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UNIVERSITIES CHALLENGED:

Funding Higher Education
through a Free-Market
'Graduate Tax'

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Summary

- Although graduates tend, on average, to earn more than non-graduates, the 'graduate premium' varies greatly by subject and by year of graduation. It also varies significantly between individuals.
- There is considerable uncertainty about how the graduate premium will evolve for the coming generation of students given rapid technological change and its impact on the labour market.
- The current student loans system is very badly designed. It is arbitrary; graduates who earn around £40,000 a year pay the highest amount as a proportion of their income while very-high earners pay much less. Furthermore, loans are forgiven, at substantial cost to the government, even if they could be repaid at a later date.
- Following the suggestion of Milton Friedman in 1962, higher education would best be paid for by an earnings-linked levy. This is the rationale for suggestions for a graduate tax. However, a tax is received by government, leading to many disadvantages which can be wholly overcome by a private scheme where payments are made directly to the university.
- Universities should individually or collectively offer contracts to their students, who would agree to pay to the university they attended a given percentage of their earnings. That percentage could vary by course and institution, though some agreement between universities could be helpful to achieve standardisation.

Essentially, the university would be taking an equity interest in the graduate premium earned by the student, although any student who chose to do so could, alternatively, pay the full fees up-front prior to beginning their studies.

- If universities needed additional cash to finance their current expenditures, they could sell their rights to the graduate equity income stream through a securitisation mechanism. With or without securitisation, the risk of obtaining a low graduate premium will be reduced for students and be minimal for universities as their exposure will be diversified across many students.
- This approach will ensure that universities have a much stronger interest in the employability of their graduates. That interest will continue after graduation. As such, universities will have an incentive to invest in careers advice and related services and in continuing to provide such services after graduation.
- Given that universities would have entirely independent funding streams, they could be released from all regulation of undergraduate courses. Furthermore, they would be free to innovate, develop cheaper part-time courses using online provision, and so on. There would be competition between universities. However, competition would lead to a 'race to the top' and not a 'race to the bottom' because universities would have a direct economic interest in the success of their students. Private universities could therefore safely be allowed to participate in the scheme without the risks that have arisen in the US where government subsidy has led to moral hazard and poor-quality courses at some institutions.
- The current student loans scheme would be entirely abolished. Central or local government could, however, provide some funding to individuals to take courses in order to pursue wider objectives of government policy in relation to higher education.
- Some tuition-fee funding schemes have already been developed with the key elements described in this paper. It would therefore appear that the proposals are viable in practice.

Introduction

Evidence suggest that, as a greater proportion of a population benefits from higher education, it leads not just to an economic return in the form of faster economic growth, but also enhances general non-market welfare through higher social cohesion leading to, for example, a lower crime rate (BIS 2013a). Higher education is also good for students. Despite the growth in the number of people obtaining degrees over the last 30 years, the graduate premium – the additional income earned by graduates by comparison with equivalent non-graduates – remains strongly positive (BIS 2013b). Higher education (HE), self-evidently, is good for academics and others engaged in the sector. It provides them with employment, job satisfaction and prestige, which are presumably better than alternatives available. Furthermore, higher education is a large invisible export sector, something which would be difficult to achieve in the absence of substantial British student participation.

In the post-war period, students and universities in the UK got used to the government paying the bulk of the costs of higher education but, post-2008, the government was looking for ways to reduce its expenditure. Consequently, in 2009, the Labour government set up the Browne Review to suggest how to distribute the costs of HE between universities, taxpayers, students, graduates and employers. The position of the coalition government, committed to reducing the fiscal deficit, was indicated by David Willetts, the Minister for Universities and Science. In June 2010 he suggested that he considered that students were a ‘burden on the taxpayer that had

to be tackled'.¹ The universities' position, as set out in submissions to the Browne Review by the Russell Group, was that they should ultimately have freedom to charge whatever they wanted, with students and/or the government responsible for the costs. The students, as represented by the NUS, accepted that graduates must bear a significant part of the cost of their education and proposed a cross between a graduate tax and a loan, where payments were proportional to income but the maximum payable was capped.

After the Browne Review reported in late 2010 the government implemented a revised scheme for university funding that drew largely from Browne but which represented a compromise. Tuition fees were allowed to rise, but only to a fixed maximum; loan repayments were to be proportional to income; and the implied government contribution was significantly reduced. The new scheme, currently in place, became effective for students starting their courses in autumn 2012.

1 'David Willetts hints that university students will face higher fees', *The Guardian*, 9 June 2010, <http://www.theguardian.com/education/2010/jun/09/david-willetts-students-tuition-fees>

Current funding arrangements

The new arrangements for funding students through university were set out in a white paper published in mid-2011 (BIS 2011a). It was summarised in a letter from the Department of Business, Innovation and Skills (BIS) to the Higher Education Funding Council for England (HEFCE)² and set out a key motivation for the new funding arrangements: 'These reforms will generate £3 billion in savings annually by 2014-15 on the government supported element of the teaching grant.'

This was to be achieved by allowing universities to increase tuition fees from £3,225 per annum to up to £9,000 per annum while reducing the government's payments to universities and seeking to improve the recovery of the costs from graduates by charging real rates of interest on outstanding loan amounts, to be repaid over a period of up to 30 years.

The BIS letter suggested the new payment scheme would offer a range of improvements for universities and students. For example, it suggested that successful institutions would be freed to thrive and become more independent; that institutions successful at attracting students would benefit and would receive good value; and that universities that wished to develop low cost approaches

2 Cable V. and Willetts D., letter to HEFCE, 28 June 2011, http://www.hefce.ac.uk/media/hefce/content/about/introduction/abouttheinengland/hereform2012-13/Letter_Cable_Willetts_280611.pdf

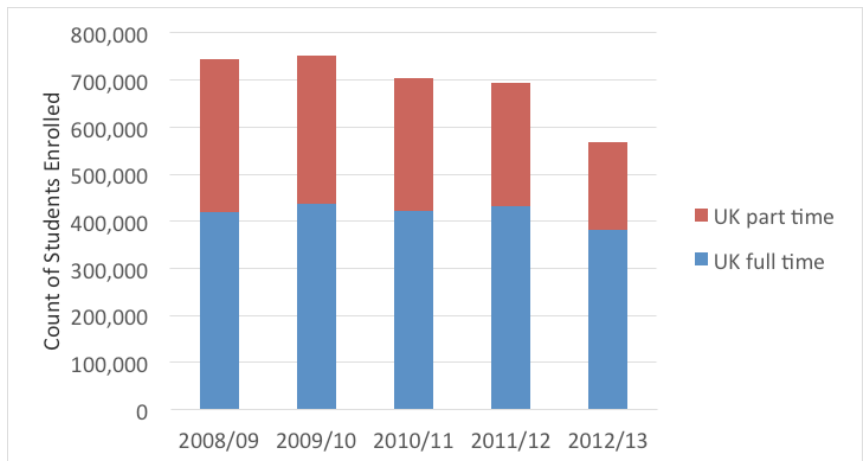
to delivering higher education would not be prevented by student-number controls.

Textbook economics assumes a degree of rationality on the part of economic actors. If there are price or other incentives for following a particular course of action, there is a heightened probability that the course of action will be followed. This can lead to moral hazard where the full consequences of an individual's or institution's course of action are not borne by them. Under the new arrangements, students face a much higher price for a university education while universities are encouraged to get students to enrol, partly by the publication of additional student experience information. But the universities themselves face little risk if the courses on offer do not assist the graduate in paying off the increased fees.

Current outcomes

The data from the Higher Education Statistics Agency (HESA) for enrolments for 2012/13, the first year of the new funding arrangements, shown in Figure 1, suggest that students are behaving rationally by reducing their participation in HE given the new arrangements and higher costs. By comparison with 2011/12, enrolments for full-time study fell by 50,000 (11.7 per cent) while part-time numbers were down by 75,000 (28.8 per cent).³

Figure 1: First-year student enrolments by year of joining



Source: Higher Education Statistics Agency, Table 2 of Statistical First Release 197.⁴

³ The data for 2013/14 will not be released until January 2015. Part of this fall might well have resulted from the transition from one system to another and the ability of students to start earlier than planned. It is, nevertheless, still rational behaviour.

⁴ Available at: <https://www.hesa.ac.uk/free-statistics>

It is not clear that the new funding arrangements will meet the government's objectives of reducing the cost to the taxpayer. The Public Accounts Committee report on education funding, published in February 2014, observed that there are around £46 billion of student loans outstanding, set to rise dramatically to £200 billion by 2042 (in 2013 prices) (House of Commons Committee of Public Accounts 2014). Commensurate with the increase in the aggregate value of loans, the estimates for the proportion of loans that will not be repaid are also rising. Currently the government assumes that 35-40 per cent of outstanding loans will never be repaid, amounting to around £80 billion given the estimated value of student loans by 2042. In March 2014 it was reported that the increasing share of debts that was going unpaid meant that the post-Browne system, with tuition fees up to £9,000 per annum, may cost the government more than the prior system.⁵

It is too early to know whether the new funding arrangements will lead to a better student experience and value for money in terms of their future earnings. But there is certainly nothing in the government's scheme that ensures that universities have any meaningful incentive to orient their activities in a way that will deliver a long-term income benefit to match the 30-year term of the student loan obligation.

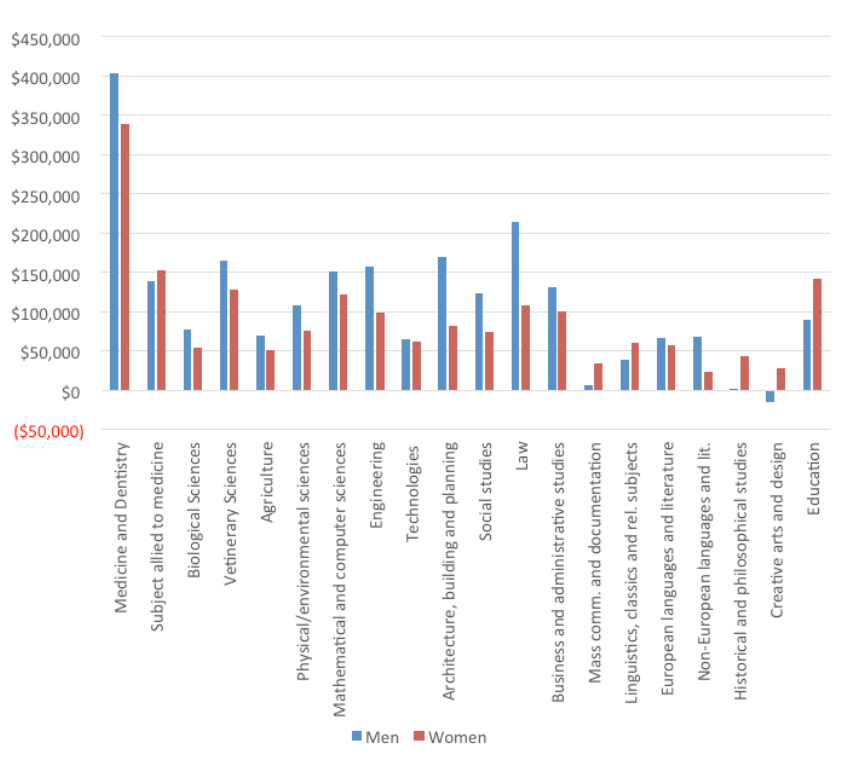
5 'Student fees policy likely to cost more than the system it replaced', *The Guardian*, 21 March 2014, <http://www.theguardian.com/education/2014/mar/21/student-fees-policy-costing-more>

Graduate premium uncertainty

Whilst, on the one hand, potential students are acting rationally if they reduce their participation in the face of the increasing price of higher education, on the other hand we might still expect those students who have a positive graduate premium to attend university. However, the costs of attending university are much more certain than the potential additional earnings which vary very much between courses, sexes and between individuals more generally. A recent study (BIS 2013b) estimated the graduate premium at £168,000 (£252,000) for men (women), while a similar study just two years earlier concluded that it was £121,000 (£82,000) for men (women) (BIS 2011b).

Such a large variation between two studies with large sample sizes (Labour Force Survey of c.100,000 with c.50,000 responses) is an indicator of the uncertainty facing an individual student when considering whether it is worth going to university. The degree of uncertainty is further increased by the range of outcomes by subject studied. Figure 2 shows a very wide range of possible graduate premia, from £400,000 for men studying Medicine and Dentistry to a negative £10,000 for men studying Creative Arts and Design. If medical careers were excluded, the graduate premium would be significantly lower, with many subjects yielding paltry returns.

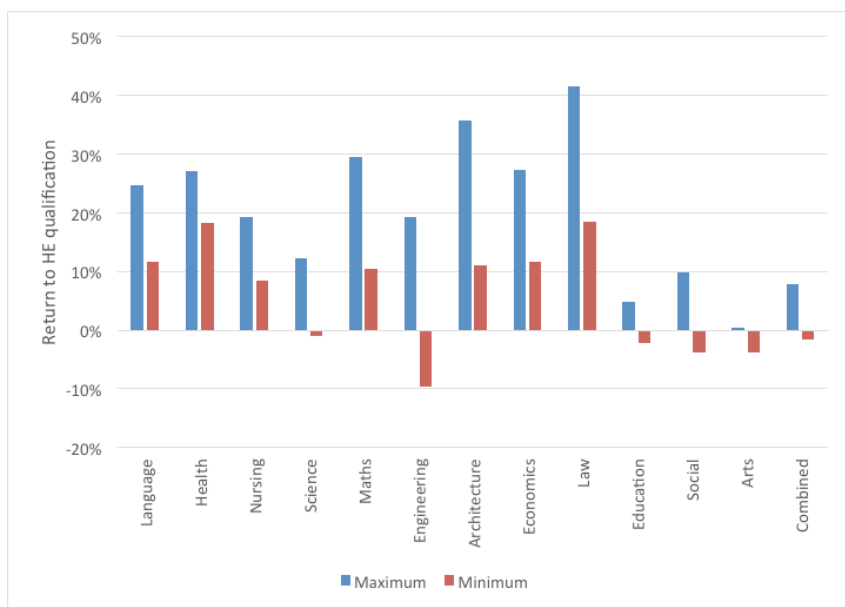
Figure 2: Graduate premium by undergraduate degree subject



(Source: BIS (2011b: Table 20)

An earlier study looked at the range of outcomes by subject and by year of starting the degree course, as shown in Figure 3. In this figure the minimum and maximum returns to HE by subject for starting years from 1993 to 1999 are shown. The large variation in possible outcomes suggests that the graduate premium depends quite substantially on the student's year of entry, itself a determinant of the year that the graduate seeks to enter the workforce.

Figure 3: Variation in returns by year (showing maximum and minimum between 1993 and 1999)



Source: Walker and Zhu (2001)

Employment success in the first few years after university has a material effect on a graduate's long term career path (Oreopoulos et al. 2006). Entering the workforce when graduates are much in demand will raise both current earnings and future potential. Entering in a recession, when a graduate may initially be forced to take a non-graduate job, or may face unemployment, will reduce earnings for an extended period of time. This raises uncertainty. For example, those students who started at university in September 2005 would not have had any way of knowing that they would be aiming to start work just as Lehman Brothers collapsed into insolvency and a severe economic crisis began.

Another study pointed to a variation in graduate earnings by region, type of institution, degree classification and social background, concluding that 'estimates of the average rate of return to a university degree are likely to conceal much variation about the average' (Ramsey 2008).

While many studies have confirmed the existence of a graduate earnings premium, and even suggested that it is getting larger with time, this is only an average. Any individual student faces a very wide range of possible outcomes.

A further consideration is highlighted by a recent US study which suggested that rapid developments in software, computerisation and machine intelligence will replace up to 47 per cent of total employment – including many jobs currently filled by graduates. Table 1 highlights some of the occupations this study considered likely to be computerised.

Table 1: Probability of occupations being computerised

| Probability of computerisation | Occupation |
|---------------------------------------|--|
| 99% | Mathematical technicians |
| 99% | Insurance underwriters |
| 98% | Loan officers |
| 98% | Credit analysts |
| 98% | Legal secretaries |
| 97% | Dental laboratory technicians |
| 96% | Surveying and mapping technicians |
| 96% | Compensation and benefits managers |
| 95% | Nuclear power reactor operators |
| 94% | Paralegals and legal assistants |
| 94% | Accountants and auditors |
| 93% | Tax examiners and collectors, and revenue agents |
| 86% | Real estate sales agents |
| 65% | Librarians |
| 61% | Market research analysts and marketing specialists |
| 58% | Personal financial advisors |

Source: Frey and Osborne (2013)

The study does not claim to know for certain that a given class of work will be computerised. The nature of the job may change, or the pay may decline; but the inclusion in the study of many occupations that might once have been considered high-skilled, graduate-level occupations suggests a greater than usual level of uncertainty and job insecurity over the next 30 years.

This increases the value of a funding system that not only delivers excellent education while at university, but which also incorporates the possibility of lifelong learning support in the event that a chosen career ceases to exist.

Analysis of the present student loans scheme

The key characteristics of the current tuition fee and student funding arrangements are as follows:

- Loans are provided for tuition fees of up to £9,000 per annum.
- Maintenance loans can be taken out for up to £7,750 per annum.
- Nothing needs to be paid back until the graduate is in employment.
- The debt is repaid at a rate of 9 per cent of pre-tax income in excess of £21,000.
- Any unpaid loan outstanding after 30 years is forgiven.
- Interest is charged at RPI⁶ plus an increment based on income, on a scale from 0 per cent at an income of £21,000 to a maximum of 3 per cent for income of £41,000 and above.

The student loan agreement document makes clear that graduates have no certainty about their future obligations. The terms and conditions state: 'The regulations may change from time to time and this means the terms of your loan may also change. You must agree to repay your loan in line with the regulations that apply at the time the repayments are due, subject to the regulations being amended from time to time' (BIS 2013c: 3).

6 The Retail Prices Index – a measure of inflation.

The government could vary the level of income above which the loan must be paid; the proportion of income to be taken as loan repayment; the rate of interest; and the number of years before the loan is forgiven. The £21,000 hurdle will, in real terms, reduce in value each year in line with inflation so the government could decide to keep it constant so reducing it in real terms and bringing more graduates into the loan repayment net. Indeed, the *Daily Telegraph* reported in June 2013 that the Treasury has already been floating the idea of cutting the income hurdle to £18,000 because of the 'need' for graduates to pay back loans faster.⁷

Such an ability on the part of the lender to change the 'loan' terms after the fact is not consistent with most ordinary loan agreements. In the private sector, such terms would potentially be considered unfair, making the agreement unenforceable. It indicates that a more legally correct characterisation of the student loan agreement is that it is a tax – though a rather arbitrary and extremely complex tax.

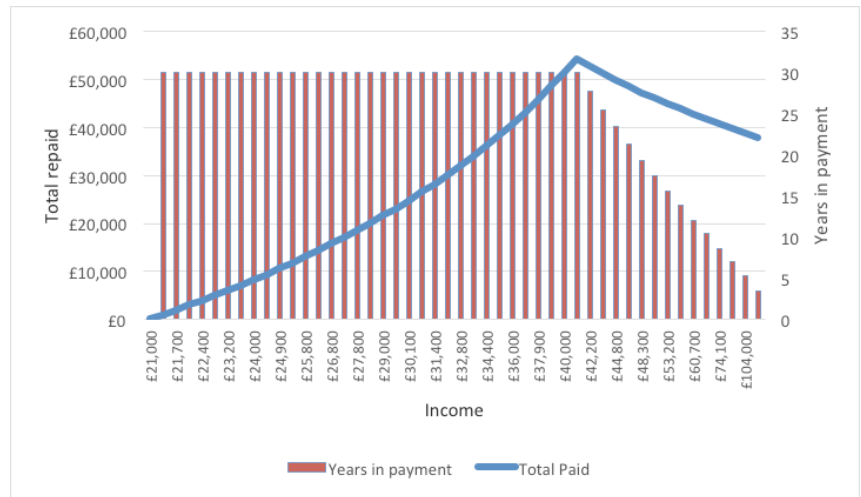
Indeed, the fact that the government charges higher rates of interest on higher earners is wholly consistent with the system being a form of graduate tax and not a loan. However, although the current scheme incorporates the principle that high earners should, in some way, make a bigger contribution by paying more, this principle is applied in a way which is arbitrary (interest rates are unconnected with market interest rates and rise arbitrarily with income); illogical (higher interest rates are charged to borrowers who are more likely to repay the loans); and inefficient (very high earners will actually pay less because they pay the loan back much faster).

The impact of the scheme at different levels of income is shown in Figure 4. It shows the total amount repaid on the student loan and the number of years in payment for the 52nd to 99th percentiles of income (the 52nd percentile is the first to meet the £21,000 hurdle). It makes the simplifying assumption that graduate salaries stay at the same level of income for 30 years and that there is no inflation,

7 'Students must pay back loans sooner', *Daily Telegraph*, 13 June 2013, <http://www.telegraph.co.uk/education/educationnews/10119622/Students-must-pay-back-loans-sooner.html>

and assumes an initial loan amount, combining tuition fees and maintenance, of £36,000. Of course, graduate salaries will vary with age and experience. The point of the figure is to illustrate how total loan repayments rise with income up to £41,000 and then fall with income after that point.

Figure 4: Aggregate paid on £36,000 loan by income level



Source: HMRC Survey of National Income Statistics data, Table 3.1A.

The 'loan' scheme also discriminates between those who start work immediately upon leaving university and earn less as they approach retirement and those who have low initial earnings or take extended career breaks and earn more after age 50.

The scheme's arbitrary characteristics, combined with the government having reserved the right to change any of the parameters of the scheme at any time, create further uncertainty for the prospective student.

Portfolio theory – and its relationship to student finance

Risk and uncertainty are recognised phenomena in investment. Different investments have different performance characteristics and there can be greater certainty about the return from investment, without any impact on the level of expected return, if a diversified portfolio is held. The proof is attributable to Harry Markowitz, the father of ‘Modern Portfolio Theory’.⁸

We have established that there exists a positive graduate premium but also that, for an individual student, there is considerable uncertainty as to whether they will get that benefit. Applying portfolio theory in this case means that, to be sure of collecting the graduate premium, a student should study a number of courses starting at different times and should have multiple careers, all in one lifetime. That is simply not possible for the individual student.

However, a university is in a position to be able to diversify across subjects, year groups and individuals. Indeed, with the typical institution having many thousands of students it holds a highly diversified ‘portfolio’. This means that a university is, in theory, in a position to capture the graduate premium with a low level of risk. Whereas participation is likely to fall when the student faces raised tuition fees and uncertain outcomes, if the university takes more of

⁸ First published in 1952 but available in Markowitz (1991).

that risk upon itself student risk is mitigated and participation should rise.

In the financial markets there are two ways to provide funding for expenditures. In debt finance the borrower must pay back a fixed sum to the lender. Interest accrues until the fixed amount has been paid. In equity finance the recipient of the funds has no fixed obligation to the provider of funds. Instead, they enter into a partnership whereby, if the venture is successful, both share in the gains, while, if it is unsuccessful, the recipient need pay nothing to the provider.

Of the two, debt finance – taking out a loan - is much riskier for the borrower. Using loans to finance higher education means students who do not benefit from the average graduate premium will be saddled with a liability they cannot easily repay. In the current system of student finance, this is partially managed by, in effect, forgiving the loan in certain circumstances. However, this remains expensive for the middle-income earner while compounding the unattractiveness to the lender as the loans will not be repaid in full. This is evidenced by the large losses the government is experiencing on the student loan book, against which the charging of higher interest rates in the form of an arbitrary tax is ineffective.

Equity finance, where there is a partnership between provider and recipient of money, is less usual in relation to personal expenditures, but has significant advantages in relation to the finance of higher education.

Indeed, these characteristics were, in part, identified in Friedman's *Capitalism and Freedom* (1962), where there is a section that analyses the problem of how to pay for higher education. Friedman observed that: 'The average expected return [to higher education] may be high, but there is wide variation about the average'. From this observation Friedman then referred to: 'the inappropriateness of fixed money loans to finance investment in training' and went on to suggest a different model for financing higher education: 'The device adopted to meet the corresponding problem for other risky

investments is equity investment...The counterpart for education would be to “buy” a share in an individual’s earning prospects; to advance him the funds needed to finance his training on condition that he agree to pay the lender⁹ a specified fraction of his future earnings’.

The ‘graduate equity’ scheme that is the subject of this paper, explained in detail below, combines the ideas of Friedman with those of Markowitz.¹⁰ It is proposed that universities effectively make equity investments in their students by replacing tuition fees with a share of their graduates’ future earnings.¹¹ The university would receive an agreed proportion of the graduate’s future earnings in exchange for the supply of a university education on a given course. This will align the interests of the universities with those of the students. Furthermore, the revenue from graduates who do exceptionally well will offset the losses on those who are not successful, generating higher income than a loan scheme which caps the amount received from the winners whilst not expecting repayments from those whose incomes are low or labour market participation incomplete. The scheme is also consistent with the risk-sharing principles of Islamic finance which emphasises equity investment and, by eliminating the notion of default, has characteristics that render it inherently stable. In a sense, the proposal is for a privately agreed graduate ‘tax’¹² – though ‘tax’ is not really the correct word to describe the arrangement which is entirely governed by private contract.

The scheme requires universities to accept some risk. This notion, in relation to unpaid loans, has been suggested by *The Economist*¹³ and is a key component of proposals put forward by Barr and Shephard (2010).

9 The term ‘lender’ used by Friedman is not strictly correct as the interest is an equity interest. Should the person earn nothing for their whole life, there would be no liability.

10 It may be of interest to note that Friedman was Markowitz’s PhD examiner.

11 The acronym ‘FAIR’ could be used to describe the scheme: ‘Funding with Affordable Income-Based Repayments’.

12 Hence the subtitle of the paper ‘free-market graduate tax’.

13 ‘Student Finance – Fees fi fo fum’, *The Economist*, 19 April 2014.

Incentive effects of the graduate equity scheme

A funding system whereby universities receive a proportion of their graduate's future salaries would radically change the incentive structure compared with the existing student loan system. It would thus address the moral hazard facing universities, students and graduates.

Currently, a university is motivated to offer courses that are cheap to deliver or are appealing to prospective students on the grounds that they may be perceived to be easy or enjoyable, rather than useful. The proposed scheme creates an economic incentive for the university, in designing its course offering, to concern itself with the career success of its potential graduates both immediately and long after graduation. This does not imply that particular subjects need be emphasised relative to others. The evidence is that businesses care as much about general employability skills as they do about the specific course studied.

The proposed scheme ensures value for money by tying university income to graduate income over the long term. It is unavoidable that some degrees will be very high cost to deliver. It must be possible for universities to provide such courses and be remunerated for them. At the same time, the student needs to be confident that, if they engage in a high-cost course, they will get value for money. The alignment of financial rewards that the equity-based finance scheme creates is the best possible guarantee that these twin objectives can be achieved.

The moral hazard facing prospective students under the present scheme arises from the incentive for them to attend university even if they have no interest in studying. They can avoid the workforce for three years in the expectation that their earnings will never be sufficient to ensure they pay back the full cost. Such students are attractive to the university. They will receive government funding but will probably consume very limited teaching time. Under the graduate equity scheme, the university would not benefit from taking such students.

Graduates, for their part, are motivated to maintain their earnings below £21,000 while they remain in the UK, and to emigrate when their earnings rise above that level, returning after 30 years to retire. While action as extreme as this is likely to be rare, it cannot be denied that this behaviour is encouraged by the present scheme and there are a number of ways that graduates can develop their career patterns to reduce their loan repayments. The efficiency of the equity scheme means charges could be at a lower rate and that, as a private sector contract under UK law, it would be enforceable all around the world. This would mean that the incentives facing the graduate were aligned with the interests of the university – both would want to make the most of their education.

Demand for graduate equity securities

Whilst universities will receive a share of graduates' earnings and thus have a reasonably well diversified portfolio of potential income, the receipts will only arrive over many years. If a university does not have another source of income it will need to raise funds to pay for its current expenses.

One way to do that would be to borrow against its future income. Many universities already have borrowing programmes. As their future income would be tied to the earnings of many thousands of graduates the risk of their future income being much lower than forecast is small and so they should be able to borrow at favourable rates.

Alternatively, a university, acting alone or with a group of other universities, could choose to sell its future income rights to investors through the process of 'securitisation'. The better the investors perceive the educational programme of the institution and the prospects of its graduates, the higher the price they would pay for the securities.

A portfolio of rights to a share in the future income of a large group of graduates could be an attractive investment for, in particular, pension funds and individuals investing with the aim of producing an income in retirement. A pensioner needs an investment that produces an income that is related to earnings from employment – reasonably stable and rising with inflation over time. A share in the earnings of thousands of graduates would have exactly these properties.

The risk that graduates will default on their obligations is low as the larger proportion of the income is due from graduates who have high earnings and who therefore would be unlikely to want to have their credit rating impaired. The securities would therefore provide reasonably stable returns but also diversify risk within pension funds as the characteristics of the securities would be quite unlike those from bonds and conventional equity investments. Below are listed a number of small companies who are currently raising money from investors to provide equity finance to students. The larger scale of the proposed scheme would generate significant operating efficiencies by comparison.

Quantification of returns

If universities are to provide the funds to enable students to attend the institutions, they must be reasonably confident of being able to recover sufficient money to cover their costs and enable them to invest.

Individual universities should be able to collect data on the earnings of their graduates and so be able to calculate the terms of the equity relationship that they could offer to prospective students.

Using the data referred to in Figure 4 it is possible to estimate the average amount paid back on a tuition plus maintenance advance of £36,000. Under the government's existing scheme, where payments are at 9 per cent over £21,000 with up to 3 per cent interest charged, the amount repaid is £28,515. The fact that the graduate premium is not evenly distributed between students, but accrues (much) more to some than others, means that such a loan scheme, whether private or public, will always fail to return the amount lent. The repayment is capped for some but others will not repay their loan.

Alternatively, if universities created equity contracts that matched the terms of the government scheme, receiving 9 per cent of income over £21,000 for 30 years with no cap but with no interest charged, they would receive an average of £50,883 per student.

The much greater return to the proposed scheme is due to the fact that the graduate premium, and hence income, is concentrated at higher levels. The top percentile accounts for nearly 6 per cent of all income, while the top two percentiles account for nearly 10 per cent. A loan arrangement which limits the payments made by the highest earners consequently collects significantly less than an equity arrangement where all pay the same percentage share of earnings.

If universities applied the system and the government failed to provide any support at all to the higher education sector (in relation to teaching), they would still have access to significant additional funds to help them remain internationally competitive. Alternatively, they could charge a lower percentage of income and still be as well funded as at present. If the government continued to support the sector to the extent of the losses it currently takes on the student loan book, universities could raise significantly more funding while charging students at a lower percentage of earnings.

Details of the graduate equity proposal

The details of the proposed funding scheme would be as follows:

1. An equity funding model based broadly on students paying a fixed percentage of their income could be offered by higher education institutions. This would be optional, but it is assumed that very limited state funding is available.
2. The university sets the fixed fees payable in respect of its courses at its absolute discretion. Different courses may be charged at different levels.
3. In all cases, as an alternative to the payment of fixed fees, the university also offers a contract, whereby the student commits to pay a given percentage of income, above a hurdle level, for a number of years. The participation rate, hurdle level and years payable would be set by the university and could vary by course.
4. If the university wishes it could cap the level of income on which the percentage is paid, or set a maximum repayable amount. This conflicts with the risk sharing nature of the scheme and means that middle-income earners, rather than the highest income earners, will face the greatest cost as a proportion of income and it could materially reduce the university's revenue. However, if the university believes that a cap will enable it to attract a particular type of student that it values then it has that discretion.

5. The university is free to decide whether to offer a premium product or to aim at a broader market, or possibly a mixture of both types of course. Some courses could be predominantly online and inexpensive, while others could involve extensive laboratory work or be highly supervised and be more expensive. In theory, the terms of the equity contract could be the same in all cases, as more expensive courses should generate a higher graduate premium.
6. On accepting a place at a university that participates in the scheme, students have a choice in relation to how they pay the fees.
 - i. they can enter into an equity contract and take on an obligation to pay a proportion of their post-graduation income to the university, or
 - ii. they can pay the unregulated tuition fee upfront, either from their own means or by obtaining funding from a third party.
7. The equity contract would be designed to be effective in all jurisdictions.¹⁴
 - i. As a private contract with fixed terms under UK law, it should be enforceable in most countries.
8. Universities can then hold onto some or all of the contracts, or raise cash from them through securitisation and sale to pension funds and other investors.
9. Universities may decide to standardise and pool their equity contracts and proceeds with each other at their discretion on the grounds that larger pools of contracts lead to more stable returns and higher average prices from investors.

¹⁴ Prodigy Finance run an MBA funding programme and have developed a legal agreement which is enforceable in 100 countries.

10. Where a university chooses to sell its equity contracts to investors, it will obtain higher prices the better the market's perception of the future earnings potential of its graduates.
 - i. Investors will pay more for a set of equity contracts where they perceive that the university is competent at enhancing its students' earnings prospects, both initially upon graduation and over the life of the contract. This will provide incentives to universities to provide good careers advice and postgraduation support.
 - ii. If a university decides to sell its equity contracts it will know its income for the duration of the student's course shortly after the student has accepted their place and will have no further financial risk in relation to the student fulfilling the terms of the agreement. The risk passes to investors.

11. After graduation each graduate makes an annual declaration as to their income and pays the requisite share, if any, to their university.
 - i. Graduates would agree to be audited should their income appear too low in relation to their peers. If their report of low earnings is genuine, the university would have an incentive to provide additional training or career support.
 - ii. Tying a university's income to the long-term income of its graduates aligns their collective interests and makes the university a lifetime educational partner.

When graduates start earning, assuming the university sold their equity contract when the student started their studies, the university simply passes the money received from the student directly to the pension investors. If a university pooled its FAIR contracts with other universities it would probably be arranged so that the pool (a special purpose company) would take over the job of collecting the payments from graduates and paying them over to investors.

Specific features of the funding arrangements

Definition of university

The regulatory requirements for universities could be substantially reduced. Any institution that offers the equity contracts for all its courses is demonstrating its confidence in its ability to add value to the careers of its students and is taking upon itself the associated risk. It would simply not be economically viable for a university to operate offering courses that were sub-standard – it would have to bear the costs of educating students up front and would not be able to raise finance in relation to or borrow against a sub-standard portfolio of contracts. As the scheme involves no up-front payments by students, is available to all who the university judges likely to benefit from a higher education, has payments proportional to income and made only when the graduate earns above a hurdle, a university education would be open to all sections of society. There would therefore be no need for access regulation. All the associated bureaucracy could be abolished.¹⁵

¹⁵ The government or a local authority could, if it wished, offer bursaries to certain groups of students but this would be an entirely separate issue.

Freedom for universities

The university will decide the range of subjects it wishes to offer, how long any course should take to complete, whether or not the student must take up residence close to the university and the extent to which teaching is by lecture or tutorial, in person or online. The funding proposal encourages the universities to consider the cost of any course in relation to its value. Under the proposal, the university shares with the student the risk that its methods may not add value. This 'risk' is not necessarily a risk of loss – if they do a good job they will earn additional income and be able to expand.

Student ages

As the university, not the government, takes the risk that a student may not repay enough to cover the cost of their course, it can be left to the universities to decide the age of applicants it wishes to accept. Older students may, of course, be able to pay at least part of their fees from savings or borrowing against housing assets, so specially designed contracts could be designed for them.

Applicable earnings

To safeguard against avoidance strategies, the income level that is used to determine repayments should include all forms of earned income, whether resulting from employment or self-employment, and whether received as income, dividends or capital gains. However, the exact definition of 'income' to be used would be a matter for the university to determine up front. It would need to be measured in a contractually enforceable way both for domestic graduates and for those who move abroad.

Time limit

The number of years over which repayments must be made should refer to years in meaningful employment, defined as years when income exceeds a hurdle level. This makes the repayment obligation fair between those who choose to work early and retire early, and those who choose to work late and retire late. It means the university will be indifferent, at the point of offering places, between those who might aim to get rich quickly in, perhaps, finance or law, and those who might get rich more slowly by following, say, artistic or academic pursuits. For this to work effectively the hurdle must be set high enough to apply only when the graduate is in full-time employment in a graduate-level occupation but need not be as high as under the current student loan scheme.

Collaboration between universities

The level above which a share of income must be paid, the proportion of income to be paid and the years for which payments must be made are at the discretion of the university. There would be advantages in groups of universities standardising their terms in order to facilitate third-party investment, administration, understanding and transparency.

Foreign students

As the contract is a private sector contract under English Law it will be enforceable in most countries in the world. Not only does this improve the financial returns of the scheme as graduates who emigrate will still make a contribution, it also means that there is no reason not to include foreign students. Hence UK universities could offer their services to the best and brightest around the world regardless of the ability of the foreign student to pay tuition fees upfront. If they felt that the risk of paying up-front fees was too great, they could also choose to enter into an earnings linked contract.

Tax relief

There is a case for payments to universities qualifying for tax relief as universities are charitable corporations and the graduate receives no benefit in the year of payment, as with a charitable donation. A strong case can be made that investment in human capital should be subject to tax deduction at some stage in the same way that corporations receive tax relief on investments in research and development. The payments to the university are a cost of achieving a higher salary and, it can be argued, should be deducted from the salary before tax is levied.

Maintenance

Universities could decide to cover some basic maintenance costs – accommodation where there is an attendance requirement, for example – in exchange for the obligation to pay a given percentage of salary. The government could continue to offer maintenance loans as these distort decisions in relation to higher education to a much lesser degree than the arbitrary subsidisation of tuition fees.

Buyout

It should be possible for graduates who have signed up to the equity scheme to buy themselves out of their future obligations at a price set by the university, which may be above the fixed fee that had been on offer when the student applied, given that the student will have more knowledge about their prospective salary at that stage. This would be a matter for the university.

Social objectives

The government – or local government - can meet specific social or economic objectives by subsidising selected institutions, courses or students. Whether and to what extent the government should do this is beyond the scope of this paper and the matter can be divorced from general considerations in relation to student funding entirely.

Implementation

In the first place, universities should simply be allowed to withdraw from existing funding and regulatory mechanisms and develop schemes such as those described above. When they do so, all regulation of fees, admissions and other aspects of under-graduate provision should cease. The London School of Business and Finance has followed a path similar to that described above, with the Springboard Scholarship (see below), a postgraduate course which is free if it does not materially improve earnings. This shows its confidence in the value added by the course. Other universities need to have the confidence to tie their income to that of their graduates. A single university could decide to go it alone and switch to the graduate equity scheme, but it would then face all the costs of setting up, explaining and administering the scheme. It would be more efficient if a group of universities, all confident in their ability to add value to their students' careers, acted together.

Precedents

While no university currently operates a system that has all the characteristics of the proposed scheme, all the key elements are currently being applied in practice within the higher education sector or in the provision of government services. These examples demonstrate the feasibility of the legal and technical aspects of the proposal.

As mentioned above, in 2013 the London School of Business and Finance introduced the Springboard Scholarship. It defers tuition fees on post-graduate courses in accounting, law, business management and marketing, among others, until a graduate's salary has risen by 50 per cent. If the graduate's salary doesn't increase by half within two years of completion they don't have to pay at all.¹⁶

The government is paying certain charities on a results basis in relation to reducing the re-offending rates of ex-prisoners and private contractors have taken on the task of finding jobs for 500,000 long-term unemployed on a payment-by-results system.

CareerConcept AG, a German Company, was set up in 2002 to provide equity-style educational finance to German undergraduate students studying in 20 countries, attending over 300 Universities. CareerConcept agrees student-specific fees as a percentage of

¹⁶ 'LSBF Springboard Scholarship', <http://www.lsbf.org.uk/news-and-media/news/springboard-scholarship.html>

their monthly gross income, normally between 4 per cent and 10 per cent, and raises capital by issuing securities to investors.¹⁷

Lumni is another pioneer in 'human capital funding' and now operates in the US, Mexico, Columbia, Peru and Chile. Currently it is committed to financing 10,000 new students where, as with the proposal above, they pay for their education with a fixed proportion of their income for a defined length of time and, as with CareerConcept, raise funds from investors.¹⁸

A new 'crowdfunding' firm, Pave¹⁹ has recently launched in the US to provide equity based finance to students and graduates where they pay back a proportion of their income.

Prodigy Finance is a UK company, founded in 2006, which provides funding for MBA studies. Although Prodigy offers loan based finance it offers useful legal and operational precedents. It has created a contract that is enforceable in over 100 countries, has set up a global payments network, has developed means of using social media to track graduates and maintain compliance with debt obligations and has sold pooled debt securities in the financial markets.

The US experience also illustrates the problems that arise when universities are free to set their own fee levels with no reference to the value of their courses in terms of future earning power. In summer 2010, the Obama Administration proposed restricting - and in extreme cases, cutting off entirely - programmes whose graduates end up with the highest debts relative to their salaries and have the most trouble repaying their student loans.²⁰ It is unfortunate that the UK has been following the US down the road of ever higher tuition fees not linked to earning power just at the time when the US is questioning such an approach.

17 <http://www.career-concept.de/en/index?siteID=31>

18 <http://lumni.net/index.html>

19 <http://www.pave.com/>

20 'Degree Profitable for Goldman Wasn't Worth It', Hechinger, J., *Bloomberg*, 6 August 2010.

Matters arising

Is the scheme unfair to high earners?

Under the proposal, a very high earner will pay a much greater absolute sum than a low earner though, assuming payments are tax deductible, the repayments by a higher rate taxpayer will be reduced in terms of post-tax income by the marginal tax rate paid. Nevertheless, there might be concerns that it is not fair for high earners to pay back a multiple of the amount their studies 'cost'.

This comment is misguided. The cost of the course is a fixed fee which the student has the option to pay with no further liability. Alternatively, they can enter the graduate equity scheme offered by a university if they wish to avail themselves of its risk sharing aspects. In any case, the government's present scheme accepts in principle that higher earners should pay more than lower earners. However, this is effected through a higher rate of interest capped at 3 per cent for those earning £41,000 and above. As explained earlier, this is an arbitrary and ineffective way to implement the principle.

If students, or their parents, are sufficiently confident of their future high earnings, they are free to pay the tuition fees upfront and will have no need to enter into a graduate equity contract. The equity contract addresses the fact that many students, rightly, are not so confident about their future. For them, the scheme both mitigates their risk and gives the university an incentive to support their careers over the long term.

MOOCs

Computerisation is changing the work environment and making new educational delivery methods possible. Massive Open Online Courses (MOOCs) can deliver high quality lectures to thousands of students at very low marginal cost. Universities need the freedom to experiment in response. There will be some prospective students who could benefit from a low-cost course, possibly costing no more than a few thousand pounds to deliver, while for others a delivery cost of £100,000 might be best to maximise their potential. Universities – or, at least, some of them - need to break out of the current £18,000 to £27,000 straightjacket to develop relevant courses for all, made affordable across the spectrum. The graduate equity proposal will encourage such freedom. It will also encourage universities to develop more part-time, low-cost courses which might easily be financed by up-front fees. Given developments in technology, universities need to be free to develop courses and funding mechanisms that suit their students and be responsible for the decisions they take.

Export potential

The UK has a comparative advantage in higher education and the sector generates substantial export earnings. The proposed scheme would provide an alternative funding option for foreign students who cannot pay fees up front or borrow in commercial markets. The potential for increased foreign student participation is therefore enhanced.

Conclusion

The funding of higher education is on the political agenda in both the US and the UK, which are, in many respects, the global leaders in the sector. There is a consensus that there must be a funding mechanism which facilitates access for those who can benefit from higher education and that higher education should offer value for money. The current undergraduate funding model, by providing taxpayer subsidised loans, creates a set of economic incentives that are counter to the stated objectives.

Under current arrangements, universities focus on persuading students to enrol rather than on supporting their careers over the long term. Some students attend simply to be out of the workforce; and graduates manage their careers to avoid liabilities.

The graduate equity funding proposal would resolve these problems. Universities would be free to charge whatever they liked so that they could develop a wide range of courses, from advanced, high-cost courses that require significant contact time to low-cost online courses that can be completed quickly. There would be incentives to provide courses that were better value for money and which led to higher earnings potential under the graduate equity scheme and universities would be free to develop such courses and take on as many students as they wished.

It is proposed that students would pay for their course either upfront or only after they had left university. If they chose the latter, they would pay a share of their earnings above a hurdle level. With this payment mechanism, it is the university that takes the risk that a high-cost course might add little value; a risk it is better placed than the individual student to take as it can diversify its risk across thousands of graduates.

It may be suggested that what is proposed is a materialistic or utilitarian conception of university by which the benefits are measured only in terms of earnings potential. This is not the case. Students may have a range of motivations for attending university and universities may choose to cross-subsidise some courses and accept students who may have a low earnings potential in order to make the university more 'rounded' and more attractive to staff and students. Furthermore, the government could, with targeted grants to particular students, subsidise particular forms of teaching within a university or particular groups of students.²¹

Overall, the burden on the taxpayer under this radical reform to university funding arrangements would be significantly reduced and perhaps eliminated entirely. Universities could be freed of regulation in order to grow and serve their students better. Students would have confidence that they would get value for money and would benefit from a lifelong educational partner.

21 For example, high potential students from very low income backgrounds. The author believes that the graduate equity scheme will make subsidies less necessary, more transparent and more effective. However, this issue is not the subject of this paper.

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