.* Link

14 Ibid.

15 Ibid.

The shocking implication of this data is that, for example, only 15% of those studying Business and Management at the University of Bedfordshire can expect to both complete the course and to end up in graduate employment (or similar). For the 20 courses listed, the proportion is roughly a third or less.

What's most interesting about this data is that the poor outcomes are not primarily being experienced by arts students but by Business students, as well as those studying Education, Sociology and Psychology.

'Only 15% of those studying Business and Management at the University of Bedfordshire can expect to both complete the course and to end up in graduate employment (or similar)'

This reinforces the importance, when looking at the value of particular courses, of examining both the subject and the institution. Looking at the tables purely by subject, studying Business might seem like a sensible decision. Yet it is likely that the discipline is benefiting in terms of the lifetime returns data by being very high-returning at some institutions, which in turn is masking terrible returns at others. Likewise, there are doubtless some elite Creative Arts courses that offer excellent training and returns. The point is that students deserve to know, as they scrutinise the individual courses on offer, what they are getting into.

The Return for Taxpayers

As mentioned above, the IFS estimates that the long-run cost to government of each undergraduate cohort is £9bn, of which £8bn is incurred as a result of un-repaid fee and maintenance loans, and the remainder mostly due to teaching cost grants, explained later.[16]

While almost all students are charged the same fees, the price they actually pay varies markedly depending on their later earnings. As earnings vary markedly by subject studied and by institution, it follows that the government subsidy to subjects and institutions varies markedly too.

Total long-run government spending by subject depends on the number of students; the teaching cost grants received; the earnings of the graduates; and therefore the proportion of student loan unpaid.

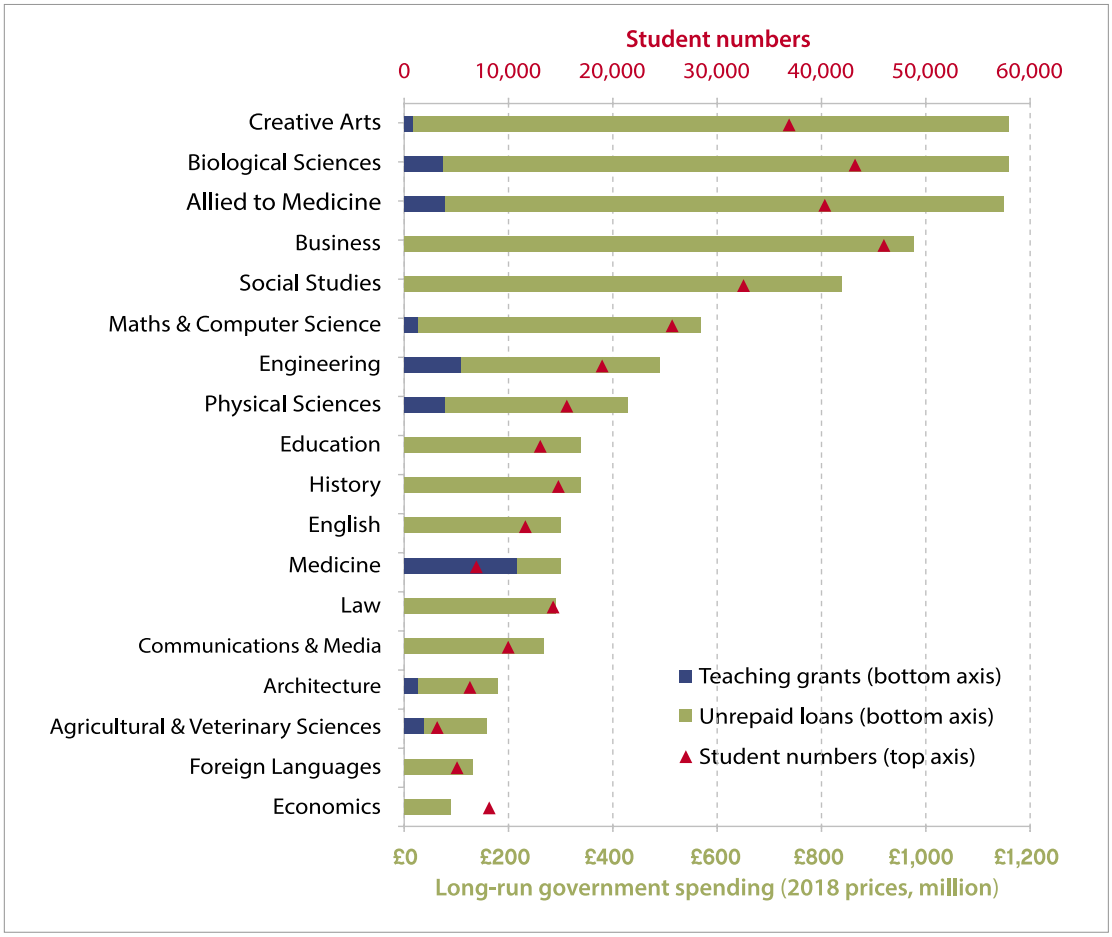
In Figure 4 on the following page, the red triangle (scale on the top axis) shows the number of students studying each subject. The blue section of each subject bar shows the value of teaching grants, paid to high-cost-of-provision subjects, and the green section of the bar shows the value of un-repaid loans.

The taxpayer is getting best value for money when the value of un-repaid loans is small relative to the number students studying the subject, i.e. the red triangle is close to the end of or ideally beyond the green bar, as happens with Law and especially Economics. Poor value for money is indicated where the value of unrepaid loans is

16 The Institute for Fiscal Studies, *Where is the money going? Estimating the government cost of different university degrees.* Link

large relative to the numbers of students studying the subject, i.e. the red triangle is far away from the end of the green bar, such as for Creative Arts. There are also subjects such as Engineering or Medicine where the Government has decided to specifically incentivise the teaching of that subject via subsidy. (It is the blue part of the Creative Arts bar that the Office for Students is halving, showing how small the cut really is compared to what is spent on the subject overall.)

IFS Figure 4: Total Long-Run Government Spending by Subject

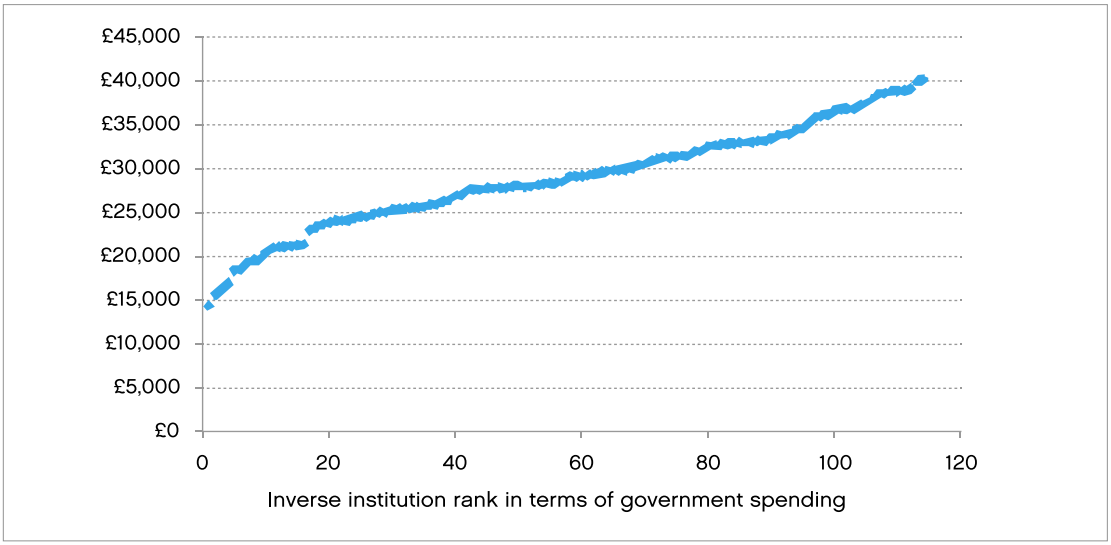


As these figures show, the Government expects to write off around a quarter of the value of the loans it issues to economists, while for creative artists, it is around three-quarters. This means that Economics has a long-run cost per student of approximately £11,000, while for Creative Arts the cost is approximately £37,000.

Given that – as we saw above – a Creative Arts degree has zero impact on earnings for the average female graduate and a negative impact for the average male graduate, the fact that it is the fourth largest subject by student numbers, and has the largest overall cost (£1.2 billion, accounting for 13% of overall government spending on higher education) is probably not ideal. Indeed, the public is probably unaware that the state spends considerably more training Creative Arts students than engineers.

As we would expect, the long-run cost of degrees to government also varies significantly by institution, again because graduate earnings vary significantly by institution. For the institutions with the highest-earning graduates, the government spends approximately £15,000 per student. For those with the lowest-earning graduates, it spends over £40,000.

IFS Figure 5: Long-Run Government Spending per Borrower by Institution

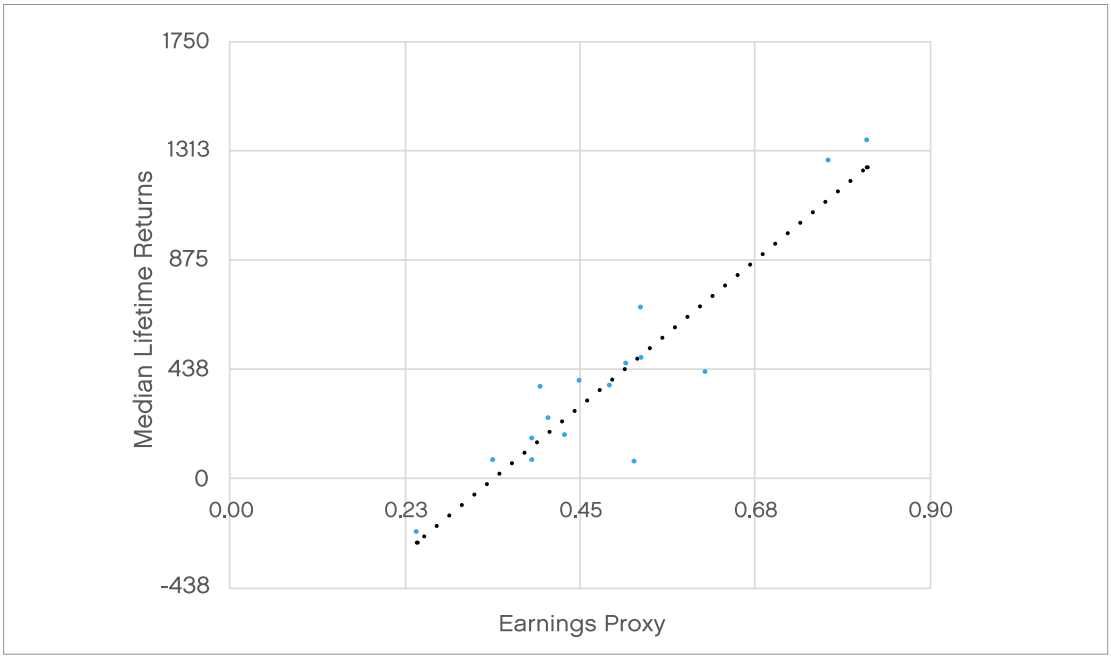


Our undergraduate financing system then, is designed to subsidise where graduate earnings are low, presumably on the basis that it is charitable to relieve the burden of student loan repayments on those least able to bear them.

But this starts the story in the middle of the movie. The need to relieve the burden of debt on those who would otherwise struggle to bear it only comes about because they have first been laden with it. There is nothing inevitable about a university system whose graduates are too low-earning to later be able to cover the costs of their education.

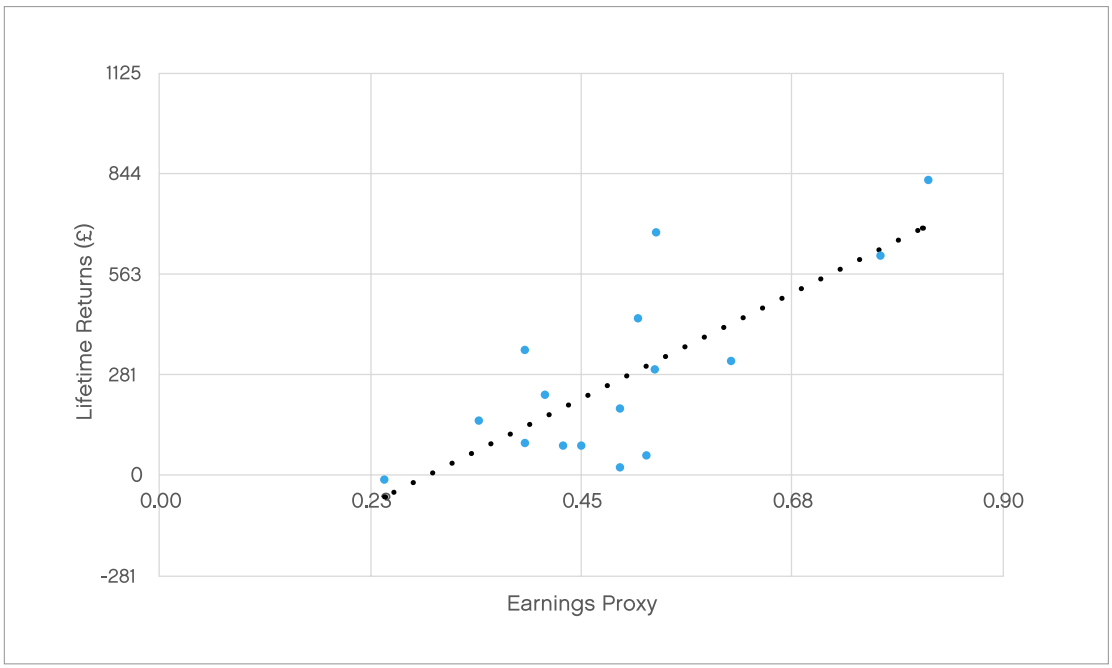
Instead it might be argued that if we are going to subsidise higher education, it makes sense to do so where it will be most productive: that is, where returns are highest. In fact, because of the correlation between earnings and returns, our system mostly subsidises low-returning education, as shown below:

IFS Figure 6: Subject Earnings and Median Lifetime Returns (Men)[17]



17 The RAB charge from the Institute for Fiscal Studies *Where is the money going? Estimating the government cost of different university degrees.* Link. Returns from the Institute for Fiscal Studies, *The impact of undergraduate degrees on lifetime earnings.* Link. The earning proxy is the inverse of the default rate (the 'RAB charge', i.e. 1-RAB) since higher earnings result in a lower default rate).

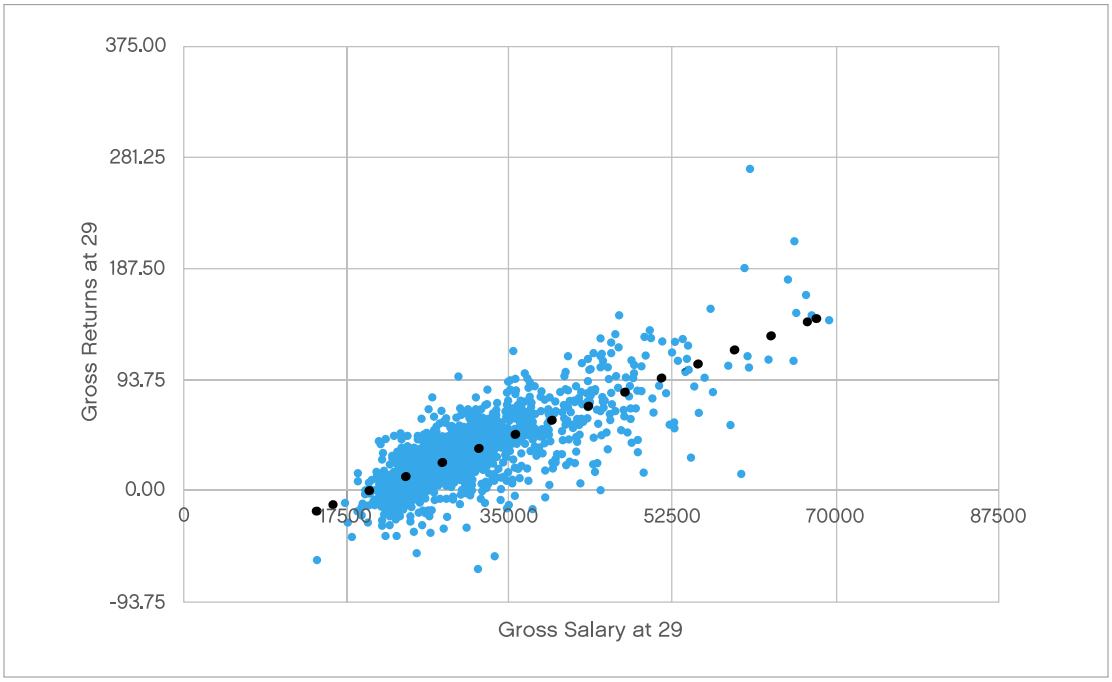
IFS Figure 7: Subject Earnings and Average Lifetime Returns (Women)



The earnings proxy here is the repayment rate, i.e. the rate at the graduates of each subject repay their loans – since greater repayments are made from greater incomes. The correlation in men is strong, and weaker in women. Absolute returns are actually biased to correlate, so below we also show the relationship between earnings and proportionate returns by the age of 29 by course:

IFS Figure 8: Average Course Earnings and Average Gross Salary Returns by 29 (Men)

IFS Figure 9: Average Course Earnings and Average Gross Salary Returns by 29 (Women)



Of course, the returns presented here are private returns – the earnings gain minus the costs involved in obtaining it. The state is concerned with the social return on its investment in undergraduate education, which might be higher or lower than the private return.

For example, if the private earnings gain reflects an increase in productivity, then society benefits from that too. Society obviously benefits from a supply of graduates with well-matched skills in both the private and public sectors. There are also well-documented benefits to higher education that are not captured in these figures, for example a lower likelihood of being involved in criminal activity, and better health, both of which benefit society as well as the graduate. On the other hand, if some of the private return is due only to signaling (i.e. university only sorts graduates into jobs but doesn't change their productivity), then the social return will be lower than the private return.

In fact, the Exchequer currently makes a large positive return on its investment in higher education as a whole, because the additional revenue from taxation more than covers the subsidy. However, this is only because of high-earning graduates: for 50% of women and 40% of men, the Exchequer return is negative. Even if you include the less tangible social returns described above, there are clearly a large number of courses that are not pulling their weight – removing them would not only benefit the school-leavers concerned, but save the Government substantial amounts of money.

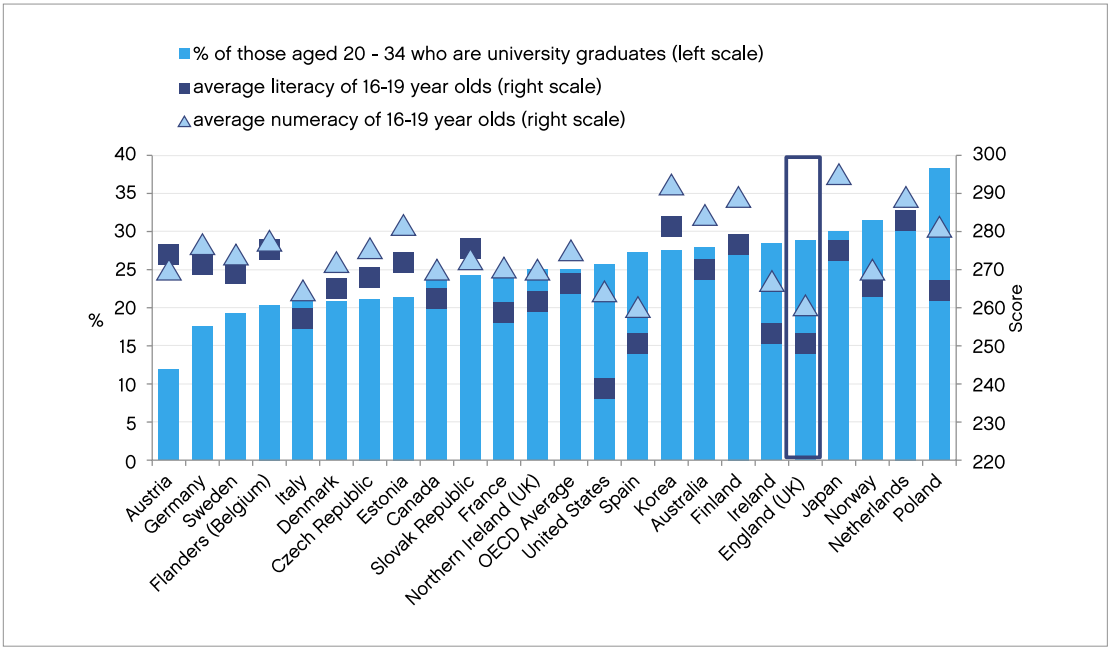
The Return for Society

One of the justifications offered for the enormous expansion of the university system in recent years was that we needed a more highly skilled labour force. But the approach was typically bureaucratic: we need higher skills, graduates are highly skilled, therefore we need more graduates.

Yet highly skilled graduates can't be conjured from nothing. They first have to be trained in the schools. Our failure to grasp this has resulted in a paradox: as of 2016, English school leavers were particularly deficient in basic literacy and numeracy skills,

yet a particularly high proportion of them were going to university.[18] The figure below, using OECD data from 2012, shows this clearly.

Figure 10: Basic Skills of School Leavers vs Size of University Sector



The basic literacy and numeracy skills of English graduates were both fifth from bottom among 23 OECD countries.[19] Presumably some university entrants with low basic skills have them brought up while at university, but it's hard to argue that this should be the system's purpose.

The evidence suggests that graduates with low basic skills gain little in the labour market in spite of their degrees: in 2012, the median monthly salary of a graduate with numeracy below Level 2 was £1,550, while the same for a graduate with numeracy above Level 2 was £2,740; the median monthly salary for a graduate with literacy below Level 2 was £1,520, while the same for a graduate with literacy above Level 2 was £2,650.[20] Furthermore, the OECD found in the same paper that the earnings gain for school-leavers with low basic skills was at least as high if not higher from short professional qualifications as from university degrees.

The problem has been exacerbated because expanding the university system has primarily meant expanding the less competitive institutions. Between 1994/5 and 2019/20, the number of full-time undergraduates in British universities increased by over 650,000, but only approximately 30% of that increase occurred as a result of the expansion of Russell Group universities,[21] for which returns are highest. Furthermore, less than 20% of the expansion of the system was due to an increase in domestic students at Russell Group universities.[22]

18 OECD, *Building Skills for All: A Review of England.* Link

19 Ibid.

20 Ibid.

21 Authors calculations based on data from Higher Education Statistics Agency, *Students in Higher Education Institutions 1994/95, Table 8a,* Link and from Higher Education Statistics Agency, *Where do HE students study?* Link

22 Authors calculations based on data from Higher Education Statistics Agency, *Students in Higher Education Institutions 1994/95, Table 9a,* Link and from Higher Education Statistics Agency, *Where do HE students study?* Link

There is also the question of whether universities are training students in the subjects that the economy needs – for which earnings data is, of course, a rough proxy. Over the last few decades, the economy has become more specialised in both the high-value manufacturing and high-value service sectors. That would imply that we needed more STEM graduates for the former and perhaps more lawyers and economists for the latter. Whilst those subjects did expand, there were also over 100,000 more social scientists in 2019/20 than in 1994/95, as well over 90,000 more Creative Arts and Design students.[23]

A better approach to improving the skills of the labour force might have been focused on improving the skills of our school-leavers, so that they were better able to take advantage of higher education and actually earn a return from it – and a higher education policy which discriminated between productive and unproductive courses. Yet on the latter, the 2012 reforms have actually made things worse, as the bulk of university revenue has moved from teaching grants, which distinguish based on courses' cost of provision, and tuition fees, which don't.

'This distortion toward higher education also ignores higher social and economic returns possible in further education - a subsequent report estimated the annual return at between £26 and £28 for every £1 invested by government in apprenticeships at level 2 and level 3, and £20 for every £1 of government investment in further education'

As a result, the financial incentive for universities is now to expand low-cost courses such as those in the arts, humanities and social sciences, as against high-cost courses like medicine and engineering.[24]

The exchequer returns are also large.[25]

This distortion toward higher education also ignores higher social and economic returns possible in further education - a subsequent report estimated the annual return at between £26 and £28 for every £1 invested by government in apprenticeships at level 2 and level 3, and £20 for every £1 of government investment in further education.[26]

Another justification for the expansion of the university system was that it would aid social mobility. But again the reasoning was bureaucratic: university education has historically been a route into the middle class, therefore more working class graduates means greater social mobility. Little attention has been paid to the subjects studied or universities attended by working class students.

23 Authors calculations based on data from Higher Education Statistics Agency, *Students in Higher Education Institutions 1994/95, Table 8a*, Link and from Higher Education Statistics Agency, *Where do HE students study?* Link. Approximations as categorisation not consistent over time.

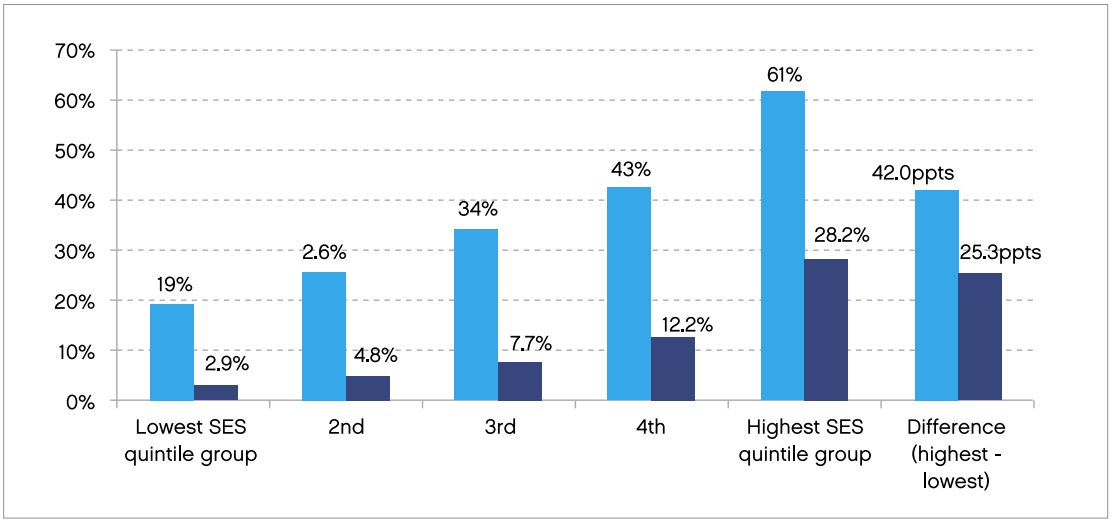
24 The Institute for Fiscal Studies, *Higher Education funding in England: past, present and options for the future*. Link

25 Department for Business, Innovation and Skills, *Returns to Intermediate and Low Level Vocational Qualifications*. Link

26 Department for Business, Innovation and Skills, *Apprenticeships (in England): vision for 2020*. Link

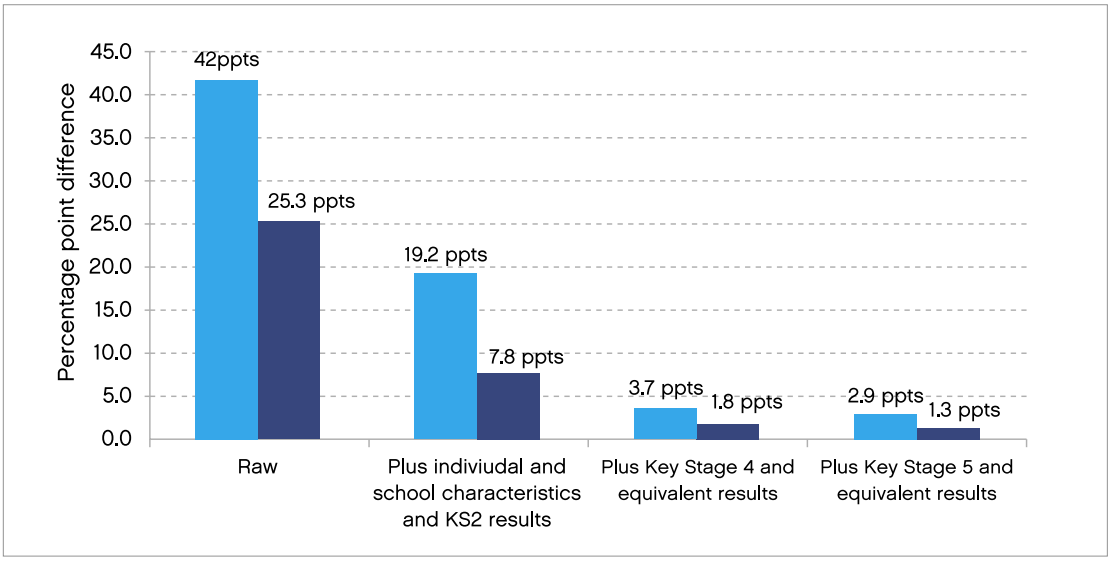
The figure below shows university attendance by socioeconomic status (SES), both in general (light blue) and for Russell Group or similarly high-performing universities (dark blue bar). As it shows, those in the highest status quintiles are significantly more likely to go to university in the first place. But they also dominate admission to those universities which will tend to deliver the highest lifetime returns.

Figure 11: University Attendance by Socioeconomic Status[27]



It should be stressed that this is not because of discrimination within the admissions process. As the figure below shows, the gap between the highest and lowest socioeconomic status quintiles can be explained almost entirely by individual and school characteristics and by exam results. Students from different socioeconomic classes with the same performance at GCSE or A-level now have essentially the same chance of getting into a good university: the problem is that those from lower socioeconomic classes are far less likely to get those results in the first place.

Figure 12: University Attendance by Socioeconomic Status, Controlling for Individual and School Characteristics and Exam Results[28]



27 Claire Crawford, *Socio-economic differences in higher education participation and outcomes*. Link
28 Ibid.

The story on social mobility is similar to the story on skills. We expanded the university system mostly by providing places for those with lower school attainment, disproportionately from lower socioeconomic classes, in the hope that by doing so they'd gain the same returns as those with higher school attainment, disproportionately from higher socioeconomic classes. But the labour market has, understandably, refused to cooperate.

Again, pulling students away from the further education track and into higher education may have had damaging impacts in terms of equality. The Sewell Report on racial disparities noted the low take-up of apprenticeships among urban black school-leavers relative to white school-leavers in the regions as one explanation for the better labour market performance of white working class school-leavers even when their school grades were inferior: urban black school-leavers were more likely to take-up low-returning university education.[29]

Given the analysis above, it's plain that for many students, their labour market experience will fall short of their expectations: according to the ONS, 31% of British graduates are overqualified for their jobs.[30] Those that are in graduate jobs, however lowly paying, are concentrated in the cities, paying extortionate housing rent and prices, with home ownership increasingly out of reach. Many rightly feel as though they've been sold a pup.

This is not just a problem for the individuals themselves. Historians have long argued that the 'overproduction of elites' causes political instability: revolutions are most often led by the overeducated and underemployed.

'PhDs have traditionally received little by way of direct public funding, instead being funded by the universities themselves or self-funded. But recently the government introduced a PhD loan of up to £27,265'

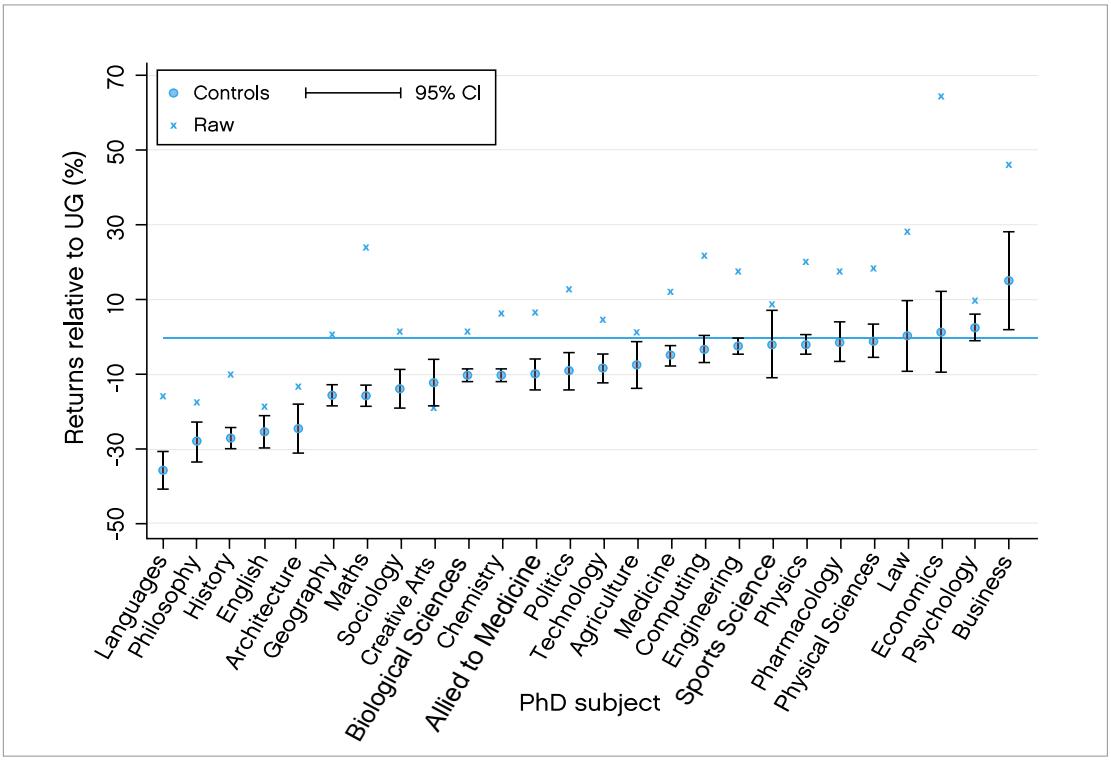
While the focus of this paper is on undergraduate degrees, the problem of education not delivering an economic return is particularly acute at the highest level of education. The charts on the following page show returns relative to obtaining only an undergraduate degree by age 35 for both men and women: the orange cross shows the raw earnings difference, which is often but not always positive, but the blue dot shows the return once prior attainment has been controlled for, and since those who study for PhDs are usually already high-performing, this return is usually considerably lower than the raw earnings difference. For men, the returns are mostly negative (that is, for most subjects, where the blue dot is below zero, PhDs are earning less by 35 than they would have done if they hadn't bothered with the doctorate), whilst for women they are mostly modestly positive.

PhDs have traditionally received little by way of direct public funding, instead being funded by the universities themselves or self-funded. But recently the government introduced a PhD loan of up to £27,265. Given the below, there is a strong case for withdrawing it and investing any savings in more productive parts of the education system exactly as we recommend for the undergraduate system.

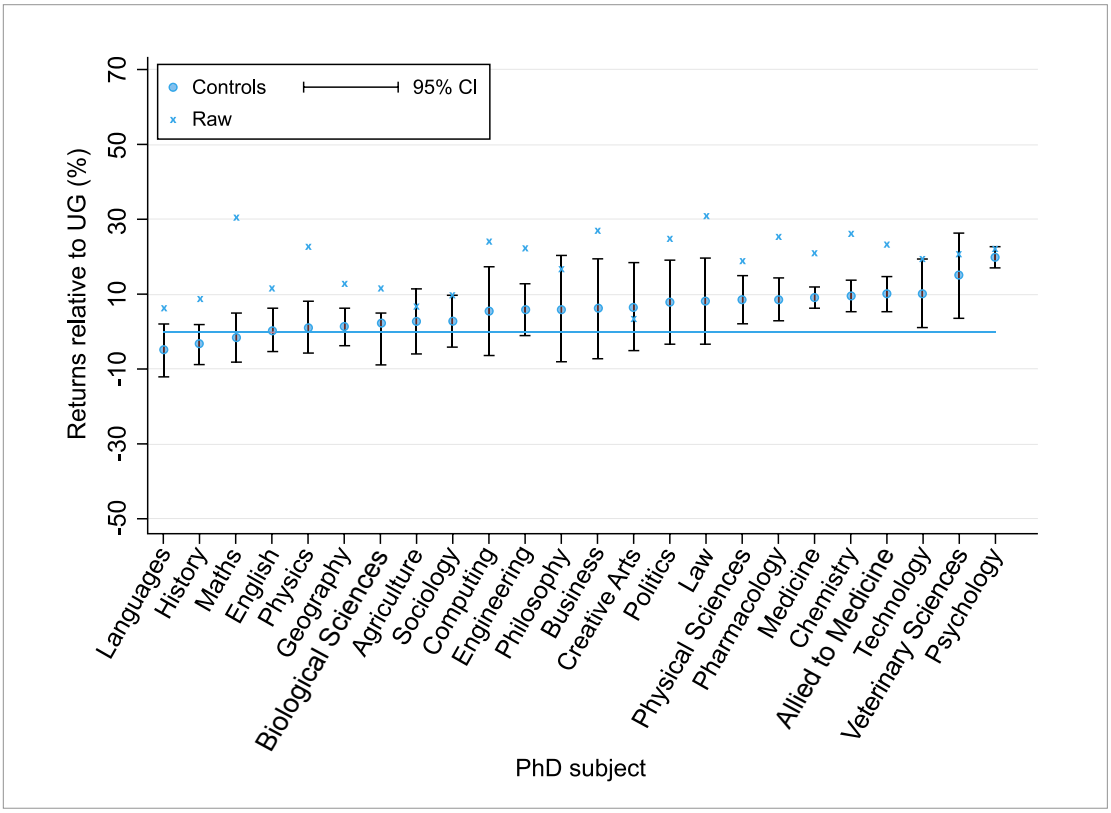
29 Commission on Race and Ethnic Disparities, *The report of the Commission on Race and Ethnic Disparities.* Link

30 Office for National Statistics, *One in three graduates overeducated for their current role.* Link

IFS Figure 13: PhD Returns by Subject by 35 (Men)[31]



IFS Figure 14: PhD Returns by Subject by 35 (Women)



31 The Institute for Fiscal Studies, *The earnings returns to postgraduate degrees in the UK*. Link

Part 2: A Better System for University Funding

As we argued in Part 1, the university system has expanded uneconomically in recent decades because of a misalignment between risk and reward. Under the current funding model, the Government makes a tuition fee and maintenance loan to the student, and the tuition fee is immediately paid to the university; the student then repays the Government an amount dependent on their later earnings (which, on average, falls far short of the total owed).

The result is that, for the university, expanding student numbers offers only upside: as soon as it fills a place, it's rewarded with a tuition fee, irrespective of whether the student later repays the Government, or makes a positive economic return on their education.

> **'Instead of lending to the students, the Government should lend to the universities, which will lend to their students; the students will then repay the universities, which will repay the Government'**

The student is partly protected against the majority of the downside risk of their decision to consume higher education, as the easy terms of the Government loan ensure that if they earn little, they pay little. Instead, the downside risk is borne by the Government, since the taxpayer picks up the bill for the loan value which goes un-repaid.

Though the Treasury does make an overall profit on the higher education system thanks to the tax revenues generated by those higher-earning graduates, it could easily lose the cost of the un-repaid loans without losing the revenues from the higher earners. The current arrangement is clearly not an optimal situation. Even if you argue that there are benefits to education beyond the economic, and that the purpose of university is about something greater than merely increasing students' later salaries, it would surely be better if universities were incentivised to focus on the quality of the courses they offered, rather than the quantity of students.

That is why we propose a simple but radical change to the university system. Instead of lending to the students, the Government should lend to the universities, which will lend to their students; the students will then repay the universities, which will repay the Government.

Under this system, the Government would set a threshold for expected repayments from the universities. For example, it might start with perhaps 75% in five years time – and then potentially move on to 100% five years after that. The universities would then have to design repayment arrangements with their students, from which they'd expect to receive 75% repayments and then 100% repayments in order to be able to repay the government as required.

Of course, it may be that the Government would decide that it is happy to retain the current element of subsidy, and keep the minimum repayment rate at 50%. While less disruptive to the sector, even this would push the lowest-performing universities to improve the quality of their courses – though it might result in some that currently offer the highest-paying course relaxing their standards, which would need to be guarded against. However, given the number of courses that are leaving those who take them worse off, we think a 75% repayment threshold is an appropriate medium-term target, and could pave the way to full repayment in due course.

Whatever the threshold that is set, we imagine most universities would offer income-sharing repayment arrangements, i.e. an arrangement in which a proportion of the graduate's income was paid to the university for a given period of time – along similar lines to the current system. However, we suggest a simple limit to cap the amount that any one student would be expected to repay, which would both limit unfairness and also deter universities from using a few high earners to subsidise a slew of courses which offered little return.

'If universities disagreed with the Government's evaluation, they would be welcome to offer the courses privately, either using internal or external funding, making repayment arrangements with their students, and turning a profit or loss depending on whether they had made the right judgment call'

In addition, we propose that the estimated economic return for each course be required to be published on all course advertising literature, much like nutritional information is required to be published on food and drink packaging (as well as being made easily accessible on a government website). As many university courses are likely have a very low or negative return, this ought to nudge students towards higher-returning courses, or alternative education.

These estimates would have to be informed by the best statistical analysis possible – and the process would no doubt be highly contested, as the results would have implications for the sustainability of many academic departments and institutions. And where new courses were being introduced, we would expect the calculations to be derived from a combination of that institution's existing courses and similar courses elsewhere. Of course, if universities disagreed with the Government's evaluation, they would be welcome to offer the courses privately, either using internal or external funding, making repayment arrangements with their students, and turning a profit or loss depending on whether they had made the right judgement call.

How the System Would Work

We propose that the universities submit business plans to the Government based on the estimated earnings of their graduates, which the DfE will have provided. The university will be required to design repayment arrangements with their students that meet the overall fiscal threshold set by Government.

The universities would be free to determine the repayment arrangements they offer their students: the income threshold(s) at which repayments begin and are graduated, the repayment rates, the interest rate, and the write-off period, if any.

Some might choose to make loans in the ordinary way, at various interest rates, and pursue their graduates for repayments regardless of their earnings as in the United States. In this case, there would be no risk-sharing among students; and no mechanism by which high-earning graduates bailed out low-earning graduates.

We believe that universities will probably want to retain some element of risk-pooling, partly because (as is a fundamental principle of the insurance market) some individuals may do better or worse than others, or suffer good or ill fortune through no fault of their own, and partly because they will doubtless want to continue offering traditional courses rather than having to convert their entire offer to more lucrative courses such as Economics, Law, Medicine and STEM (i.e. the high-earning engineers would repay some of the loans from lower-earning historians). So we predict that such loans would be chased out of the market by income-sharing arrangements along the lines of the current tuition fee system.

Yet a system in which high-earning graduates subsidise low-earning graduates is also one in which high-returning courses subsidise low-returning courses. And when low-returning courses are subsidised, the course appears higher-returning to the prospective student, because they do not have to pay the full economic cost of their tuition or maintenance. That impacts on human capital development and economic productivity by luring school-leavers away from more to less productive education. As such, we propose to cap the total repayments that can be made by an individual student at some multiple of the amount borrowed. That leaves some room for cross-subsidy, for reasons we've explained, but not too much, for reasons we've also explained.

Under the system proposed, the universities become self-financing by requiring much harsher repayment arrangements from low-earning graduates: the public subsidy to them is being diminished.

There are two ways of looking at this. The first is to argue that this reform is regressive and unfair, because it makes life easier for high earners and harder for low earners. But our reforms are intended, by putting up the price and making the expected economic return known, to reduce the number of students on low-returning, low-earning courses, and therefore for the saving not to come from increased repayments by those students, but by the lost cost of provision of the courses. And, by definition, as the courses are low or negatively returning, the students don't miss out by not studying them and doing something else instead.

Those students that wish to study low-earning, low-returning courses in spite of being asked to pay the economic cost of provision and in the knowledge of the poor economic return from doing so are free to – but there's no reason for them to be subsidised by the public. (It's important to note here that we've assumed tuition fees are equal at the cap across subjects: as discussed below, tuition fees for many of the low-earning, low-returning courses are currently in excess of the cost of provision, and so could be lowered, leaving those graduates with lower repayments: this would be a desirable outcome.)

Of course, as stated earlier, there are external benefits to higher education. Even if educating an English Literature student appears uneconomic when measured by private returns, it is probably worthy of subsidy, especially at a higher-performing university. Indeed, we expect that under our proposal, some cross-subsidy from higher-earning graduates to lower-earning graduates will remain.

There's also an implicit subsidy in the easy terms on which the loans are made by government to the universities, and the easier-than-commercial terms students are likely to be offered by the universities. Universities will also continue to operate with charitable status, so reducing the costs of provision. But they will be heavily incentivised to offer those courses which offer the best lifelong returns to their students, and disincentivised from offering those which leave them no better off.

Finally, the Government will almost certainly take the view that some courses provide such social value that they should be subsidised directly, either in part or whole – as currently happens with NHS bursaries. We consider the balance between fees and grants below.

Fees, Grants and Cost of Provision

In addition to tuition fees, universities currently receive cost grants from government dependent on the cost of provision by course. The four categories are, from highest to lowest: medicine, dentistry and veterinary science (A); laboratory-based science, technology, engineering, and courses allied to the health profession (B); various intermediate-cost courses (C1 and C2); and finally purely classroom-based courses (D).

Table 3: Grant Funding (2020/21)[32]

Price Group	Funding Per Capita
A	£9,720
B	£1,458
C1	£243
C2 and D	£0

One of the key principles behind the 2012 reforms was to shift universities' sources of revenue from teaching grants to tuition fees. The fees were trebled for all subjects and the teaching grants, here noted as 'HEFCE funding', were reduced.

32 Office for Students, *Guide to Funding 2020-21.* Link

Table 4: Fees vs Grants[33]

	Course price group				
	A	B	C1	C2	D
Share of students	*2%*	*20%*	*18%*	*28%*	*33%*
Funding under 2011-12 system					
HEFCE funding	14,543	5,337	3,736	3,736	2,536
Fees	3,681	3,681	3,681	3,681	3,681
Total	**18,224**	**9,018**	**7,417**	**7,417**	**6,217**
Funding in 2016-17 under new system					
HEFCE funding	10,180	1,527	255	0	0
Fees	9,162	9,162	9,162	9,162	9,162
Total	**19,342**	**10,689**	**9,417**	**9,162**	**9,162**
Change in funding	+6%	+19%	+27%	+24%	+47%

As the grants were adjusted for the cost of provision but the fees aren't, this has incentivised the teaching of low-cost-of-provision subjects over high-cost-of-provision subjects. As high-returning STEM subjects tend to be the latter, this is an extremely unfortunate outcome. Even worse, universities say that the combination of fee and grant revenue currently falls short of the cost of provision in many of those high-cost subjects, and that their provision is maintained by cross-subsidy from low-cost subjects.

The extent of this cross-subsidy is disputed, but the Augar review of higher education in 2019 acknowledged its existence and noted that the recent reform has 'led to the apparent overfunding of low-cost subjects and underfunding of high-cost subjects, with cross-subsidies within many institutions from the first to the second'.[34]

The Augar review proposed to reduce the cap on tuition fees to £7,500, so eliminating the surplus from low-cost-of-provision courses, and increase the teaching grant in high-cost-of-provision courses, to rebalance incentives in favour of the latter. Philip Augar has since written that, given the shock to university finances from Covid-19, the reduction in the fee cap shouldn't go ahead.[35]

Even though our proposals are likely to incentivise universities to provide higher-return courses, they would almost certainly reduce the number of students studying cheap, classroom-based courses (and perhaps result in a reduction of the fee for many such courses), and thus reduce the surplus that the universities have available to cross-subsidise the productive, STEM, high-cost-of-provision courses – which is

33 The Institute for Fiscal Studies, *Higher Education funding in England: past, present and options for the future.* Link

34 Department for Education, *Independent panel report to the Review of Post-18 Education and Funding.* Link

35 Philip Augar, *The time is ripe to reform UK university finance.* Link

obviously not an outcome we desire. We want the universities to offer these courses without hesitation, in the knowledge that the cost of provision will be easily covered.

For that reason we propose that some of the savings made by our proposals are used to increase teaching grants for high-cost-of-provision subjects as per the table below:

Table 5: Proposed Grant Funding

Price Group	Funding Per Capita 2020/21	Funding Per Capita Proposed	Difference
A	£9,720	£12,000	£2,280
B	£1,458	£3,500	£2,042
C1	£243	£243	£0
C2 and D	£0	£0	£0

We estimate this would cost the government just less than £800m annually.[36] Of course, this proposal is only indicative: the Government ought to look closely at each subject and ensure that the combined tuition fee and teaching grant covers the estimated the cost of provision.

Economic Returns

On the face of it, the higher education sector appears to have confounded market economics. Tuition fees trebled in 2012, yet demand continued to soar. But this was largely because school-leavers saw what the press didn't – that the current arrangement is closer to a graduate tax than a loan, and that the supposedly higher fees are rarely actually paid. There is therefore little disincentive not to go to university, even (or perhaps even especially) if you will never earn enough to pay back the loan.

Significant progress has been made recently in making earnings data available to prospective students, particularly via the government's 'Discover Uni' website.[37] Median graduate earnings at the five-year point by course, collected by the DfE, are available on that website in an easily accessible format.

We welcome this, but believe the Government should go a step further. Returns data, unlike raw earnings data, estimates the effect of studying a course on graduate earnings, having controlled for the characteristics of the students on entry. So, for example, a prospective student is currently able to see what the median graduate earns five years after studying a given course, and can compare them on that basis. But he can't tell whether those earnings have been increased or decreased by the particular course having been studied, or what those graduates would have earned had they not attended university.

Returns data are always an estimate, as they require the counterfactual to be estimated and then compared to the actual. Yet in 2018, the IFS did exactly that for graduates by course at age 29: the blue spots, forming almost a line, show course returns compared to estimated earnings had those pupils not attended university. For men, the highest stood at 179%; the lowest at -73%.

36 Own Calculations: the proposed uplift was multiplied by the number of students in each cost category.
37 Discover Uni, *Think about your uni choices?* Link

Several courses from Cambridge University are highlighted, showing that male English Literature graduates from that university have a return slightly below zero. It's important to stress that this doesn't mean that their earnings are low: it means that whatever they're earning, the literature course hasn't increased their earnings by age 29, but slightly decreased them.

Figure 15: Returns by Course at 29 (Men)[38]

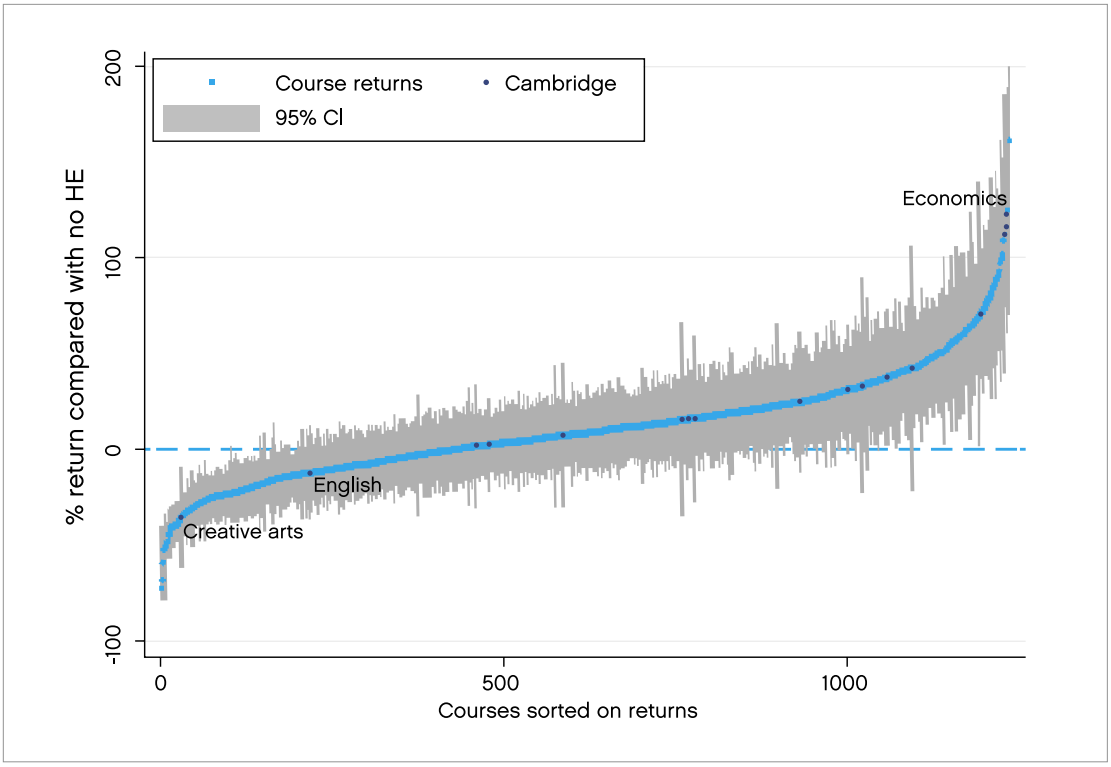
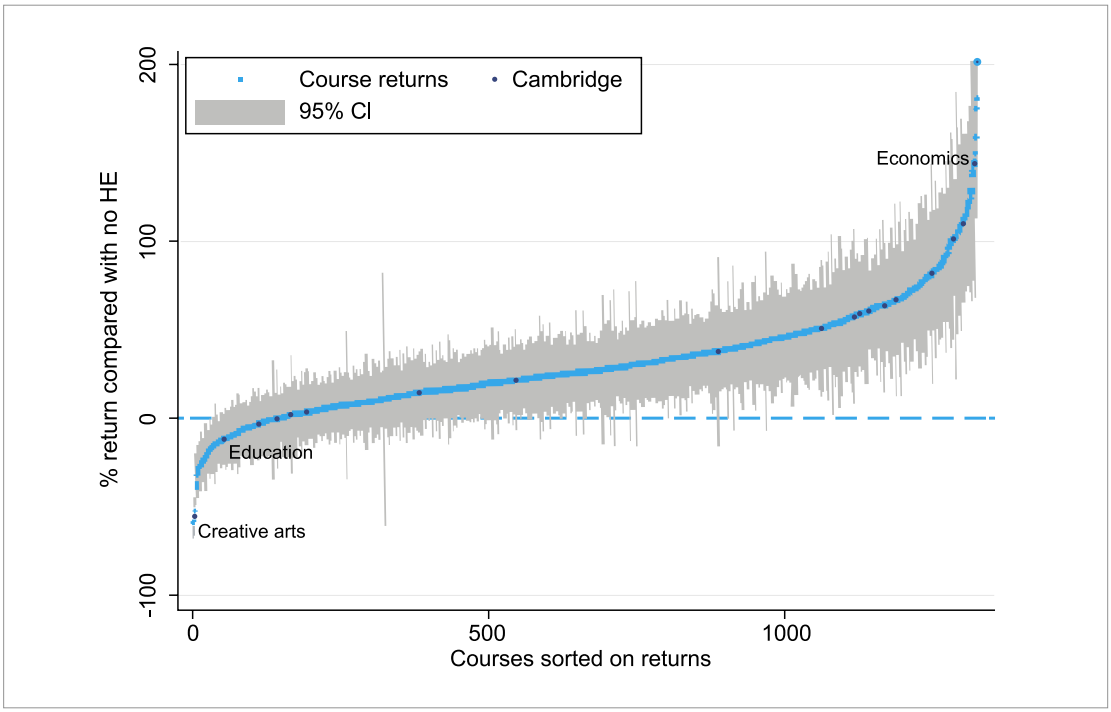


Figure 16: Returns by Course at 29 (Women)



38 The Institute for Fiscal Studies, *The impact of undergraduate degrees on early-career earnings.* Link

The shape of the distribution for women is much the same; the most apparent difference is the substantially smaller number of negative-returning courses, though there are still many.

We suspect that there would be rather fewer applicants for negative-returning courses if prospective students were confronted by the evidence that they are likely to lose income by studying them. This is why we propose that the DfE should estimate lifetime economic returns by course, and publish them in an easy accessible format as they have done with earnings. We further propose that universities be obliged to publish them on course advertising literature.

Part 3: Rebalancing Higher Education

The proposals we have made in this paper would, assuming the repayment threshold were raised, result in a substantial saving for the Government, because they would result in a reduction of the provision of low-earning, low-returning courses, or else require those who do study them to make larger repayments.

In the long run, if the system became fully self-financing, the Government would save the £8bn it currently loses in un-repaid loans. Even if the default rate dropped from 54% to 25%, under the 75% target proposed above, it would save £4.3bn.

> **'In the long run, if the system became fully self-financing, the Government would save the £8bn it currently loses in un-repaid loans'**

Assuming we take £1 billion of that to increase teaching grants for high-cost-of-provision subjects, that still leaves a substantial sum. One option would be to simply hand any savings back to the Treasury. But we believe that the most effective solution would be to use this reform to give the education system funding in the right places to produce the kind of workers, and skills, that Britain will need in the coming century, and to contribute to the levelling up agenda by helping to make this country a science and research superpower.

Supporting Technical Education

Under our proposals, it is likely that universities will have to slim down or shut down many courses that – if we are being honest – they should never have been offering in the first place.

Some school-leavers will instead choose to take up university courses that deliver higher lifetime returns. But there will also be students who realise that their economic interests are not best served by university education, and who seek alternative forms of training. We therefore propose that £2bn of whatever long-term savings are made go towards an expansion of further and higher technical education, to provide school-leavers with those productive alternatives.

The OECD has found that the United Kingdom performs especially poorly in providing technical education.[39] An inquiry by the Science and Technology Select Committee found that we are losing £63bn in national income annually due to our digital skills gap alone,[40] and Accenture estimate that we are sacrificing 0.5% of national income growth annually by failing to supply the skills demanded by the "technological era".[41]

39 The Department for Business Innovation and Skills, *Technical education reform: the case for change.* Link

40 Science and Technology Select Committee, *Digital Skills Crisis.* Link

41 Accenture, *How to accelerate skills acquisition in the age of intelligent technologies.* Link

This Government has promised to build a "world-class, German-style" further education system in England.[42] It will simplify the post-16 technical offering, by consolidating the number of courses available – which will be much aided by the introduction of T-Levels – and the institutions which offer them. Higher technical education – at levels between an A-Level and undergraduate degree equivalent – will be provided by the Government's flagship institutions, the Institutes of Technology (IoTs), which will collaborate between further education providers, universities, and employers to "provide students with a clear route to technical employment".[43]

> **'The Government have already allocated £1.5bn to upgrade the further education estate, £290m for 20 IoTs, £133m to improve T-Level provider facilities and £24m to develop the further education workforce'**

The Government have already allocated £1.5bn to upgrade the further education estate, £290m for 20 IoTs, £133m to improve T-Level provider facilities and £24m to develop the further education workforce.[44] The savings identified here would enable it to go further and faster. However, as pointed out in previous CPS work, there is also a pressing need to improve the pipeline of students choosing technical education, to ensure that it is a home for those with a genuine aptitude rather than just being used as a dumping ground for those who fail to excel in a traditional school setting.[45]

Research and development

We propose that the remainder of the savings (up to £5bn if the university system were made entirely self-financing, or £1.3bn under the 75% repayment threshold), should be invested in research and development, mostly as grant funding to research teams in university departments.

Research and development spending in the United Kingdom totalled £38.5bn in 2019, 1.74% of national income; public sector spending totalled £11.7bn.[46] Meanwhile, the Organisation for Economic Cooperation and Development (OECD) average was 2.4% of national income; Israel topped the charts at 4.9%, and the highest-spending European economies were Sweden at 3.3% and Germany at 3.1%.[47]

The Government aims to bring total R&D spending to 2.4% of national income and double public spending to £22bn by the end of the Parliament: the upper limit of £5bn identified in this paper would provide for almost half of that.[48]

A study commissioned by the Department for Business, Energy, and Industrial Strategy (BEIS) estimated that by 2027 national income would be 1.3% higher than otherwise given such a funding boost, and by 2040 would be 2.9% higher. If R&D spending were to rise to 3% by 2040, then income would be 5.7% higher.[49]

42 Department for Education, *Education Secretary FE speech with Social Market Foundation.* Link

43 Department for Education, *Institutes of Technology.* Link

44 Department for Education, *Reforming Higher Technical Education Government consultation response.* Link

45 Toby Young, *Technically Gifted.* Link

46 Office for National Statistics, *Gross domestic expenditure on research and development, UK: 2019.* Link

47 OECD, *Gross domestic spending on R&D.* Link

48 Department for Business, Energy and Industrial Strategy, *UK Research and Development Roadmap.* Link

49 Department for Business, Energy and Industrial Strategy, *Macroeconomic Modelling of the 2.4% R&D Target.* Link

The greatest sectoral impact would be manufacturing, where the Gross Value Added would be 18.3% higher than otherwise.

The Government believes that the United Kingdom, given its world-leading universities and its flourishing private life sciences and technology industries, could become the global centre of high-end innovation. To this end it is establishing a British version of the United States' Advanced Research Projects Agency (ARPA) of the 1960s, which produced much of the technology underlying the internet.

Yet the new Advanced Research & Invention Agency (ARIA) has been allocated only £800m across this Parliament.[50] This is hardly enough to move the needle in terms of innovation or economic growth, and far less than our competitors are putting into fundamental research.

'The greatest sectoral impact would be manufacturing, where the Gross Value Added would be 18.3% higher than otherwise'

ARIA should fund university departments directly, in addition to funding researchers in the private sector. It should aim to develop advanced technology over a 10-15 year horizon, and in doing so to create the industries of the future.

The payoff from such a venture might be uncertain, but it is surely better to invest where the returns are potentially very large, rather than to spend where we are certain they are very small, as we currently do in the undergraduate system. It would also be in keeping with the central theme of this paper, which is to redirect our educational investment from low-productivity areas to high-productivity areas – in other words, to incentivise the kind of training and education that will make both those individuals and the country richer in the long run.

Incentivising New Forms of Provision

So far in this paper, we have assumed that the three-year residential undergraduate degree will remain the higher education staple. Yet there's no reason for it to: for example, given rapid changes in technology, many have argued that we would do better to focus on giving people access to retraining throughout their working lives, rather than giving them three years of degree training in their twenties and then leaving them to their own devices. Others argue that many jobs and careers for which a degree qualification is currently a requirement for entry can be done without a degree qualification, and that shorter, more job-relevant qualifications would be better.

One of the advantages of our proposals is that, by introducing a diversity of repayment methods, they would also work with a diversity of courses. Universities might decide to condense three-year degrees into two years, or to focus on part-time education, given that working alongside studying prevents the need to accumulate debt for maintenance costs.

50 Department for Business, Energy and Industrial Strategy, *UK to launch new research agency to support high risk, high reward science.* Link

The Government has acknowledged the utility of shorter and part-time courses in its Lifetime Skills Guarantee, and indeed the alternative provision covered in this section could work for 18 year-olds as well as later-life education.

Perhaps the most likely way that this will play out is through an expansion of online provision. Universities were increasingly offering online options even before Covid-19 forced an acceleration; our proposals might act as a further catalyst.

Suppose that three options for full-time undergraduate education in the classroom-based subjects emerged: a campus option, a 'blended learning' option, made up of online lectures and interactive classes; and a 'resources-only' option, in which students would have access to online lectures and class material, but no opportunity to interact with teaching staff. Plainly, the cost of provision would fall dramatically across these options, which would enable students to trade cost for interactivity. Becoming responsible for their own loan portfolios would encourage the universities to innovate in this space.

'Udemy, one of the organisations at the forefront of the movement, currently boasts over 130,000 courses of varying duration and 35,000,000 students'

Shorter, online and cheaper education outside universities is likewise already becoming more popular, but might be catalysed by our proposals. Udemy, one of the organisations at the forefront of the movement, currently boasts over 130,000 courses of varying duration and 35,000,000 students.[51] They specialise in technical education, especially computer science, but offer a range of mostly business-friendly and directly work-related courses.

We believe that financing non-university education should be made easier. Presently it has to be funded out-of-pocket: in the US, many private providers offer income-sharing agreements to their students, but in the UK they are subject to the Consumer Credit Act and regulated out of existence.

One company, StepEx, has an FCA-approved product for funding education using income-sharing arrangements.[52] At present, however, it's regulated as a credit provider and made to publish APRs and so on, which isn't appropriate and limits the growth of the funding mechanism. To enable such private providers to offer competitive financial arrangements, the FCA should create a regulatory arrangement for income-sharing agreements that encourages their growth.

51 Udemy, *About Us.* Link

52 StepEx, *Student Finance is all that we do.* Link

Conclusion

In our vision of higher education, Britain's university system will still be a national crown jewel. But for the most part, students will go to university to study courses that will increase their productivity and raise their lifetime earnings. It will be a system built around quality rather than quantity.

Students on campus will be composed of those who are there because they're studying a subject that requires their physical presence, and those who've chosen to take the high-cost option of being there because they want to be surrounded by other students and professors, or just because they've bought into the lifestyle. But many others will take the lower-cost option of studying online and remotely.

'Above all, universities will finally be incentivised to do the best for their students, rather than for themselves'

The loan system will become increasingly self-financing, as students who might previously have chosen to study low-returning courses in the knowledge they'd make little repayment no longer choose to do so, or do so but assume a greater share of the financial responsibility. There will be fewer creative arts students, and more coders, engineers, medics and lawyers. More people will take up technical or vocational education at 16 and 18 instead, and continue learning throughout their lives as changing technology demands.

Funds will be redirected from bad courses at bad universities to supporting high-cost courses in medicine or the STEM subjects, and to funding research in those departments – cementing the UK's place as the global centre of high-end innovation. Above all, universities will finally be incentivised to do the best for their students, rather than for themselves.

57 Tufton Street, London, SW1P 3QL
September 2021
ISBN 978-1-914008-11-5