

A. Appendix: modelling of losses from student financial support

A1. The “data”: simulated earnings paths

Throughout this appendix I use a database of forecasted simulated earnings paths produced by Dearden et al (2008) for the 2006-2007 academic year for a cohort aged 22 in that year. Each individual path is a projected or forecasted earnings path of a graduate, as they age from 22 up to 46²³. It is designed to look as similar to real earnings paths for individual graduates as possible.

The paths are built out of a model of waves of the British Household Panel Survey from 1991 to 2004 inclusive and the Labour Force Survey from 1993 to 2003. Underlying their paths is an assumption that average real earnings across the working population will increase by 2% per year in the future. An individual graduate’s earnings will increase at a much faster rate than 2% per year on average because as they age their earnings should also grow as their career progresses. Economists call this the life-cycle effect. This is reflected in the paths: on average, they initially climb steeply.

There are 20,000 simulated paths, half of which are labelled as men. I am grateful to Alissa Goodman and Greg Kaplan for permission to use them, though they have no responsibility for how I have used them, adjusted them or for any mistakes I have made in the process²⁴.

Individual earning paths allows us to model how much, and when, each individual will pay back some parts of their financial support. The individual payments can then be aggregated up to produce forecasts of how much and when graduates as a whole will pay. This allows us to forecast the net present value losses the state will face on student financial support. It also allows us to estimate the income universities would receive from deferred fees.

The above paths are now slightly dated and so I reset them to start in the 2009-2010 academic year. I did this by adjusting the original paths by

- Uplifting all points on each path by multiplying by the ratio of the retail prices index in 2/2010 (219.2) to the RPI in 12/2006 (202.7).
- Uplifting all by multiplying by 1.02³ to account for 3 years of real earnings growth of roughly 2% per year.

Taken together these two adjustments have an important effect, raising all paths by around 15% of their original value²⁵. This materially affects the fiscal losses from student support.

To get used to this data it is helpful to look at Table 3 which gives some quantiles of early to mid average earnings over the ages 22 to 46 for the two genders. It shows the well-known feature that these earnings tend to be higher for men.

²³ It is a sample from the forecast joint distribution of annual earnings of an individual graduate as they age starting off at 22 in 2006-2007 and continuing for 25 years, given knowledge of the gender of the graduate. Hence this is a 25 dimensional conditional random variable.

²⁴ Dearden, Goodman, Kaplan and Wyness (2010) also reported updated methods for simulating earnings paths. I do not have access to this updated database, although some of their results on estimated losses on various forms of student support seem roughly similar to those given here. See also the work of Barr and Johnston (2010) for further ideas about using these earning profiles.

²⁵ I have made no adjustments for the 2008-2009 recession where national income fell by around 5% in terms of UK sterling. The reason for this is that what matters in our analysis is long-run earning. The corresponding devaluation in sterling should mean the economy recovers from this shock in terms of domestic earnings, although valued in terms of dollar equivalent the impact may be permanent.

A2. Analysis of the current set-up

A2.1 Assumptions about the current set-up

Here I spell out the assumptions behind each of the calculations reported in the paper.

Assumptions for the current set-up

Facts

- Government cost of borrowing is 2.2% real, which is used to calculate the net present value of any future payments by graduates.
- Payments are 9% of earnings over the threshold of £15k. This threshold is assumed to be indexed by the retail prices index.
- The interest rate on student financial support is currently 0% real. The role of the interest rate is solely to determine when graduates are judged to have repaid their student support.
- Outstanding student financial support is forgiven after 25 years.

Working assumptions

- The current maximum living cost loan all students can draw down is £3.6k and it is £3.2k for fees. Thus the maximum financial support per student is around £6.8k per year.
- We assume each course lasts for 3 years.
- We assume no students partially pay upfront: evidence is that if students take out loans, then over 98% of them take out the full amount available. Thus we assume the average aggregate support for those not paying upfront is £20.4k per student over 3 years. This is in line with Barr and Johnston (2010).
- Roughly 15% of students pay fees and maintenance upfront through resources given to them by, for example, their parents.
- Bursaries and scholarships play no role in this Appendix which focuses on the cost of providing the student financial support.

Taken together this means across the student population we have two groups: (i) 15% have no liabilities as they pay upfront, (ii) 85% have received £20.4k of student finance and they may repay this if they become better-off as graduates.

A2.1. Who pays what now?

Each individual path yields a path of annual payments to reimburse the state for the student's financial support. Of the 85% who take out the support, how much do they pay back and who pays it back? Table A1a answer this in the following way.

First it computes the average real earnings through the ages 22-46 of each individual and sorts them three times: for all graduates, for all male graduates and for all female graduates. So the bottom 1% quantile of earners is forecast to receive £6.4k real a year on average over this 25 year period, while for men this is £14.5k and for women this is £4.6k. The much lower figure for women is due to a significant percentage of women not working for some of this period due to childcare choices. In

contrast the 99th quantile of earners receive £100.7k a year. That is 1% of the graduates earn at least £100.7k a year on average over this 25 year period.

Having computed the average earners for these quantiles, we can ask how much do graduates in the lowest 1% quantile pay for their financial support of £6.8k a year. The answer is £0.9k a year, so the remaining £5.9k per year is forgiven. Hence those on low lifetime earnings pay back around 15% of the support they have received and are largely protected by the system.

The person on the 99% quantile of earnings pays back on £6.1k, so the state picks up £0.7k per year of their support. This is not due to having any support forgiven, instead it is because of the low interest rate: 0% real, while it costs the state 2.2% real to provide this financing. This provides a subsidy to the highest earners in the country.

Quantile	Lifetime payment for financial support per year in today's £ (NPV)			Forecasted average real earnings for graduates aged 22-46		
	Now			All	Male	Female
1%	0.9k	3.6k	0.5k	6.4k	14.5k	4.6k
5%	2.8k	4.8k	1.8k	13.6k	24.4k	10.4k
10%	4.5k	5.1k	2.9k	18.7k	28.9k	14.2k
20%	5.1k	5.3k	4.7k	25.9k	35.1k	19.6k
30%	5.3k	5.4k	5.1k	31.1k	39.8k	24.2k
50%	5.5k	5.6k	5.4k	40.2k	48.9k	32.4k
70%	5.7k	5.8k	5.6k	50.0k	59.6k	40.7k
80%	5.8k	5.9k	5.7k	57.0k	67.3k	45.3k
90%	5.9k	6.0k	5.8k	68.6k	78.9k	52.2k
95%	6.0k	6.0k	5.9k	79.5k	89.1k	58.4k
99%	6.1k	6.2k	6.1k	100.7k	108.3k	70.9k

Table A1a. How much of the financial support of £6.8k taken out by the students is paid back? Based on forecasted real earnings paths from the age 22-46, we report the quantiles of the average earnings for men and women on the right hand side of the table.

The same method can be used to look inside some of these figures. Due to government rules, payments by graduates first pay towards cost of living support. Once this is paid off, payments go towards tuition. So we can ask on average how much of these items are repaid, or more interestingly, not repaid. Table A2a contains an estimate of this, averaged over the population. It show a loss of £0.6k on cost of living per year per student, £0.9k on fees and £1.5k overall.

Financial support	Average loss to the state from student financial support in today's £ (NPV)
	Now
Cost of living	602
Tuition	943
Total	1,545

Table A2a. Losses to the state of the current setup, per year, per student, for the 85% of students who take out the student financial support package. Source: author's calculations using the code `deferred_analysis.ox` written by the author.

A4. Removing the rate subsidy

Reform 1. Removing the rate subsidy

- Charge an interest rate which is the Government's cost of borrowing, which is currently 2.2% real.

We make a single change to the current set-up. The results are given in Tables A1b and A2b. A1b looks at the distributional implications of the change and shows better-off graduates making full repayments of their student financial support. Roughly 95% of men make full repayments while 70% of women do. The poorest graduates are not affected by this change. In terms of average lifetime earnings, then those whose average is above £25k a year make full repayments. Those below this number receive support.

The system could be made more progressive by matching the increase in interest rate by a reduction in the payment rate, say down to 7% or 8%. Overall this would be a fiscally cheaper and fairer system than the current one. This combination of reforms was first suggested by Shephard (2010) and has been subsequently analysed in detailed by Dearden, Goodman, Kaplan and Wyness (2010). To keep the focus of this note on deferred fees I am not going to discuss this option again here.

Quantile	Lifetime payment for financial support per year in today's £k (NPV) Removing rate subsidy		
	All	Male	Female
1%	0.9k	3.6k	0.5k
5%	2.8k	6.7k	1.8k
10%	4.7k	6.8k	2.9k
20%	6.8k	6.8k	5.0k
30%	6.8k	6.8k	6.8k
50%	6.8k	6.8k	6.8k
70%	6.8k	6.8k	6.8k
80%	6.8k	6.8k	6.8k
90%	6.8k	6.8k	6.8k
95%	6.8k	6.8k	6.8k
99%	6.8k	6.8k	6.8k

Table A1b. How much of the financial support of £6.8k taken out by students is paid back if the interest rate subsidy is removed? Otherwise same as Table A1a.

The overall results are given in Table A2b, which shows the state's losses fall very considerably, saving the higher education budget a great deal in the long run, although it does not significantly help in the short-run due to the way the public accounts work.

Financial support	Average loss to the state from student financial support in today's £ (NPV)
	<u>Removing rate subsidy</u>
Cost of living	114
Tuition	378
Total	492

Table A2b. Source: author's calculations using the code `deferred_analysis.ox` written by the author.

A5. Increasing the level of student support from the state

Reform 2. Increasing support from the state

- Charge an interest rate which is the Government's cost of borrowing, which is currently 2.2% real.
- Increase the state's student financial support from £6.8k to £10k. Can be used to improve cost of living support, phase out grants, or increase funded fees.

Table A2c contains the results if the level of student financial support goes up to £10k.

Financial support	Average loss to the state from student financial support in today's £ (NPV)
	Removing rate subsidy & £10k support
Cost of living	492
Tuition	762
Total	1,254

Table A2c. Source: author's calculations using the code `deferred_analysis.ox` written by the author.

Table A3 shows different levels of support and the resulting losses to the state before and after the removal of the rate subsidy. It shows a substantial reduction in losses caused by increasing the interest rate, but the resulting savings moderating as the level of financial support increases.

Financial support	Loss to the state per year	
	Current system	Removing the rate subsidy
Now: 6,800	1,545	492
8,000	1,973	727
8,666	2,228	883
9,333	2,495	1,059
10,000	2,775	1,254
10,666	3,065	1,471
11,333	3,368	1,707
12,000	3,682	1,962
12,666	4,008	2,239
13,333	4,345	2,537
14,000	4,693	2,856

Table A3. Shows total losses for various levels of annual student financial support.

A6. Income from deferred fees

Reform 3. Allowing deferred fees

- Charge an interest rate which is the Government's cost of borrowing, which is currently 2.2% real.
- Once cost of living and funded fees are repaid to the state, the graduate pays the university the deferred fees if they can afford them. If the graduate is unable to pay them, using the usual student financial support system, then they are forgiven. Hence the university takes the risk for these kind of fees.
- I assume the university's graduates are a random selection of the UK's graduates. Hence the calculation is for a typical university.

Table A4 presents the amount of forgiveness of deferred fees by its graduates who did not pay upfront. The difference between the face value of the deferred fee and this level of forgiveness is the new income source for the university. The Table reports results for two different levels of cost of living support. Clearly if this is low then the university will receive more additional income from their deferred fees.

Level of deferred fee	Forgiving of deferred fees	
	<u>State support:</u> 6,800	<u>State support:</u> 10,000
1,000	192	331
2,000	425	707
3,000	701	1,130
4,000	1,025	1,601
5,000	1,391	2,116
6,000	1,805	2,676
7,000	2,266	3,278
8,000	2,772	3,919
9,000	3,323	4,596

Table A4. Shows how much deferred fees are expected to be forgiven for different levels of deferred fee and different amounts of state support. Source: author's calculations using the code deferred_analysis.ox written by the author.

B. Appendix. What the UK should not do

B.1 Substantially increase the fee cap using the current system

Under the current system there is a cap on funded fees and no deferred fees. If the current cap on funded fees was to increase then (almost all) universities will increase their fees to the cap, as they will get all of the funded fees from the state even if the resulting graduates cannot afford to pay them. This is because the state guarantees the income up to the cap. Hence the current system incentivises universities to set high funded fees and removes price variability. This is a particular problem at the moment when there is a shortage of university places, so there will be always be students willing to sign up to universities even if the funded fee level is high.

B.2 Means testing upfront payments with exclusion

US private universities (and some UK private schools) often provide access for the less better-off by having means tested entry. How does this work?

The idea is that the university would require some upfront payments by all students (most would also need to take out loans) except those who are from less better-off families, assessed through a university specific means test. If the family disagrees with the university about what is affordable as the family's contribution they are excluded as they cannot front the money. This is common practice at the main private US universities, although not much discussed in the UK.

To illuminate this it is useful to tell the story of two people I have discussed this issue with while writing this note.

Story 1. She was offered a place at Harvard, but the family was required to make a substantial contribution to the cost of the fees and living costs. The father of the prospective student thought the family could not afford it so said the child could not go. Eventually the mother persuaded the father they could take out a large bank loan to pay and the student was able to go.

Story 2. This national merit scholar wished to go to a major research university such as MIT. Her very wealthy parents did not want her to focus on science, which was the preference of their child, and said they would not pay for the cost of the research university. Due to means testing, where the university expected her to pay upfront, she could only afford to do what her parents wanted her to do. The student eventually went to a small liberal arts college, the preference of the parents.

I think this is unacceptable, for UK universities should be free at the point of use so students can follow their dreams.

This is a very important point. Means testing with exclusion is a strong weapon used by US universities to increase the rate of upfront payment by the better-off. My proposal would mean this is unavailable to UK universities. They will have to rely on income contingent payments by better-off graduates and voluntary upfront payments.

B.3 Discounts for upfront payment

To reduce the existing losses on the student loan book caused by the low interest rate some have suggested offering a discount to graduates who pay early. This has some merits for existing student

financial support, in effect clearing out the current inefficient system²⁶. But all new student financial support should have an interest rate which is the government cost of borrowing (or just above it) and giving a discount for such support would be in aggregate costly, pointless and give a subsidy available solely to the better-off so is regressive. Further, around 15% of students currently pay upfront and this rate should increase with a higher interest rate and providing a discount for these people just leads to financial (deadweight) loss to the higher education budget.

B.4 Graduate taxes

Various groups, including the Nation Union of Students (2009), have proposed funding higher education using graduate taxes. They argue for different mechanisms, but the general idea is as follows: all UK domiciled graduates who went to a UK university to study as an undergraduate would pay an additional income tax for a finite time. An example of this is 5% of earnings for 15 years.

The main motivations for graduates taxes is that (i) they are simple to understand, (ii) those who had large private benefit from going to university will pay more which seems fair and their payments are related to affordability, (iii) there no sticker price (ex-ante) competition between universities and so prospective students can make their decision on what is the best course simply on the basis of its educational qualities (rather than also taking into account its value for money).

The low payment rate is possible as some graduates will pay a great deal more for their education than currently, as their graduate tax liability is unlimited.

Graduate taxes are really the same as the current system except:

- Fees are literally infinitely large as they cannot be paid off, e.g. a graduate earns £10M a year, she would pay £500k a year to the state for her education.
- Education at an English Universities would be free to French students, but not the English who would pay for both their own high education and those of the French (under EU law it is not possible to levy income taxes on the residents of other countries, but they can be charged for services).
- There is no financial reward to universities for providing high quality education.
- All current spending may appear on the PSBR (it is complicated to know for sure), currently only the losses on student financial support appear on the RAB.
- There is no role for philanthropy or sponsorship.
- There is no role for upfront payment by better-off parents, so making the system around 15% more expensive to run as this current contribution would be lost.
- It is unclear if the money raised will be given to universities, or just taken as a general tax and spent on something else such as the NHS.

I conclude from this that graduate taxes are unjust and inefficient.

B.5 Varying fees for teaching via quality kite marks

One approach is to build a national administrative structure which rates the quality of the education provided by each particular course at each university. These assessments can then drive a quality

²⁶ As far as I can see from the way the public accounts work if graduates do pay-off the low interest rate loans with a discount, then the losses now recorded on the RAB would immediately move over to the current PSBR. This could be challenging to handle in the short run.

kite marked system, which in turn could deliver varying prices according to this. In some sense this matches the research assessment exercise, which judges the quality of research as a method for distributing some research income to universities.

Of course it is easier to assess a published academic paper than a whole course, so the burden on inspectors and the inspected would likely be quite high. Further, this would be a massive loss of autonomy of universities and enormously boost the state's control of universities. Finally, the job of inspection will not be a very attractive one and so it may be very hard to produce high quality assessments of cutting edge teaching. This would deflate innovation.

B.6 Increasing length of payments

A number of writers have argued to lengthen the usual 25 year payment period for student financial support as this reduces the number of graduates who fail to pay in full their fees or living costs. Unfortunately the people who fail to pay are the poorer graduates so they are the only ones asked to pay more by this reform. Hence this is regressive and should be avoided.

This policy change could, however, be made progressive by combining it with some other reforms. An example would be to reduce the payment rate down to 7%, increase the interest rate to the government cost of borrowing (or slightly above it), forgiving payments at 30 years and increasing the threshold to say £20k.

B.7 Vouchers

A number of writers have argued the UK should use vouchers to help fund higher education. This would involve individual students being given a voucher which can be used to pay for all or part of their fees at a university. This is analysed by, for example, Bekhradnia and Massy (2009).

The HEFCE teaching grant follows the student via an approximate formula funding scheme and so from an economic viewpoint already acts exactly like a voucher. However, the UK system of additional student financial support overcomes the usual problem of vouchers which is that liquidity constrained students (typically those from financially poorer backgrounds) are unable to afford places which cost more than the value of the voucher.

A problem with the current HEFCE teaching grant is that it is invisible to the student and so unappreciated that they are in effect all being given a very substantial scholarship. This is probably damaging both for access and for the perception amongst students more generally that they are being supported by the state and the system is fair. It would be better to label this grant a scholarship and tell students about it.

B.8 Making students take out loans with a bank

A number of authors have argued that a university could do a deal with a bank allowing all of its undergraduates to have an unsecured creditline. This type of arrangements are not uncommon for MBA courses and at undergraduate level at US universities. The students then pay the university its fees upfront with borrowed money. The repayments by students are not related to earnings but the size of the loan. The interest rate is typically quite high and the repayment period short.

For example the HSBC-London Business School MBA loan is 2.75% above base rate (base rate is roughly the government's cost of borrowing), while they also charge a 1% arrangement fee and the repayment period is 7 years. The maximum borrowing is £50k²⁷.

I do not favour this approach as there is no guarantee that the repayments are affordable as they are not related to earnings. Further, there is no protection for those graduates who have low earnings, say below £15k. As a result this approach is likely to be highly damaging for access where young people from poorer backgrounds will be rationally concerned that they will have a chance that after higher education their earnings might not be high enough to pay off these loans and so they will be either bankrupted or left destitute.

B.9 Deferred fees and securitisation

A university with deferred fees could capitalise the income by selling the stream of 25 years of the cohort's annual payments to a bank or insurance company, receiving in return an upfront capital payment which can be spent on education immediately. Students and graduates are entirely unaffected by whom buys this stream, they just deal with the Student Loan Company.

This approach is called securitisation²⁸. The bank takes on the knowledge that some graduates will fail to pay the face value of the deferred fee and that many will take a long time for the payments to arrive. Securitisation has the advantage to the university that all the income from the deferred fees would be realised in effect upfront, which is the traditional way it receives its tuition income. This kind of approach is most famous in the mortgage market, where bundles of mortgages loans are sold. This market had a massive setback in the late 2000s and is still very weak.

In this context this approach is likely to perform poorly for the bank has no control over the collection mechanism or little in depth knowledge of the cohort²⁹ and so their investment will be perceived as being highly risky so yielding to the university a low and potentially volatile price (i.e. the price may change dramatically year on year).

²⁷ www.london.edu/programmes/gettingaloon.html downloaded on 14th April, 2010.

²⁸ Keys et al (2010) have a recent discussion of securitisation and the US mortgage market and contains a discussion of the literature.

²⁹ Economists call this type of situation where the buyer knows much less about the good than the seller "asymmetric information." Examples of this include user-car and life insurance sales. Such situations can lead to poor market outcomes unless great care is taken.

C. Appendix. Deferred fees from different perspectives

C.1 From a student's perspective

The current total cost of going through an undergraduate education in the UK is about £30k. Around 70% of this is due to cost of living. Students can pay upfront. If they do not fund their education entirely upfront they can draw down financial support for their living costs and fees. The payment schedule is illustrated in Table C1.

Name	Earnings	Monthly deductions		Monthly payments
		Income tax	NI	
Bill	£14k	£125	£75	0
John	£20k	£225	£130	£37
Julie	£30k	£393	£222	£112
Jane	£60k	£1,160	£363	£337

Table C1. Author's calculations using <http://listentotaxman.com>. Monthly payments are 9% of earnings above £15k.

These monthly payments continue to be paid until the earlier of: (i) the net present value of these payments reaches the amount of student financial support used, (ii) 25 years after graduating.

The level of monthly payments is not affected by the presence of deferred fees, removing cash bursaries or an increase in living cost support, it simply delays the time when everything is paid off. But this delay cannot extend the payment period beyond 25 years.

Given below is an example of a letter which would go to graduates each year detailing their financial position.

Dear Graduate:

This is your annual letter about the Student Financial Support you received at University of Exeter in 2000-2003 while you studied Mathematics.

The numbers given in this letter are on a per year basis, expressed in terms of their value in 2001 prices. This year the Student Support Company received £1,506 of payments from you towards your Student Financial Support. This is converted into 2001 figures as $C \times £1,506/3$, where we divide by 3 as your course lasted 3 years. This year $C=0.667$ ³⁰ and it reflects the change in the level of prices from 2001 to 2010 and a modest real interest rate of 2.2%. The result is a new contribution from you of £335 per year for your Student Financial Support.

I am pleased to say that alumni from your university have also made a contribution of £127 to forgiving some of your Student Financial Support. In 2001 prices, spread over three years, this is worth £28. You can find out more about who made these contributions by going to "website". Your university will write to you separately about this gift.

The current position of your Student Financial Support is given below. All numbers in this table are rounded to the nearest £1. To summarise the cost per year of your education was

³⁰ RPI in Jan 2010 was 217.9, while in Jan 2002 it was 173.3. Hence $C = (173.3/217.9)/1.022^8 = 0.667$. The 1.022 number is there as we apply a real interest rate of 2.2% per year, which is the cost to the government of providing the finance to you. If the interest rate was zero then C would be 0.795.

£15,000 and you received various scholarships which reduced this cost down to £10,700 per year. Your own payments since graduating, and some additional alumni gifts from your university, has now taken this figure down to £7,208 per year over the three years.

	Full costs of education per year	Student Financial Support per year			
		At graduation	1/4/09	New contributions this year	1/4/10
Funded tuition costs ³¹	6,700	6,700	6,700		6,700
Deferred fee for university	1,500	1,500	1,500		1,500
Scholarship from the state		-3,500	-3,500		-3,500
Alumni gift		-300	-423	-23	-446
Cost of living	6,800	6,800	6,800		6,800
Business bursary		-500	-500		-500
Your contribution		0	-3,011	-335	-3,346
Net Total	15,000	10,700	7,566	-358	7,208

Note all numbers in this table are in 2001 prices.

Recall your payments towards Student Financial Support are calculated as 9% of your earnings above £15,000 and are typically collected automatically from your salary in the same way as income tax and national insurance. These payments carry on until you have paid off the outstanding Student Financial Support. If you have any Student Financial Support outstanding in 2029 then this will be forgiven entirely and this will not affect your credit rating.

If you have any questions about this please visit “website” in the first instance.

Yours sincerely...

C.2 From a university's perspective

Unless a university charges less than the cap, it will get an upfront income of the HEFCE teaching grant plus funded fees of around £3.2k plus subject premiums.

If they introduce deferred fees they may receive another source of income direct from their students or graduates. Some students will pay this upfront, others will pay it as better-off graduates over a 25 year time, after the cost of living and funded fees are repaid to the state. Some graduates will not have enough earnings and the university would forgive their liabilities after 25 years. Hence the university holds the risk associated with deferred fees and will not receive 100% NPV of the face value of the deferred fees when we average across the student population.

Table C2a shows a numerical example of this, with the usual HEFCE teaching grant and funded fees totalling £6k, which is guaranteed to the university for a price group D subject. I assume unfunded fees of £3k and 15% pay upfront. Of the 85% who take out Student Financial Support I assume for simplicity of illustration the university gets 30% or 75% NPV back. Overall then the unfunded fees raise £1.21k or £2.36k new income for the university using the face value of £3k. It costs the state nothing.

³¹ Assumes HEFCE teaching grant of $£2.7 \times 1.3 = £3.5k$ as this is a maths student and maths is in price group C. This is relabelled a scholarship. Assume funded fees are £3.2k and a deferred fee of £1.5k.

Source of payment	Payment percentage of deferred fees over 25 year period		Payment percentage of deferred fees over 25 year period	
	30%	75%	30%	75%
HEFCE grant & funded fees	£6k	£6k	£6k	£6k
15% upfront payment of deferred fees	£0.45k	£0.45k	£0.45k	£0.45k
Philanthropic gift, 10% of deferred fees			£0.3k	£0.3k
Deferred fees paid over 25 year period	£0.76k	£1.91k	£0.67k	£1.69k
Total	£7.21k	£8.36k	£7.42k	£8.44k

Table C2a. Source: author's own calculations

C.2.1 Philanthropic support or sponsorship

The analysis becomes more attractive if there is a philanthropic contribution to student support, from alumni or industry through sponsorship, for example. I think the role of philanthropy should be to reduce the liabilities of students who do not pay upfront --- not to give them more cash for their living expenses. The next paragraph will show why this is a good idea. Table C2a also shows an example of this, reproducing the previous table but now where philanthropy pays 10% of the face value of the deferred fees. This reduces the amount graduates owe down to 75% of face value at both universities.

Clearly the students gain from philanthropy, but so do universities as there is less for them to forgive. Thus deferred fees align student and university interests in fund raising to forgive student liabilities. This is new. Currently universities have no financial incentive to fund raise to reduce student liabilities to the state. This is important. In the US it is well appreciated that fund raising directly for student support is the easiest type of fund raising from alumni. We see very little of this kind of direct fundraising in UK universities, who typically fundraise for academic posts, buildings or occasionally extra living cost cash via bursaries.

C.2.2 A critique of this approach: wealth effect

Of course deferred fees have side-effects. A university should be rewarded for generating large private benefits. But (a) University would benefit from high percentage of upfront payers. This has nothing to do with the private benefit generated at the University. (b) Women tend to have lower life time earnings than men, this system may incentivise sex discrimination at admission. (c) On average humanities students have lower life time graduate earnings than scientifically trained graduates, so this system will generate disappointing income for universities with high numbers of such students.

Sexism is illegal, so perhaps point b is less pressing. Needs blind admissions may deal with the recruitment issue in point c. Training students in humanities generate many other benefits and is a choice made by the universities, money is not everything. But why should a university get extra funds just because wealthy families send their children there?

Table C2b illustrates this by comparing a university with 50% upfront payments to one with 15%. It assumes of those who do not pay upfront, 60% eventually pay over 25 years at both universities. Thus the evidence is that they produce the same private benefit, but one university gets more money due to having students with better-off parents. This seems unfair.

Source of payment	Upfront payment %		Upfront payment %
	<u>15%</u>	<u>50%</u>	<u>50%</u>
HEFCE grant & funded fees	£6k	£6k	£6k
Upfront payment of deferred fees	£0.45k	£1.5k	£1.5k
Scholarship program			-£0.42k
Deferred fees paid over 25 year period	£1.53k	£0.9k	£0.9k
Total	£7.98k	£8.4k	£7.98k

Table C2b. Source: author's own calculations. Assumes of all borrowing, 60% is repaid.

I think universities should get the credit for their philanthropic efforts, but not for having larger upfront payment rates compared to the national average. How big is the “wealth effect” at a particular university? I will assume that the university’s upfront payers would have had the same private benefit as the students at that university who did not pay upfront³². I will measure things through the forgiveness rate of 40% (i.e. 60% of borrowing is repaid) and the difference between University’s upfront percentage and the National upfront percentage which is 35%. Then the “wealth effect” would be (“excess upfront proportion”×forgiveness rate at the university×face value of fee) $0.35 \times 0.4 \times £3k = £0.42k$. This is relatively small and is due to the low forgiveness rate at the university (note if there was no forgiveness then there would be no wealth effect, whatever the percentage of upfront payers, while if all non-upfront payers had their support forgiven then the “wealth effect” would be $0.35 \times £3k = £1.05k$). Still, in my view this amount should not appear on the bottom line of the university. One way of doing this is to introduce a scholarship programme, which forgives some student fee liabilities, which is illustrated by the right hand side of Table C2b. Another approach is to make sure these funds are used to drive up undergraduate educational quality at that university for all the students at that university³³.

C.3 From the state’s perspective

The role of the state would be to (i) run an efficient financial support system, (ii) fund the student financial support which is forgiven, (iii) fund the HEFCE grant, (iv) fund HEFCE’s subject premiums. The first is done through the SLC. The second and third issue merit funding as education typically generates common goods. The state is not affected at all by deferred fees.

The state may have an interest in providing direct subsidies to particular groups of students, such as those from financially poorer backgrounds. It could do this by paying universities a “pupil premium”, which would sit beside the deferred fee. A cheaper option is to add to this a claw back, so if the graduate from a poorer background goes on to pay the university in full the deferred fee then the government claws back its pupil premium from the university. Thus the state would be risk sharing with the university for students from poorer backgrounds.

³² In statistics this would be to say that the private benefit of non-upfront payers is missing at random.

³³ A method which does not work is to provide funds to universities with low upfront payments (i.e. to transfer money between universities), for these universities may also have high rates of forgiven fees, and supporting universities in this way incentivises them to raise their own fees in order to attract this kind of support.

C.4 From a parent's perspective

Around 15% of students are financed to go to their university by their parents. It could be that some of the living costs of many more are aided by generous parents. This contribution helps the student, but also the state. With deferred fees it will also help the student's university.

Section 1.4 discusses various ways of encouraging upfront payments, which help all stakeholders.

C.5 From UK plc's perspective

Around 5% of UK undergraduates are from the other-EU. I would expect this percentage to increase strongly through time due to the quality of our universities, globalisation and the integration of the EU. The direct financial implications of these students for the UK plc is as follows

- Other-EU students are not entitled to receive cost of living support.
- HEFCE teaching grant is applied to other-EU students. This also applies to premium subjects.
- Other-EU students pay the same tuition fees as UK students, on the same terms. As there are no cost of living support, the fees are paid back first and so forgiveness rates should, in principle, be low as less needs to be repaid. Further, over a half of other-EU students currently seem to pay their fees upfront, compared to around 15% from the UK.
- HM Customs and Exercise have arrangements with other countries to try to collect the fees of students who work outside the UK. It is unclear to me how effective these arrangements are compared to the case where the graduate works in the UK.
- My understanding is that UK universities are not allowed to discriminate against applicants on the grounds of nationality within the EU due to the legislation on the single market (from a legal position, providing educational services is like selling any other good).

Suppose we think of this solely as a simple economic transaction. Then (i) UK gains by other-EU students spending around £7k-£8k on cost of living in the UK, (ii) UK gains by students paying £3.2k fees to the state or upfront to the university, (iii) UK loses by the students being subsidised by the HEFCE teaching grant and subject premiums.

Overall this is probably a small net gain in most subjects where the HEFCE teaching grant is small, but a financial loss in the case of some science and medical subjects.

Increasing cost of living support for UK students has no impact on other-EU students. Reducing the HEFCE teaching grant and increasing funded fees leads to an improvement for UK plc. Allowing deferred fees is a direct benefit to UK plc.

Hence the reforms advocated in this paper should directly improve the financial position of the UK as a whole, rather than simply redistributing wealth around the country. Clearly an increase in fees by £1k per year per student should bring into UK universities around an extra £50M from sources outside the UK.