

# Submission to the review on “Higher Education Funding and Student Finance”

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Preface: I am responding to the First Call for Evidence, focusing entirely on questions 1, 2 and 9. My evidence will be both from economic theory and empirical data.

## Summary of my analysis

### 1. What has worked? Which parts of the system should be kept, based on the available evidence?

- The system allows access by UK<sup>2</sup> based students to full-time undergraduate education in the UK irrespective of ability to pay, subject to getting a place at a university. This should be kept.
- The economic basis of the current system:
  - Education creates positive externalities so education should be supported by the state;
  - Education creates private benefit so graduates should contribute towards the cost of their tuition;
  - Returns to education are highly uncertain so someone (e.g. the state) should provide insurance (income contingency) in case the graduate’s earnings turn out to be modest;makes sense. This should be kept.
- The income contingent payment aspect is well designed and focused on those graduates that need help. This should be kept.

### 2. What has not worked? Which parts of the system should be changed, based on the available evidence?

- The interest rate subsidy should be removed. It is
  - Regressive;
  - Expensive;
  - The cause of the fact that it is irrational for prosperous parents/students to pay upfront;
  - A cause for the state to ration the number of places at English universities during the recent recession.
- The savings from removing the interest rate subsidy can be recycled in the long-run in a number of ways, including reducing public expenditure or increasing access by partially supporting part-time students who are not currently helped by the 2006 Act.

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<sup>2</sup> Throughout, for simplicity of exposition, I will write EU to denote all the EU countries outside the UK.

- Maintenance support needs considerable simplification. The current system exposes students to unnecessary risks.
- The current system encourages all universities to raise their tuition fees to the level of the fees cap. A new mechanism is needed to encourage genuinely variable fees.
- University-specific “deferred fees” have better properties. They are
  - Related to the private benefit each graduate has received from their education at that university;
  - Fiscally neutral;
  - Independent of the state, increasing university autonomy;
  - Have no impact on universities which do not raise them.
- The language of “debt” and “loans” is often used in the context of student support. Given that all support is income contingent and the payments made by young graduates do not vary with the size of the financial support, this does not make sense and is off-putting in terms of access. A more accurate language needs to be applied.

**9. Students do remain concerned about the costs of higher education. What evidence is there to demonstrate the impact of these concerns on decisions made about participation in higher education and progression from higher education into further study, research or work?**

- I hope the Review will focus on the payment rate (9% of income) as the main assessment of “affordability” of various funding systems.
- I argue for an interest rate of base rate plus 0.5% and a payment rate of 7% --- rather than the current interest rate of inflation with payment rate of 9%. The result would be a much more progressive and cheaper system for the state, focusing support on the young and protecting poorer older graduates.
- Significantly raising the tuition fee cap with the existing financial structure could lead to a poor outcome, encouraging some universities to unnecessarily increase fees.
- Instead, each university should be allowed to charge deferred fees, to a level it determines. The advantages of this scheme are discussed in my analysis of question 2.

## Economic analysis

### Introductory questions about the 2006 reforms

1. **What has worked? Which parts of the system should be kept, based on the available evidence?**

The basic system has some sensible economic foundations<sup>3</sup>. I will discuss them. My criticisms will be in my answer to question 2. In this section I will only discuss full-time undergraduates. My answers to question 2 will also include a discussion of part-time students.

The system is designed to allow UK students access to full-time undergraduate education in the UK irrespective of ability to pay, subject to getting a place at a university. It achieves this very important goal and this should be kept.

Two groups make payments to universities to cover the costs of educating UK and EU based undergraduates at UK universities<sup>4</sup>: the UK Government and, indirectly, graduates and/or their parents. It is important to understand the nature and rationale of each contribution.

### Basic principles

#### **Public benefit: direct support from the state through the HEFCE grant**

The economic rationale for providing students with support from the state is that their education helps not just each individual but also generates public benefits more generally (i.e. educating an individual generates positive externalities). If there was no subsidy then collectively the student body may invest insufficiently in their education, damaging each one of them and society.

At the moment a student subsidy is paid to UK universities through the HEFCE block grant on a per UK+EU undergraduate student basis: the money follows the student. The level of the grant varies over four price subject groups developed by HEFCE to reflect average costs at English universities and used by them since 2004/2005. So for example, a student in Dentistry attracts a grant of £14,656, while one in English Literature produces £2,764 in 2008-2009. The average state income per student varies across universities, depending upon their subject mix.

#### **Private benefit: contribution from graduates and/or their parents**

The economic rationale for charging tuition fees is that graduates receive a *private benefit* from being educated at a high level. This varies, perhaps dramatically, according to the subject being studied and the form of education.

Currently there is a £3,225 “tuition fee” per year paid by the matriculated student, whatever they study. Universities can choose to charge a smaller tuition fee but they do not. Universities are not allowed to charge more than £3,225.

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<sup>3</sup> Barr (2004) incisively discusses the literature on this topic.

<sup>4</sup> The Scottish funding system is different. I will ignore that here for ease of exposition.

## Insurance: income contingent support

Unfortunately the private benefit an individual will receive from higher education is extremely unpredictable in financial terms. This uncertainty could induce many individuals not to invest in education. The UK system reduces this risk by financially *insuring* each student using an “income contingent” device -- graduates will not pay for their education if their incomes turn out to be low. This makes the UK system different from the unsecured US model. Economically it works in the following way:

There is a tuition fee for UK/EU students. The fees are paid to the university upfront in two ways

### *Schedule*

- i. Optionally upfront by the parents of the student or the students themselves<sup>5</sup>;
- ii. By the state through the SLC. To fund this service graduates who go this route pay the state each year. The payments stop either:
  - a. after 25 years or at the death of the graduate, at which points it is forgiven by the state, or
  - b. once the costs to the state of providing the maintenance and tuition support to the student have been recouped.

Currently the payment rate to the state is 9% of income above £15k<sup>6</sup> and the interest rate charged is the rate of growth in the Retail Price Index<sup>7</sup>.

Notice Schedule ii depends upon the income of the graduate through their lifetime, not at all on parental income. Instead the payments by graduates are more like a limited income tax for graduates<sup>8</sup>, which cannot be avoided by leaving the UK.

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<sup>5</sup> I do not have reliable data on the percentage of parents/students who pay upfront. I have two sources.

- A. The current system of income contingent tuition loans has been running since 2006/2007 so is approaching its steady state in terms of applications. Table 4B and 4C of the Student Loan Company’s “Statistics Release 05/2008” suggests in 2008/2009 that around 650,000 students took out income contingent tuition loans to study at English universities. Of these, about 20,000 were from the EU. The average amount loaned was £3,000 a year: nearly the entire amount. From this data source we can estimate that about 30% of UK students are having their tuition fees paid upfront, while the corresponding number is around 60% for EU students. The SLC’s statistics indicate self-funding of maintenance of around 20%.
- B. With the help of Alison Johnston at the LSE I have managed to get university level data from 4 Russell Group Universities and 1 non-Russell Group University. The variation between institutions is quite modest. Taken together I have the following as rough stylised facts: around 20% of UK students pay up front; around 60% of EU students pay upfront; if a student takes out a loan for tuition, over 98% of the time it is for the full amount (partial payment is very rare); around 35% of UK students who went to private schools pay upfront (this latter statistic is based on a single data point).

<sup>6</sup> Throughout I assume this number inflates through time with average real wages.

<sup>7</sup> During 1949-2008 the average base rate (basically the Government’s cost of borrowing) was 6.97% and RPI inflation was 5.76%. The spread is 1.2% for the post-war period, while for 1976-2008 the spread was 2.86%. Real weekly wages grew yearly at 2.3% on average from 1949-2004, although average real hourly wages only grew at 1.8%. These figures are derived from Castle and Hendry (2009).

<sup>8</sup> Graduate taxes are the special case where the level of tuition fees payable by the graduate are infinitely large, no reductions is made for scholarships, early repayments or grants and the only people liable to pay them work in the UK. None of these additional features is a good idea, the latter four for obvious reasons.

## How does it work out?

### Maintenance support is complicated

Tuition fees are pretty simple. Maintenance is not. It has: parental contributions, grants, means testing, income contingent support and bursaries. For now I will focus solely on income contingent maintenance support, returning to the holistic picture in my answer to question 2.

Students who take up income contingent maintenance support receive some upfront cash from the state and once they become graduates they pay through time if and when they become prosperous<sup>9</sup>. Maintenance support is paid for by graduates on the same basis as tuition, through Schedule ii. In the SLC's book the maintenance support is first paid off, so it is the "senior" part of the SLC's book. Then the tuition fee is paid next, making it the "junior part."

The economic rationale for this maintenance support is the same as for tuition fees. I will argue in question 2 that the other types of maintenance support do not make sense.

At this point it is helpful to introduce some quantification. In 2008/2009 national tuition fees were £3,225 per year while the corresponding maintenance support is up to £4,950 per year (outside London). Taken together this is £8,175 a year, or over a three year course the **gross private cost** of the education to the graduate is around £24,525. Barr and Johnston (2009) report that a typical figure for graduates is currently slightly less than this in practice: they cite a cost of £20,235. I will use the last number in some of the calculations below.

### Indirect subsidy by the state: Insurance and Rate Subsidy

The state provides support for funding the gross private cost through:

- i. Insurance. The state takes on the graduate's financial risk of paying the gross private cost through income contingency. This is an excellent feature of the scheme.
- ii. Rate Subsidy. The state charges interest below base rate, the price the state can borrow at.

This means that in the long-run the state funds part of the gross private cost. The scale of this support can be seen from the net present value of the Insurance and Rate Subsidy. This has to be estimated from empirical data. Barr and Johnston (2009) show how to do this.

The data I use has its origins in Dearden, Fitzsimons, Goodman and Kaplan (2008), who based their analysis on graduate earnings data taken from waves of the Labour Force Surveys. They produced 20,000 simulated lifetime real earning paths for graduates. These series will be deflated by the base rate so delivering the net present value (NPV) of future earnings. I am grateful to Alison Johnston of the LSE who gave me year by year summaries of the Dearden et al (2009) simulations. She computed the lifetime earnings of each person, and sorted them. The top 20% lifetime earners had

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The former is problematic as it provides a disincentive for financially confident students to study in the UK, for their education here could turn out to be extraordinarily expensive.

<sup>9</sup> EU students are not eligible to have maintenance support from the UK state. Thus tuition fees are repaid first by EU students, as they have no maintenance to pay off. EU students also often pay upfront. So they are much less expensive to the taxpayer than UK students.

their incomes averaged each year and recorded. The same process was gone through for all five quintiles. The resulting profiles are given on the left hand side of Figure 1<sup>10</sup>.

Figure 1 shows the lowest quintile's earnings dip, mostly due to childcare. The other quintiles show very rapid growth rates with maturity. The upper quintile is paying higher rate income tax (which starts at around £37k) about 6 years after graduating, the second quintile takes 8 years, the third quintile 12 years and the fourth reaches this level after 22 years.

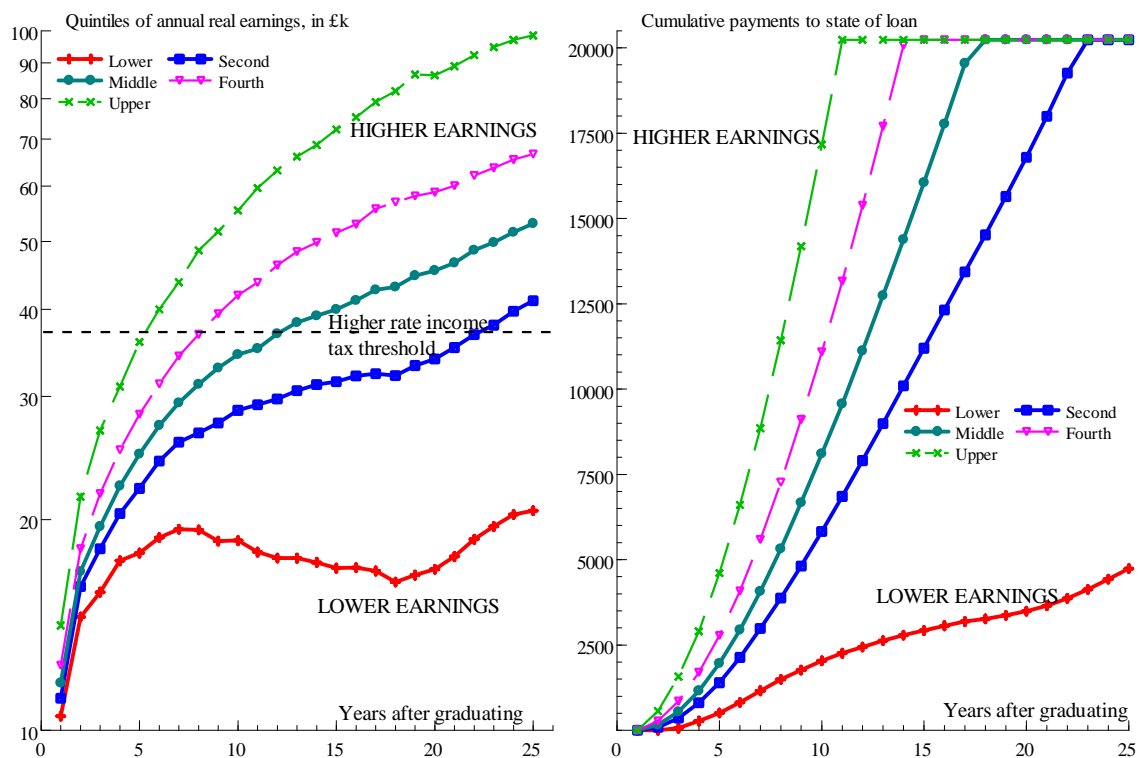


Figure 1. Left hand side, net present value of real graduate earnings according to quintiles of total life time earnings (assuming national real earnings grow at 2% p.a. and this equals the state's cost of borrowing). The dotted line gives the higher rate income tax threshold of £37k. The right hand side shows the cumulative payments by graduates when these incomes run through Schedule ii.

Having mimicked deflated earning paths, I can pass these through the payment scheme ii above, to mimic the NPV of payments to the state. For a moment I will ignore the impact of charging the gross private cost an interest rate of inflation rather than base rate. Then the NPV of the payment streams are given on the right hand side of Figure 1<sup>11</sup>. It shows that all earnings groups ultimately

<sup>10</sup> To give some context for these curves, the lowest quintile matches quite well the career path of a English nurse, who starts off as a "grade B-C" nurse and progresses to a "senior" nurse later in their career. The second lowest quintile is closer to a nurse progressing to the post of modern matron. The top maturity of the third quintile is roughly the level a police inspector gets paid. The second highest quintile looks like the profile of an academic who becomes a professor in their mid-40s. The top quintile is the lowest level a GP might earn.

<sup>11</sup> Algorithmically it will have the following structure. Write "PR" = payment rate, currently 0.09. Write "Th<sub>t</sub>" = NPV of Threshold at maturity t. This will be a constant £15,000 if the nominal threshold grows at 2% real. Write "Salary<sub>t</sub>" = Deflated NPV of simulated salary at maturity t, deflating salary by 2% a year as base rate is typically 2% above inflation. Salaries are simulated assuming average national salaries grow at 2% above

make full payments of £20k except for the lowest earners. The latter pay back around £5k and the state forgives the other £15k. Hence the Insurance cost to the state is £15k for that group and 15% of the total for all students who go through Schedule ii. This is written out in the second row of Table 1. As 20% of people pay upfront, yielding no losses to the state, over the entire student body the insurance loss for tuition and maintenance is 12%.

Base rate-2% Payment rate 9% Gross private cost=£20k	Upfront Payers (20%)	Losses to the state per student using Schedule ii						Loss: Including upfront
		Borrowers: ranked by life term earnings, 0-20 being the highest 20% of earners						
		0-20	20-40	40-60	60-80	80-100	Mean	Overall
Rate Subsidy	0	£4k	£5k	£5k	£6k	0	20%	16%
Insurance	0	0	0	0	0	£15k	15%	12%
Total Subsidy	0	£4k	£5k	£5k	£6k	£15k	35%	28%

Table 1. Current subsidies by upfront payer and quintiles of graduate's lifetime earnings. "Overall" includes the impact of upfront payment.

That is quite simple. But the right hand side of Figure 1 uses the wrong interest rate. Schedule ii charges inflation, which is on average about 2 per cent below base rate. This has only one impact: in Schedule ii it deflates the gross private cost through time, which helps determine how long graduates have to continue to pay 9% of their income. This is shown in Figure 2, where the dotted line shows the deflating gross private cost. When this line cuts the cumulative payments line, the graduate stops paying. Hence the interest rate determines when graduates stop paying, not how much they pay each month before they stop.

This picture shows that the Rate Subsidy helps all but the poorest students: it is a highly regressive subsidy. This is shown numerically in the first row of Table 1.

Overall Table 1 indicates that the state funds 35% of the average gross private costs of graduates who do not pay upfront. The average **net private cost** to graduates therefore is £13k. The cost to the taxpayer of this subsidy is around £7k (35% of £20k).

Overall then the Insurance is well targeted, helping the graduates who perform poorly financially during their lifetimes. The Rate Subsidy is much more scattershot, helping everyone except for the poor and those who pay upfront. It is highly regressive. The Rate Subsidy is also more expensive to taxpayers than the Insurance.

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inflation. Hence these two effects cancel one another out. Then NPV of payment at maturity  $t = PR \times \text{Max}(\text{Salary}_t - Th_t)$ .

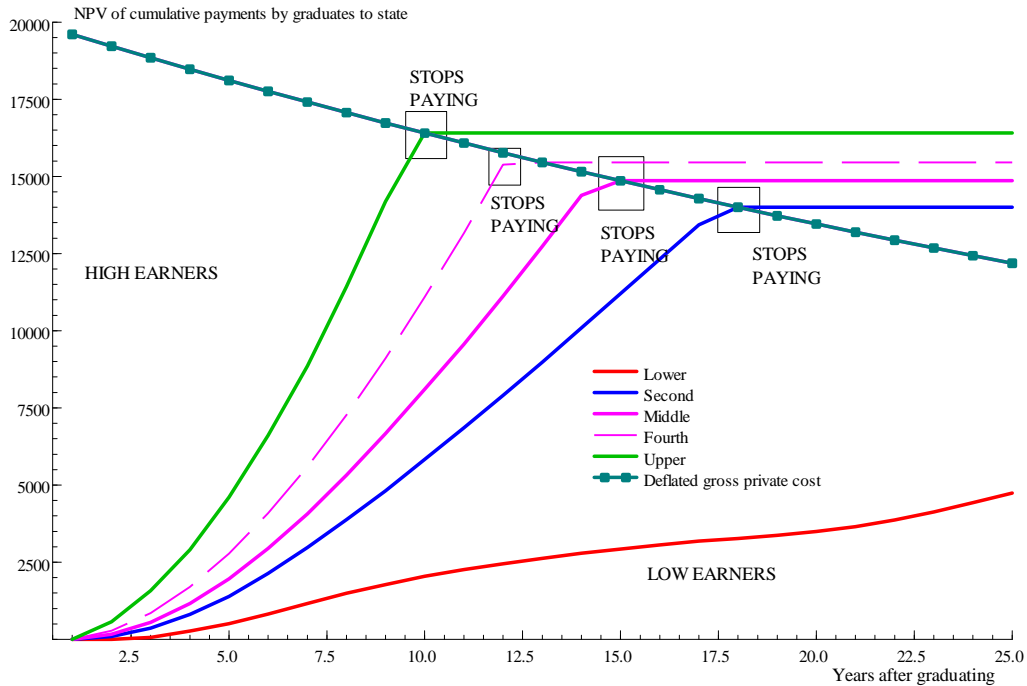


Figure 2. Effect of deflating the gross private cost (dotted line) on the times when graduates stop making payments. Times at which payments stop are shown using boxes. The upper 20% stop after about 10 years, the fourth quintile after 12 years, the middle after 15 years and the second after 18 years. The bottom quintile never stops paying (they are forgiven after 25 years).

**How much does the subsidy for tuition fees cost the state?**

What about the split of costs between maintenance support and tuition? As tuition is only paid after the maintenance costs are cleared, it is the “junior” payment, it is more heavily subsidised than maintenance. This is quantified in the first part of Table 2.

Base rate-2% Payment rate 9% Gross private cost=£20k	Upfront Payers (20%)	Losses to the state per student using Schedule ii Borrowers: ranked by life term earnings, 0-20 being the highest 20% of earners						Loss: Including upfront
		0-20	20-40	40-60	60-80	80-100	Mean	
Maintenance	0	0	0	0	0	£5k	10%	10%
Tuition	0	£4k	£5k	£5k	£6k	£10k	60%	48%
<b>Total Subsidy</b>	<b>0</b>	<b>£4k</b>	<b>£5k</b>	<b>£5k</b>	<b>£6k</b>	<b>£15k</b>	<b>35%</b>	<b>28%</b>

Base rate-2% Payment rate 9% Gross private cost=£28.5k	Upfront Payers (20%)	Losses to the state per student using Schedule ii Borrowers: ranked by life term earnings, 0-20 being the highest 20% of earners						Loss: Including upfront
		0-20	20-40	40-60	60-80	80-100	Mean	
Maintenance	0	0	0	0	0	£6k	12%	10%
Tuition	0	£6k	£7k	£8k	£10k	£18.5k	54%	43%
<b>Total Subsidy</b>	<b>0</b>	<b>£6k</b>	<b>£7k</b>	<b>£8k</b>	<b>£10k</b>	<b>£24.5k</b>	<b>40%</b>	<b>32%</b>

Table 2. Subsidies by quintile of graduate’s lifetime earnings for two different levels of gross private costs: £20k and £28.5. The former is the current setup.

This table shows that over half the contribution from graduates towards tuition fees actually comes from a taxpayers' subsidy. Further, the Rate Subsidy only affects tuition support.

Writers have suggested increasing the gross private cost graduates face for their education either to: (i) increase tuition fees to give universities more funding to presumably improve the quality of education (or stop it declining) or to significantly improve maintenance support, or (ii) increase tuition fees and balance this by reducing the HEFCE grant evenly for all subjects to the level where social sciences and humanities students receive no HEFCE grant at all, asking graduates to pay a higher share of the cost of the education they have received (this would leave net university funding unaltered). Both can be achieved by setting a new gross private cost of £28.5k. Whatever the motivation, the economics are the same. The bottom part of Table 2 shows the result. The tuition subsidy from the state for students who go through Schedule ii moves from a mean of  $0.60 \times £10k = £6.0k$  per student to a mean of  $0.54 \times £18.5 = £10k$ , an increase of £4k. Hence the taxpayer would pay just under a half of the net cost of policy (i) and under policy (ii) would make a savings of £4.6k per graduate<sup>12</sup>.

## **Conclusion**

To conclude this section:

- The system allows access to full-time education irrespective of ability to pay upfront.
- The economic basis of the current system for charging tuition makes sense.
- Income contingent aspects are vital.
- The system is expensive to the state, for the financing is heavily subsidised. The state pays over half of the NPV of the average student's tuition fees.
- The Insurance supports graduates who are not financially successful, as it should do.
- The Rate Subsidy provides a regressive subsidy, which is skewed away from helping poor graduates. It is also expensive. It would become more expensive if fees or maintenance were to increase.
- For prosperous parents/students it is irrational to pay upfront under the current system<sup>13</sup>. This failure to pay upfront increases the burden on the taxpayer.

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<sup>12</sup> The state's average total cost per student (including HEFCE grant) would fall from  $3(\text{yrs}) \times £2.7k$  (basic HEFCE grant) +  $0.28 \times £20k = £13.7k$  to  $0.32 \times £28.5k = £9.1k$ . Older graduates whose earnings were out of the bottom 20% would be losers: they would pay 9% for longer. It would have no impact on younger graduates.

<sup>13</sup> If prosperous parents give their child cash to pay for their education upfront then it is rational for the student to put the cash into a tax free indexed linked national savings certificate (which currently pays inflation plus one percent on up to £30k per person), and for the student to take out a student loan of the same value. When the certificate expires then the student loan is repaid, or the certificate is rolled over. In either case the student makes a profit of the real interest rate on the certificate without any risk. Thus the student can arbitrage the taxpayer by about £200 per year for potentially up to 25 years (in practice it is likely to be for around 10 years). Hence it is irrational to pay upfront. The same argument holds for a prosperous graduate who might be able to make additional payments beyond the 9% required out of earnings --- it is irrational to make early payments.

**2. What has not worked? Which parts of the system should be changed, based on the available evidence?**

**Variations on the current scheme**

**The Rate Subsidy should go**

The interest charged on tuition and maintenance is inflation, while the government can borrow at base rate, which is typically higher by around 2%. I do not know of any economic rationale for providing this subsidy and it is regressive. It also strongly discourages parents/students from paying upfront or graduates paying early.

If this Rate Subsidy were removed then Table 2 becomes Table 3. This suggests reducing the state’s long-run costs of providing maintenance and tuition fee support for those who do not pay upfront to a mean of  $0.16 \times 20k = \text{£}3.2k$  per student (recall it is currently about  $\text{£}7k$ ). The average net private cost to the graduate rises, but young graduates and older graduates with lower life time earnings are entirely protected from these increases.

Base rate Payment rate 9% Gross private cost= <b>£20k</b>	Upfront Payers (20%)	Losses to the state per student using Schedule ii						Loss: Including upfront
		Borrowers: ranked by life term earnings, 0-20 being the highest 20% of earners						
		0-20	20-40	40-60	60-80	80-100	Mean	Overall
Maintenance	0	0	0	0	0	£6k	12%	10%
Tuition	0	0	0	0	0	£10k	20%	16%
Total Subsidy	0	0	0	0	0	£16k	16%	13%

Base rate Payment rate 9% Gross private cost= <b>£28.5k</b>	Upfront Payers (20%)	Borrowers: ranked by life term earnings, 0-20 being the highest 20% of earners						Loss: Including upfront
		0-20	20-40	40-60	60-80	80-100	Mean	
		0-20	20-40	40-60	60-80	80-100	Mean	Overall
Maintenance	0	0	0	0	0	£6k	12%	10%
Tuition	0	0	0	0	£5k	£18.5k	25%	20%
Total Subsidy	0	0	0	0	£5k	£24.5k	21%	17%

Table 3. Removing the Rate Subsidy. Effect by upfront payment and quintile of graduate’s lifetime earnings.

The result is a more satisfactory way of providing student financing. The state would provide support solely for Insurance. The cost of this Insurance is quite modest and aimed solely at those that need the support.

If the HEFCE grant was reduced to (the extreme case of) zero and tuition fees increased to compensate, delivering a gross private cost of  $\text{£}28.5k$ , then the state’s long-run total cost per student would fall from the current  $\text{£}13.7k$  to  $0.17 \times \text{£}28.5k = \text{£}4.8k$  (ignoring the higher costs of science subjects). However, this does not lead to a fall of  $\text{£}8.9k$  in the PSBR. In the public accounts the estimated Rate Subsidy and Insurance losses are immediately added to the Resource Allocation Budget (RAB), which is the state’s committed non-cash educational spending. Then roughly  $1/25^{\text{th}}$  of this RAB is drawn down each year and appears as cash spending in the accounts in the year of the draw down. Hence reducing the Rate Subsidy only marginally improves the current PSBR, but it does very significantly improve the public finances over the long-run as under current policy the RAB will

accumulate up to a large number. This is discussed at some length in the Appendix to Barr and Johnston (2009). Table 4 gives the results of the following policy: (i) removing the standard HEFCE grant, (ii) increasing the level of national tuition fees to compensate the universities, (iii) removing the Rate Subsidy. It shows for UK or EU students a fall in a PSBR of £8.1k per student. The RAB falls for UK students and rises a little for EU students. The long-run subsidy provided to EU students by UK taxpayers would fall to £1.6k.

	Now	Under policy changes (i)+(ii)+(iii)
Direct PSBR for UK or EU student	£8.1k	0
Addition to RAB for UK student	£5.6k=0.28×£20.2k	£4.8k=0.17×£28.5
Addition to RAB for EU student	£0.5k=0.05×£9.6k	£1.6k=0.09×£18k
Total long-run cost of UK student	£13.7k	£4.8k
Total long-run cost of EU student	£8.6k	£1.6k

Table 4. Fiscal implications for (i) removing the standard HEFCE grant, (ii) increasing the level of national tuition fees to compensate the universities, (iii) removing the Rate Subsidy. RAB denotes the Resource Allocation Budget. The percentage losses for EU driving their low RABs is due to them having low gross private costs to pay as they do not qualify for maintenance support.

Of course the savings can be recycled in the long-run in a number of ways:

- Directly reducing the state’s level of future expenditure;
- Providing targeted scholarships to UK school children to go to university and/or study STEM subjects;
- In the long-term reducing the amount of rationing of maintenance and tuition support, allowing:
  - An increase in the number of UK undergraduate places at universities;
  - Allowing part-time students to have at least partially an income contingent version of tuition fees (currently they have to pay upfront);

I am not going to comment on the relative merits of these approaches.

### **High marginal rate of tax on young graduates**

Schedule ii demands a payment rate of 9% of income above £15k until the fees are paid off. So in practice it behaves like an extra income tax at the start of graduates’ careers.

I am concerned that 9% is a high level and will discourage young people from gaining sufficiently from employment and from saving. I will argue in my answer to question 9 that if the interest rate was charged very slightly above base rate then the payment rate could drop to 7% without much change in the long-run cost to the state over that given in Table 3. This is due to the way the income contingent system works. Further, the system as a whole will become even more progressive and will provide an incentive for parents/students and graduates to pay upfront or early if they can afford it.

## More general points

### No price competition on fees: why did that happen?

The private benefit from education varies, so an economist would expect that students with higher private gains pay higher fees than students with lower gains. The current system does that to a small degree because of the Insurance aspect of the income contingent scheme, which protects poorer graduates. However, more generally we should expect to see tuition fees vary between universities, with some universities charging low fees to encourage access to students with potentially quite limited private gains and some universities charging high fees to students who are able to dramatically benefit from the form of education those universities provide. The 2006 Act made this possible, to a limited way.

Universities currently determine the level of tuition fees up to a maximum of £3,225, yielding a total average tuition fee income per student of around £6,000 per student per year. In practice all universities charge the maximum fee. This clustering is interesting: why did it happen?

It could be that this is because all universities run their teaching at significant losses. But there does not appear to be any significant evidence that this is true. It could be that each university feels that the demand for its places is rather inelastic (i.e., demand will not fall very much as fees increase) as a function of tuition fees. This could be because the average graduate currently only pays half the long-run cost of the fees or that some students regard the level of fees as a signal of the quality of the course. Of course whatever the fee, up to £3,225, the university will get their declared fee in cash up front from the state, even if its graduates do not earn enough for the state to recoup its expenditure. So the university will gain from high fees and the university's students will not lose much due to the state's subsidy. Hence universities have a strong positive incentive to have higher fees and students have a very weak incentive to select another university to try to lower their fees.

This suggests that if the state were to increase the current fee cap of £3,225 nearly all universities would set their fees at the fee cap, unless the cap is increased very significantly. Further, the universities with the highest fees will receive the highest amount of state subsidy, which seems odd. What is more as financial support for tuition fees is subsidised raising fees could be very expensive for the state – with the state picking up the bill for half the new charges in the long run according to Table 2. Of course removing the Rate Subsidy should improve all of these issues somewhat.

### University-specific deferred fees

I think these arguments suggest that if fees are to increase (without a corresponding reduction in the HEFCE grant) then a new mechanism for paying universities is needed to encourage more diversity and to more accurately reflect private benefit.

Economic theory suggests that fees should vary according to the private benefit each student will receive from their education at a particular university. But this is impossible to estimate when they are students, so it seems very hard to implement this. You could use an administrative criterion overseen by HEFCE -- for example, measuring the "quality of education" or average class sizes -- but this seems bureaucratic and fragile. However, we have an excellent measure of their realised (ex-post) private benefit: their earnings path. In principle we should collect tuition fees for each university according to the actual earnings of their graduates.

This university-specific deferred fee would sit on top of the default national fee of (currently) £3,225 per year -- it would be the junior fee. They would be paid to the student's university either

- i. Optionally upfront by the parents/graduates;
- ii. By the graduate once his/her income rises above a defined threshold and once their national tuition fee and maintenance support are paid.

At no point would the state pay the university.

Note that:

- As deferred fees are paid directly to the university either upfront under i or when the graduate is prosperous under ii, this kind of extension of the national scheme would have:
  - no fiscal implications at all for the state or
  - no financial implications for any university which does not introduce them.
- They sit on top of the national scheme. Graduates would have to pay their national maintenance and tuition costs before any university-specific deferred fees are charged. Inevitably then these new fees would be highly progressive.
- This income stream would be independent from the state, allowing more autonomy to universities.
- The monies could be collected by the SLC, or by agents of the university.
- The university would only get extra money if either parents pay upfront or their students demonstrate substantial private benefits through ii.
- The university does not extract subsidy from the state by putting up fees, so they have no incentive to increase fees.

I work out the details of this approach in Shephard (2009). I will make a specific proposal in my answer to Question 9 along these lines.

### **Maintenance support is complicated: it does not have to be**

The arrangements for tuition fees are relatively simple. Anyone can pay through Schedule ii. Maintenance is complicated, with an urgent means test at the start of the application, grants, bursaries and a number of other features. It places significant unnecessary risk on the students who might not get maintenance support sufficiently quickly. Here is a simplification:

All UK students who wish it can get income contingent maintenance support, which they would pay for through Schedule ii as prosperous graduates. Either before going to university or at university the student can also apply for means tested support. Depending upon the results of this test the students can get a grant from the state or a scholarship from the university or state. In the former case then some of gross private costs for maintenance would be forgiven by the state. In the latter case some of the gross private costs for tuition are forgiven by the university or state.

This reduces the complexity and urgency of the SLC's job. The role of means testing is to reduce the gross private costs of graduates from families with low incomes, presumably to help overcome perceptions of "debt aversion" -- although rationally the insurance aspects of the income contingent support should be enough. This approach has two good byproducts: it reduces the state's long-run insurance costs and reduces the size of the SLC's loan book.

## Conclusion

To conclude this section:

- The Rate Subsidy should be removed. It is regressive, expensive and the cause of the fact that it is irrational for prosperous parents/students to pay upfront.
- The savings can be recycled in a number of ways, including increasing access by supporting part-time students.
- Maintenance support needs considerable simplification.
- Directly increasing the tuition fee cap has poor incentives.
- University-specific deferred fees have better properties. They are fiscally neutral; independent of the state, increasing university autonomy; have no impact on universities which do not raise them. I will extend my discussion of them in my answer to Question 9.

## **Participation**

**3. Participation trends:** I do not have anything distinctive to say here.

**4. International trends:** I do not have anything distinctive to say here.

## **Quality**

**5. Improvements in the quality of teaching:** I do not have anything distinctive to say here.

**6. Providing the required quality?:** I do not have anything distinctive to say here.

## **Sustainability**

**7. How has the added income to institutions from the 2006 changes been used?** I do not have anything distinctive to say here.

**8. Costs pressures:** I do not have anything distinctive to say here.

**9. Students do remain concerned about the costs of higher education. What evidence is there to demonstrate the impact of these concerns on decisions made about participation in higher education and progression from higher education into further study, research or work?**

## Focus on the payment rate

Perhaps 20% of parents/students pay their fees and maintenance upfront without financial support from the state. I am mostly concerned about the other 80% of young people who have to pay, in effect, an extra 9% income tax in their early years of employment. This could discourage work, particularly now that the effective marginal tax rate has increased. There is a vast literature on the effect of income tax on work and tax avoidance.

I hope the Review thinks about how they can reduce the payment rate, reducing the burden on young graduates. The following analysis suggests that this can be done.

## Indifference curves: graphing policy choices

Figure 3 reports estimated “indifference curves.” On the y-axis is the “Interest Rate minus Base Rate,” so the current value of this variable is -2%, as the interest rate is inflation which averages two per cent lower than base rate. On the x-axis is the payment rate graduates face. The current rate is

9%. The combination 9% payment rate and -2% above base rate (written 9%/-2%) leads to a loss to the state of around £7k per student. It is shown on the plot using a small “x.”

Now focus solely on the dashed line for a moment. It shows all combinations of payment rates and “interest rate minus base rate” which deliver a long-run cost to the state of £3k per student. To maintain the constant loss rate as the payment rate goes down the interest rate must go up to compensate. All points above the curve lead to losses less than £3k and all points below it lead to losses greater than £3k. In economics such pictures are called indifference curves, while the £3k which produces it is labelled a “budget constraint”. The figure shows that these £3k losses could be obtained by, for example, charging 6%/0.5% or 10%/0%.

If we change the budget constraint to £1.5k then we produce harsher combinations, the curve jumps to the right. Now we would need, for example, 8%/0.5% to deliver the required losses.

Overall the Figure shows five different budget constraints, going from a light subsidy down to a heavy subsidy as we go left and down through the graph.

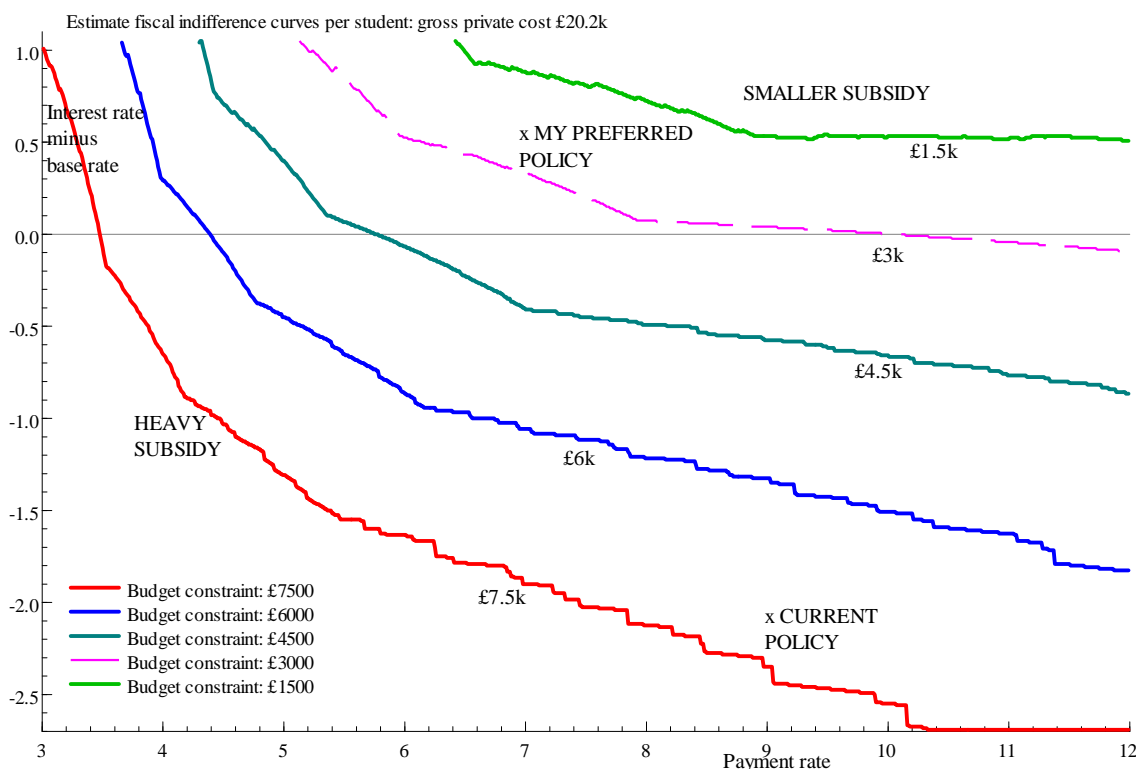


Figure 3. Estimated indifference curves based on gross private cost of £20.2k. Each curve shows the combinations of interest rate & payment rates which deliver the same long-run cost to the state (budget constraint).

What is striking to me about Figure 3 is that by moving the current policy to my preferred policy, the state can both reduce losses and reduce the burden on young graduates. Through the rest of this note I will use a payment rate of 7% and charge 0.5% interest above base rate as my preferred policy to illustrate this approach.

Charging higher interest rates looks like it would be regressive. However, that is a mistake, for it ignores the income contingent effect and that it allows the state to afford a lower payment rate.

Table 5 shows the distributional implications of charging 7%/+0.5%. It indicates a small positive incentive for parents/students to pay upfront. Graduates in the fourth quintile benefit from a small Insurance Subsidy. The poorest graduates pay less than now and those who are financially well off pay slightly more than upfront payers.

Base rate+0.5% Payment rate 7% Gross private cost=£20k	Upfront Payers (20%)	Losses to the state per student using Schedule ii Borrowers: ranked by life term earnings, 0-20 being the highest 20% of earners						Loss: Including upfront
		0-20	20-40	40-60	60-80	80-100	Mean	Overall
Rate Subsidy	0	-£2k	-£2k	-£3k	0	0	-7%	-5%
Insurance	0	0	0	0	£2k	£16k	18%	14%
Total Subsidy	0	-£2k	-£2k	-£3k	£2k	£16k	11%	9%

Base rate+0.5% Payment rate 7% Gross private cost=£28.5k	Upfront Payers (20%)	Losses to the state per student using Schedule ii Borrowers: ranked by life term earnings, 0-20 being the highest 20% of earners						Loss: Including upfront
		0-20	20-40	40-60	60-80	80-100	Mean	Overall
Rate Subsidy	0	-£3k	-£4k	0	0	0	-5%	-4%
Insurance	0	0	0	£1k	£10k	£25k	25%	20%
Total Subsidy	0	-£2k	-£2k	£6k	£13k	£25k	20%	16%

Table 5. The state's losses for different levels of gross private cost using a policy of 7% payment rate and 0.5% interest rate above base rate.

### **Effect of an increase in the gross private cost**

Of course the state's losses would increase substantially if tuition fees or maintenance support were to increase. This is reflected in the bottom half of Table 5, where the state provides the student with £28.5k rather than £20k of support. It makes no direct difference to the state whether this is an increase in fees or maintenance.

The percentage loss for users of Schedule ii is still well below the current 35%, but now it works off a higher gross private cost. If the state was to additionally reduce the HEFCE grant in the way discussed above, to increase tuition fees to compensate and charge 7%/0.5%, delivering a gross private cost of £28.5k, then the state's long-run total cost per student would fall from the current £13.7k to  $0.16 * £28.5k = £4.5k$ . The winners from this change will be young graduates who pay 7% not 9% of their income. Losers would be prosperous older graduates whose life time earnings are above average for UK graduates: they will pay the 7% for longer. Poorer graduates will pay less than now due to the reduction in payment rate and the effect of income contingency.

Figure 4 shows the fiscal indifference curves for this higher level of gross private costs. Obviously all the curves move significantly to the right, yielding a series of unpleasant choices. The graph shows the importance of increasing the interest rate; without it the fiscal position looks bleak. Note that 7%/0.5% is close to being fiscally indifferent to 10%/0%.

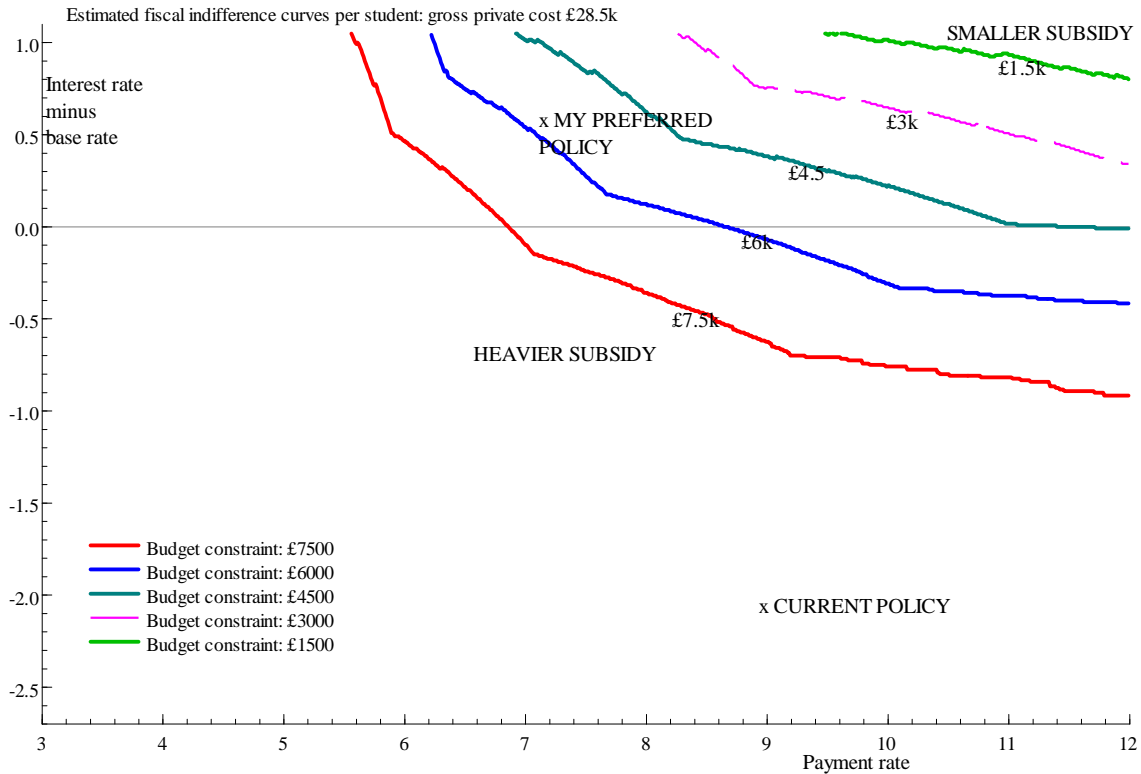


Figure 4. Estimated indifference curves with gross private cost of £28.5k. Each curve shows the combinations of interest rate & payment rates which deliver the same long-run cost to the state (budget constraint).

### Deferred fees

I argued in my answer to Question 1 that economic theory suggested universities should be paid in accordance to the private gain of their graduates. I answered in Question 2 that we might proxy the private gain by the graduate's income through time.

In Shephard (2009) I argued that once a graduate has paid the state for the financing of their national fees and maintenance then the university might charge the graduate extra tuition. I called these "university-specific deferred fees". They are fees that sit on top of national tuition fees, and are only paid to the university by the graduate if the graduate has already paid their national tuition and maintenance support. They are income-contingent and so protect poorer graduates from their reach.

Such fees carry no subsidy from the state. One university charging such fees has no financial impact on any other university. They can be collected by, for example, the SLC.

Table 6 shows who would end up paying deferred fees and how much universities would then receive on average. With £10k of extra fees (£3.3k a year for 3 years) then on average universities would receive £6.4k per student, while with £20k extra fees (£6.6k a year for 3 years) on average universities would get about £10.8k per student. The groups that would pay are exclusively in the upper half of the lifetime graduate earners. Poorer graduates pay nothing. This is a highly progressive addition to the current scheme (and is even more progressive if the HEFCE grant was

removed and national tuition fees were increased to compensate for this, i.e. if national tuition and maintenance support was £28.5k).

Base rate+0.5% Payment rate 7% National gross private cost=£20k	Upfront Payers (20%)	How much would each group pay their university. Ranked by life term earnings, 0-20 being the highest 20% of earners						Univ specific gain: Including upfront	Univ specific revenue
		0-20	20-40	40-60	60-80	80-100	Mean		
University-specific deferred fee								Overall	
£10k	£10k	£11k	£12k	£5k	0	0	56%	64%	£6.4k
£20k	£10k	£22k	£16k	£5k	0	0	43%	54%	£10.8k

Table 6. Additional income to the average university of different levels of university specific fees over a 3 year course. Hence £10k corresponds to an annual fee of £3.3k.

Of course the universities which gain most are those with graduates with high lifetime earners. But that is how it should be: they are the universities which produce graduates most able to pay.

### Cash flow

As deferred fees sit on top of the national system, they are the most junior claim on any revenue from the graduate. Hence, except for upfront payments by parents/students, universities would have to wait significant time to receive these payments. This is shown in Figure 5.

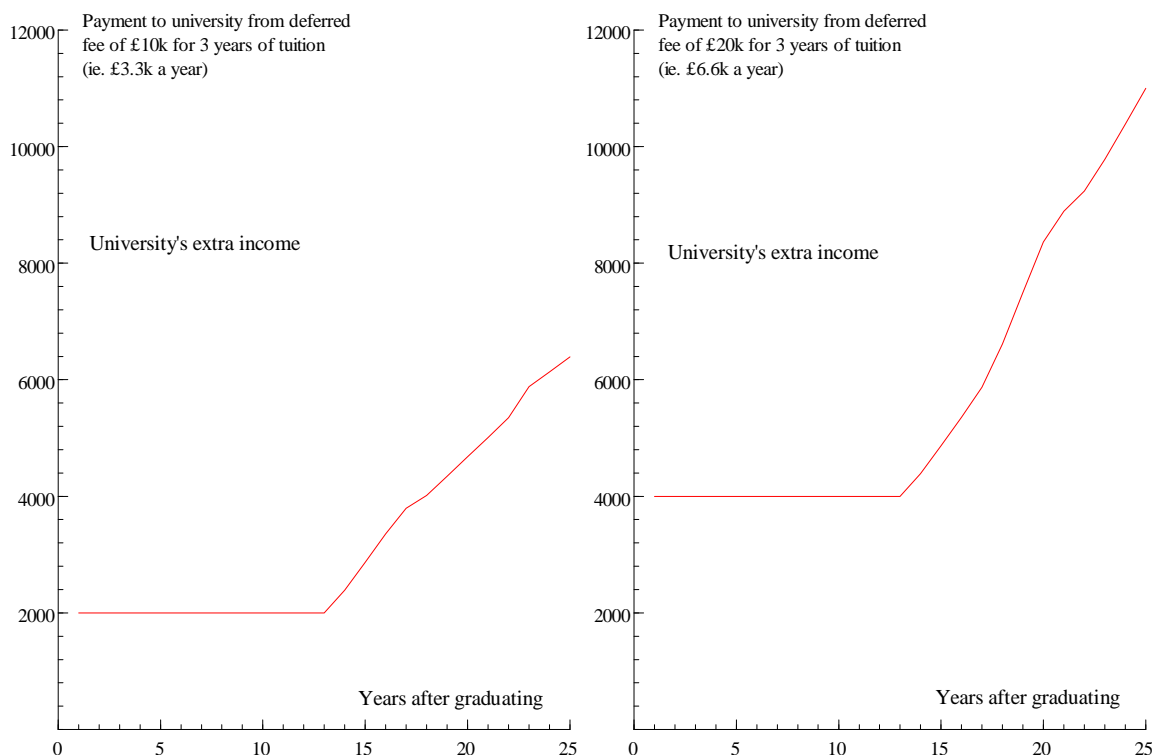


Figure 5. Payment to university from deferred fees set at £10k and £20k for 3 years of tuition, ie £3.3k and £6.6k per year. A big impact is made from upfront payments which are assumed to be made by 20% of parents/students.

The above may look disappointing to the university sector, for they are only receiving around 50% of the face value of their deferred tuition fees and half of that is at a significant delay. But this is because many of their graduates cannot afford to pay. Of course the profile for universities with high numbers of financially successful students will be much better than this and that is why they – but not all universities – would have an incentive to charge these fees.

The state could help universities move some of the later payments forward without it costing the state anything in the long run, by rearranging the maturity of its own loan book in the short run. There are various ways this could be done if the principle of deferred fees were to be accepted.

What I do not know how to do is to increase the total amount going to universities in the near term without either the state paying more (which looks unlikely at the moment) or the graduate payment rate increasing well beyond 7% which I think is not affordable by the graduates.

### **Conclusion**

To conclude this section

- I hope the Review will focus on the Payment Rate as the main measure of “affordability.”
- I have argued for an interest rate of base rate plus 0.5% and a payment rate of 7%. The result would be a much more progressive and cheaper system, focusing support on the young and protecting poorer graduates.
- Raising the tuition fee cap (unless the HEFCE grant falls to compensate for the rise in national tuition fees) will lead to a poor outcome, encouraging unnecessarily high fees.
- I think universities should be allowed to charge their own deferred fees, which are paid by their students/parents upfront or after the national financial support for maintenance and national tuition fees have been paid.
- Such deferred fees are related to the financial benefit the graduate has received and so are fair. They have no subsidy from the state, are progressive, allow universities more autonomy and have no financial impact on universities which do not charge these fees.

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