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The Distributional Impact of the 2012–13 Higher Education Funding Reforms in England*

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Abstract

This paper investigates the financial implications of the higher education funding regime to be introduced in English universities in September 2012. The analysis is based on simulated lifetime earnings profiles among graduates, linked to imputed information on parental incomes and institution and course choices. We find that, on average, total gross tuition fees will increase by over £15,000 as a result of the reforms; nevertheless, students will be significantly better off while they study due to the increased generosity of student support. The average graduate will be roughly £8,850 worse off over their lifetime, while universities will, on average, be better off as they are more than able to make up for the loss of substantial amounts of

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This paper draws together recent work by these authors from a number of sources, including Dearden et al. (2006), Dearden et al. (2008) and Chowdry, Dearden and Wyness (2011). The authors are extremely grateful to the funders of this work, who include the Nuffield Foundation (grant number EDU/39084) and the ESRC through the Centre for the Microeconomic Analysis of Public Policy at IFS (grant number RES-544-28-0001).

Keywords: education, university participation, higher education funding, student loans, progressivity.

JEL classification numbers: H20, H40, H52, I22, I23, I28.

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direct public funding through higher fees. The taxpayer is set to lose 33p of every £1 loaned to students (up from 25p under the current system) because of the generosity of the loan repayment terms, although the new regime is still expected to save the taxpayer around £2,500 per graduate overall. The reforms involve a substantial shift in the incidence of the cost of higher education away from the public sector and towards the private sector.

In terms of the likely implications for social mobility, our work confirms that the new funding regime is actually more progressive than its predecessor: the poorest 29 per cent of graduates will be better off under the new system, while other graduates will be worse off. Moreover, the richest 15 per cent of graduates will pay back more than they borrow, while others will be subsidised. If prospective students from poorer backgrounds are aware of these facts, then, in theory, the new funding system should not dissuade them from applying to university – and thus it would increase, rather than reduce, social mobility in the long run. However, this will require a lack of debt aversion amongst students from the poorest backgrounds, and the ability for the government and universities to provide students with clear information about the likely costs of going to university.

Policy points

- On average, total gross tuition fees will increase by over £15,000 as a result of the reforms taking effect in September 2012, while direct public funding for degree courses will eventually fall by 96 per cent.
- Students will be significantly better off while they study due to the increased generosity of student support. After university, the average graduate will be considerably worse off over their lifetime, while universities will, on average, be better off as they are more than able to make up for the loss of direct public funding through higher fees.
- Overall, the reforms involve a substantial shift in the incidence of the cost of higher education away from the public sector and towards the private sector.
- This work confirms our own previous findings that suggest that the new funding regime is actually more progressive than its predecessor: the poorest graduates will be better off under the new system than under the current system.
- In theory, the greater progressivity should not dissuade students (especially those from disadvantaged backgrounds) from applying to university, and should therefore not harm social mobility. However, this will require a lack of debt aversion amongst students from the poorest backgrounds, and the ability for the government and universities to provide students with clear information about the likely costs of going to university.

I. Introduction

In October 2010, the Browne Review into higher education (HE) funding recommended, amid much controversy, a removal of the cap on (deferred) university tuition fees and dramatic reductions in the public funding for higher education in England.¹ The government broadly accepted the thrust of these recommendations and announced a series of reforms to the HE finance system which are due to be implemented in September 2012.²

The reforms include raising the cap on deferred tuition fees from £3,375 to £9,000 per year, increasing the earnings threshold above which students repay loans from £15,795 to £21,000,³ increasing the point at which loans are written off from 25 to 30 years and introducing a variable positive real interest rate on the loans. They also set out more generous support for students from the poorest backgrounds in the form of fee discounts or cash subsidies under the National Scholarship Programme.

This paper considers the financial implications of these reforms, by analysing how the support received by students and universities, and the funding contributed by graduates and taxpayers, in the new (2012–13) system differ from those in the current (2011–12) system. In particular, we consider the distributional effects of the reforms by students' parental income and graduates' lifetime earnings, and investigate how the reforms affect the balance of funding between the public and private sectors. To do so, we update and extend the simulated graduate earnings profiles used in Dearden et al. (2008) and Chowdry, Dearden and Wyness (2011).⁴

Our paper contributes to the existing literature – mostly based on our own previous work – in a number of ways. First, it uses data on the *actual* fee and student support packages offered by individual universities in 2012–13: to our knowledge, this provides the first comprehensive assessment of how English universities have responded to the new funding system in terms of fee setting, scholarships and bursaries.⁵ Second, it is based on up-to-date simulations of graduate earnings profiles that include the impact of the recession on earnings. This allows us to examine more accurately the impact of the reforms on graduates and taxpayers, given what is currently known about recent economic trends and the economic outlook.

The paper proceeds as follows. Section II briefly describes the 2012–13 HE reforms and sets out the features of the current and new systems. Section III describes the modelling and data analysis that underpin our work. Section IV discusses the distributional implications of the reforms for students

¹We use the words 'university' and 'higher education' interchangeably for the purposes of this paper.

²Oral Statement from Business Secretary Vince Cable, 12 October 2010 (<http://www.bis.gov.uk/news/topstories/2010/oct/browne-report-response>).

³The latter, however, is in 2016 prices.

⁴These, in turn, were updated from previous earnings profiles developed in Dearden et al. (2006).

⁵We plan to publish a separate briefing note on these findings in due course.

according to parental income, while Section V assesses the distributional implications of the reforms for graduates according to graduate lifetime earnings. Section VI shows how the new funding system alters the balance of funding between graduates, students, universities and taxpayers. Section VII concludes.

II. The 2012–13 reforms

The major characteristic of the 2012–13 reforms is the removal of most of the direct public funding for universities, which will be replaced by extra tuition fee income.⁶ Under the current Spending Review,⁷ total public spending on HE is expected to fall by 40 per cent in real terms between 2010–11 and 2014–15.⁸ In 2012–13, the first year of the new system, the public subsidy for teaching received by English universities is £3.2 billion, compared with £4.3 billion in 2011–12.⁹ This amount will continue to fall in future years as the new regime is fully phased in.

Before we analyse the financial implications of the new funding arrangements, it is important to outline the overall parameters, at a national level, of the outgoing 2011–12 funding system and the incoming 2012–13 system. Table 1 summarises this discussion.

1. Fees

The main policy change is the increase in the cap on tuition fees from £3,375 to £9,000 per year, along with a ‘soft cap’ of £6,000 per year. Universities wishing to charge more than £6,000 are required to intensify their efforts to widen participation – i.e. increase participation amongst individuals from poorer or non-traditional backgrounds – in collaboration with the Office for Fair Access (OFFA). While universities are free to charge less than £6,000 a year, they are unlikely to do so in practice, as, on average, they need to charge £7,000 a year just to replace the lost income from the reductions in public funding. In fact, as we shall see, the lowest headline fee charged is £6,300 per year (see Figure 2 later).

The reforms were costed by the government on the assumption of an average fee significantly below £9,000 a year.¹⁰ However, after the plans were announced in 2010, a considerable number of universities – and virtually all of the most prestigious institutions – announced fees at the

⁶The government will, however, continue to provide resources in the form of repayable tuition fee loans.

⁷HM Treasury, 2010.

⁸This is the reduction in the total HE budget; it includes a considerably larger reduction in the direct public funding for universities.

⁹Higher Education Funding Council for England (HEFCE), 2011 and 2012.

¹⁰See, for example, Department for Business, Innovation and Skills (2010).

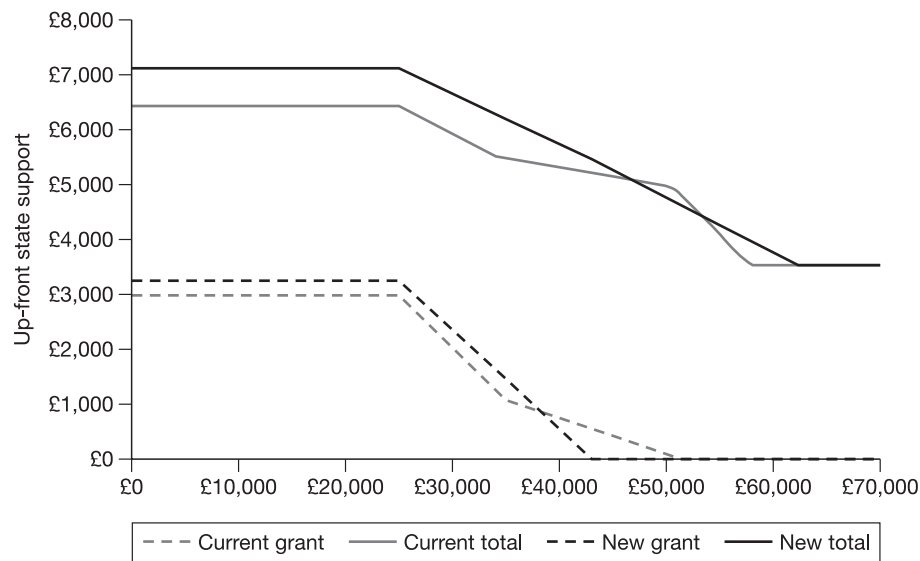
maximum level of £9,000. Higher average fees mean higher costs to the taxpayer because of the increased fee loans that are offered to students and not always fully repaid.¹¹ In response to the universities’ decisions, the government announced plans to allow universities to compete for additional student places, and therefore expand, if they offered a net tuition fee of less than £7,500 after taking into account fee waivers.¹² Because the total number of places is fixed, this means that student numbers at other (high-fee) universities must decrease.

2. Up-front support for students

Students from the poorest families (with household income below £25,000) will receive between £670 and £880 more in up-front support from the government under the new system than under the current system, because of increases in the generosity of maintenance grants and loans. The government will save money by cutting maintenance grants back for those from higher-income families: the maximum parental income at which a grant is payable has been reduced from £50,695 to £42,600.

FIGURE 1

Up-front state support (grant and loan) under current and new systems



Notes: Information on student support taken from Department for Business, Innovation and Skills (2012). Assumes student lives away from home outside London. We relax this assumption in our calculations later in the paper.

¹¹Chowdry, Dearden and Wyness, 2011.
¹²Department for Business, Innovation and Skills, 2011a.

Maintenance grants of £3,250 a year and maintenance loans of £2,750, £3,875 or £6,050 a year (depending on the student's living circumstances; see Table 1 for details) will be offered to all students from households with annual income up to £25,000. Those with household incomes above this amount see the loan element of their support package increase and the grant element decrease with income, with the maximum loan amount (which also depends on living circumstances) available when household income reaches £42,875. Above this point, no maintenance grant is payable and the amount of maintenance loan available decreases with income at a 10 per cent withdrawal rate, to 65 per cent of the maximum payable loan amount. Figure 1 illustrates the grant and loan entitlements visually.

3. Bursaries and scholarships

As well as introducing changes to maintenance grants and loans, the reforms include changes to up-front support in the form of bursaries and scholarships. Under the current system, universities must award a bursary of at least £347 per year to students from the poorest backgrounds (defined as those who receive a full maintenance grant). In practice, the bursary system is significantly more generous, although far from transparent, with many universities and colleges offering considerably more than the minimum and often to those with parental incomes higher than the minimum required for a full maintenance grant.¹³

The new system replaces this minimum bursary requirement with a National Scholarship Programme providing subsidies – in the form of fee waivers, cash bursaries and other benefits – for students from the poorest backgrounds. Universities must bid for scholarship places, with the government providing £3,000 per place and universities expected to match this contribution using their own financial resources. No more than £1,000 of the government contribution can be spent on cash bursaries. The university contribution can be used to provide any combination of cash bursaries, fee waivers and discounts.

Universities can set their own eligibility criteria, but the most common one is parental income below £25,000 per year (i.e. eligibility for the full maintenance grant). In addition, some universities define eligibility on the basis of prior attainment at age 18 (A-level scores) or information about the area the student comes from, such as whether it is a deprived neighbourhood, a low HE participation neighbourhood or a 'local' neighbourhood (i.e. close to the university).

¹³In 2010–11, the average bursary for a student receiving the full maintenance grant was around £900 a year. Source: Office for Fair Access, 2010.

TABLE 1
Financial parameters of the current and new HE funding systems

	Current system (2011–12) ^a	New system (2012–13)
Fees	£3,375 per year	Up to £9,000 per year
Support		
Maintenance grant	£2,984 per year if parental income less than or equal to £25,000 p.a. Tapered away at around 20% withdrawal rate between £25,000 and £34,250. Tapered away at around 7% withdrawal rate between £34,250 and £50,695.	£3,250 per year if parental income less than or equal to £25,000 p.a.; tapered away at around 18% withdrawal rate thereafter. No grant available when parental income exceeds £42,600 p.a.
Maintenance loan	If parental income less than or equal to £25,000 p.a.: £2,346 if living with parents, £5,436 if living away from home in London, £3,458 if living away from home outside London. Increases by 50p for every £1 reduction in maintenance grant until parental income reaches £50,778; ^b tapered away at 20% withdrawal rate thereafter until it reaches 72% of maximum amount. ^c	If parental income less than or equal to £25,000 p.a.: £2,750 if living with parents, £6,050 if living away from home in London, £3,875 if living away from home outside London. Increases by 50p for every £1 reduction in maintenance grant until parental income reaches £42,875; ^b tapered away at 10% withdrawal rate thereafter until it reaches 65% of maximum amount. ^d
Minimum bursary requirement	University pays a minimum of £347 per year if student receives full maintenance grant.	
National Scholarship Programme		£3,000 subsidy from government, allocated to eligible students in the form of fee waivers, cash bursaries and other benefits. Parental income less than or equal to £25,000 p.a. is a common (but not definitive) eligibility criterion. No more than £1,000 of this £3,000 subsidy can be used to provide cash bursaries. Matched by a contribution from university.
Repayments		
Real interest rate		
– during study	0%	3%
– after graduation	0%	0% if earnings below repayment threshold (see below). Tapered between 0% and 3% for earnings between repayment threshold and £41,000 (in 2016 prices). 3% if earnings above £41,000 (in 2016 prices).
Repayment rate	9%	9%
Repayment threshold	£15,795	£21,000 (in 2016 prices)
Threshold indexation	Annually in line with RPI inflation from 2012	Annually in line with national average earnings growth from 2016
Repayment period	25 years	30 years

Notes to Table 1

^aThis is also the system that continuing students (those who enrolled before September 2012) will be subject to, although the tuition fee will then be £3,465.

^bThis point is the same regardless of the student's living circumstances.

^cThis happens when household income reaches £56,153, £60,478 or £57,708 (depending on the student's living circumstances).

^dThis happens when household income reaches £58,195, £69,745 or £62,125 (depending on the student's living circumstances).

Note: Information on student support taken from Department for Business, Innovation and Skills (2012).

The government has so far provided £50 million of funding to universities to finance 16,633 National Scholarship places in 2012–13; this will rise to £100 million in 2013–14 and £150 million in 2014–15.¹⁴ In our analysis, we only include the initial tranche of £50 million funding for 2012–13, since the allocations to specific institutions for future years have not yet been announced. This means that we may be underestimating bursaries and fee waivers for subsequent years, although we have included all those already announced by universities.

4. Graduate repayments

Under the current system, all graduates face a subsidised interest rate equal to the rate of inflation, i.e. they face a 0 per cent real interest rate. Under the new system, loans will attract a real interest rate of 3 per cent from the point at which they are issued until the April following graduation from university. After this point, the interest rate will operate according to a linear taper: graduates with no earnings or earnings below £21,000 (in 2016 prices) will face a 0 per cent real interest rate. The real interest rate then increases linearly with earnings, reaching a maximum of 3 per cent for graduates with earnings of £41,000 or more (in 2016 prices).

The prospect of a real interest rate has led to concerns about whether graduates from wealthy families may repay their loans more rapidly in order to reduce their total interest payment. The government had initially considered plans to penalise early repayment on these grounds, but has since withdrawn them. While higher interest rates will increase the incentive to make larger repayments, the terms of the loan remain more generous than those of most alternative commercially available sources of finance.¹⁵ This rules out the possibility that graduates would be better off by borrowing from commercial sources to repay their student loan more quickly, but still means that those whose parents (or who themselves) have the financial wealth to pay off the loan may be able to circumvent some of the

¹⁴Department for Business, Innovation and Skills, 2011b.

¹⁵A comparison of unsecured personal loans available today (accurate as of May 2012) reveals that loans for larger amounts (up to £25,000) typically involve an APR of 6–9 per cent and have repayment terms of less than 10 years.

progressivity built into the system. However, some recent research¹⁶ suggests that – at least under the current system – most early repayments are made by relatively poor graduates, implying that debt aversion, rather than wealth, is the primary consideration.

III. Data and methods

In order to understand the likely implications of the reforms, we have created a simulation of a single cohort of individuals who are assumed to enter full-time higher education in September 2012.¹⁷ At the heart of our simulated cohort lies a set of graduate lifetime earnings profiles, which are constructed on the basis of a rich statistical model for the dynamics of log annual earnings and employment based on graduates from the British Household Panel Survey (BHPS).¹⁸ These simulations provide us with estimates of the future distribution of graduate earnings paths, on the assumption that the structure of earnings and employment when the student enters the labour market is similar to that observed today¹⁹ and taking into account our best estimates of likely changes over the next four years. We apply the dynamics observed in the BHPS for HE graduates to this baseline distribution. We therefore assume that these historical *dynamics* of graduate employment and earnings continue into the future. Further information on the construction of these lifetime earnings profiles can be found in Appendix A,²⁰ with technical details available in Dearden et al. (2008).

In order to assess the implications of the new HE funding regime both overall and by socio-economic background, each graduate in our simulated cohort must be assigned the following information:

¹⁶Leunig and Wyness, 2011.

¹⁷Our simulated cohort consists of 10,000 males and 10,000 females appropriately weighted to reflect the number of male and female students expected to enter HE in the institutions for which we have full fee and student support information in 2012–13 (see below for more details). The assumption on numbers entering HE is based on the number of first-year, full-time home-domiciled undergraduates at these institutions according to the 2009–10 HESA (Higher Education Statistics Agency) data – the latest available at the time – totalling some 307,000 students. We assume no overall change in student numbers, but adjust the composition of the student population to reflect the changes in student places at each HE institution in 2012–13 as a result of the ‘core and margin’ system. Under this system, the number of places is reduced by some 8 per cent, and institutions offering an average net fee of £7,500 or less (after fee waivers) are allowed to bid for some of this 8 per cent in order to maintain or increase their student body.

¹⁸The BHPS has followed a representative sample of households since 1991. It records a wide variety of information and has been used extensively for social and economic research. For more details, see <https://www.iser.essex.ac.uk/bhps>.

¹⁹We use the latest Labour Force Survey (LFS) data to establish this distribution of employment and earnings by gender. The LFS is a quarterly survey of some 60,000 individuals living at private addresses in the UK, conducted by the Office for National Statistics to provide official measures of employment and unemployment. Individuals are followed for five quarters and then replaced.

²⁰Available at http://www.ifs.org.uk/docs/fsjun12_chowdryetal_appendices.pdf.

- parental income;
- institution and band of course attended;²¹
- A-level tariff score band and an indicator of whether they come from a deprived neighbourhood, a low HE participation neighbourhood or a 'local' neighbourhood (this information is needed in order to calculate bursary entitlement).²²

The distribution of parental income is derived from the Family Resources Survey (FRS)²³ of 2010–11; we take the distribution of taxable income (i.e. the income measure used for student support means tests) of parents who reported having a 16- to 24-year-old in full-time education but living outside the household as our best proxy of the income of parents of HE undergraduates. The mean level of taxable income among this group is £50,400 and the median is £39,100.

Parents' incomes are allocated to our simulated cohort of graduates by assuming that the correlation between graduates' average lifetime earnings and their parents' income when the child was 16 is just 0.1. This assumption was informed by estimates of the intergenerational elasticity of children's earnings to parental income among *graduates* from the National Child Development Study (NCDS).²⁴ These estimates were derived using children's earnings averaged over a large segment of their adult lifetimes (between ages 23 and 50), regressed on parental income measured when the child was 16.²⁵

These estimates of parental income underlie much of our distributional analysis of the implications of the new HE funding regime. They also help us to allocate individuals to universities, course bands, A-level tariff score band and neighbourhood. To make these allocations, we create a ranking of student socio-economic status based on an average of parental income rank *and* the graduate's simulated lifetime earnings rank.

²¹We allocate them to Band A, B, C or D courses. This classification determines HEFCE (Higher Education Funding Council for England) funding and is broadly related to fee charged within the HE institution. See footnote 28 for more details.

²²We have excluded all subject-based scholarships and bursaries as these have not changed significantly as a result of the latest reforms and add a great deal of complexity to the modelling process.

²³The FRS is an annual cross-sectional study of the resources and living conditions of households throughout the UK. It began in 1992 and provides the most authoritative picture of living standards, the income distribution and poverty rates for the UK. See <http://research.dwp.gov.uk/asd/frs/> for more details.

²⁴The NCDS is a longitudinal study tracking the lives of every child born in England in one particular week in 1958 (approximately 17,000 babies). It also records family background information for each sample member. There have been eight follow-ups, the latest being in 2008–09 when the sample members were aged 50. For more details, see <http://www.cls.ioe.ac.uk/page.aspx?&siteid=724&siteid=National+Child+Development+Study>.

²⁵These results, along with sensitivity analysis based on different correlation coefficients, can be found in Appendix B (available at http://www.ifs.org.uk/docs/fsjun12_chowdryetal_appendices.pdf).

To allocate individuals to universities, we rank universities according to their position in the 2012 Complete University Guide league table²⁶ and then allocate students on the basis of a correlation of 0.1 between the rankings of their socio-economic status (SES) and the university's league table position.²⁷ Within universities, individuals enrol on courses that belong to a particular 'band', each representing a different rate of public funding.²⁸ We assign bands to students by allocating the highest-SES individuals to the highest-band courses, and so on.²⁹ In both cases, we ensure that the numbers of individuals in each university and course band match the number of students we assume will enter full-time undergraduate HE in the universities for which we have full details of fees and student support in 2012–13 (see below for further details).

Finally, we must allocate individuals to A-level tariff score bands and neighbourhood types in order to assign bursary and scholarship information to these individuals. Again, we do this on the basis of the individual's SES ranking and use 2008 HESA (Higher Education Statistics Agency) data³⁰ to ensure that our simulated cohort matches the composition of undergraduates in 2008 according to their levels of deprivation and tariff score attainment.

Once this is done, we can allocate a full package of fees, loans, grants, bursaries and scholarships to every student in our simulated population of HE graduates. To do so, we first had to collect detailed information on the specific package of fees and student support on offer in 2012–13 for every course at as many higher education institutions (HEIs) in England as possible. In total, we were able to obtain full details for 90 institutions,³¹ covering 94 per cent of the 2009–10 population of full-time, first-year home-domiciled undergraduates. We collected this information from each individual HEI's website, from the Office for Fair Access (OFFA) website and, where necessary, by contacting the university's admissions office directly.

The result of this exercise is a very detailed picture of the range of fees and support being offered by universities in England, a summary of which we will be publishing in a separate briefing note in due course. The exercise revealed wide variation in the availability of bursaries and in how means tests are being applied for student support. We can also see for the first time

²⁶See <http://www.thecompleteuniversityguide.co.uk/league-tables/rankings>.

²⁷This is less implausible than assuming no correlation whatsoever, but still allows for a large amount of random noise in the allocation of students to institutions.

²⁸The bands are A, B, C and D, with Band A courses representing the highest funding rate (typically for clinical or laboratory-based subjects) – £13,335 in 2011–12. Band D courses, typically arts and humanities along with other lecture-based subjects, attract funding of £2,325.

²⁹In so doing, we make use of information from HEFCE on the numbers of places by institution and funding band, for 2010–11. This is the latest available information.

³⁰These are the latest data for which we have A-level tariff scores.

³¹These are listed in Appendix C (http://www.ifs.org.uk/docs/fsjun12_chowdryetal_appendices.pdf).

how these arrangements have changed as a result of the reforms. To our knowledge, no such detailed picture is available elsewhere.

Importantly, we assume 100 per cent take-up and assign to every student the full amount of grants, loans and bursaries to which they would be entitled if they underwent a means test. The distributional implications of the new package of student support are discussed in Section IV. This substantially advances our previous work in this area,³² which was based on a uniform fee for all undergraduates and did not allocate bursaries to individuals at all. Furthermore, by assigning each student to a specific HEI, we are now able to use the correct amount of maintenance loan – which depends on living circumstances and HEI location – when calculating each individual's debt upon graduation and future repayments.

From all of this information, we can calculate the overall cost of higher education to the individual, the amount the taxpayer has contributed and what the university receives. Taking the simulated population as a whole, we can assess a number of distributional effects, such as how the costs of HE differ across the parental income distribution and according to the distribution of lifetime graduate earnings.

It is worth emphasising that our earnings simulations are not predictions of the future. This means that our analysis of the effects of HE funding policies on incomes does not represent a forecast or prediction of what we think the effects will be. Rather, it provides an estimate of what the effects would be, given our simulations of the distribution of lifetime earnings of graduates. It thus serves to highlight the varying distributional implications of different HE funding policies.

IV. Implications of the reforms for students

1. Fees

In our previous analysis of the 2012–13 reforms,³³ we followed the government in assuming that the average annual fee charged by universities would be £7,500 and that all students would pay this fee. Now that universities have announced their fees for 2012–13, and we have collected detailed information on these fees for most institutions, we can look at the whole distribution of headline fees (gross fees) and of effective fees paid by students (net fees). The net fee is simply the gross fee minus any fee waivers to which students may be entitled. The average headline (gross) fee charged by universities in 2012–13 is £8,660 per year but the average *net* fee is £8,330 per year.

³²For example, Chowdry, Dearden and Wyness (2011).

³³Chowdry, Dearden and Wyness, 2011.

Figure 2 shows the distribution of gross and net fees being charged to students in September 2012. It shows clearly that there is a wide distribution of fees, although no one will face a gross fee of less than £6,300. At the other end of the scale, 64 per cent (54 per cent) of students will face a gross

FIGURE 2

Distribution of 2012–13 gross and net annual tuition fees under the new system

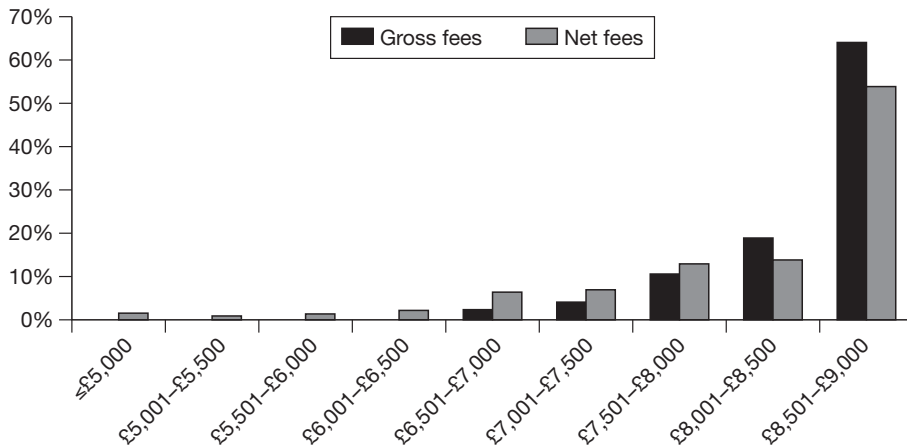


FIGURE 3

Average gross and net 2012–13 tuition fees under the new system by parental income

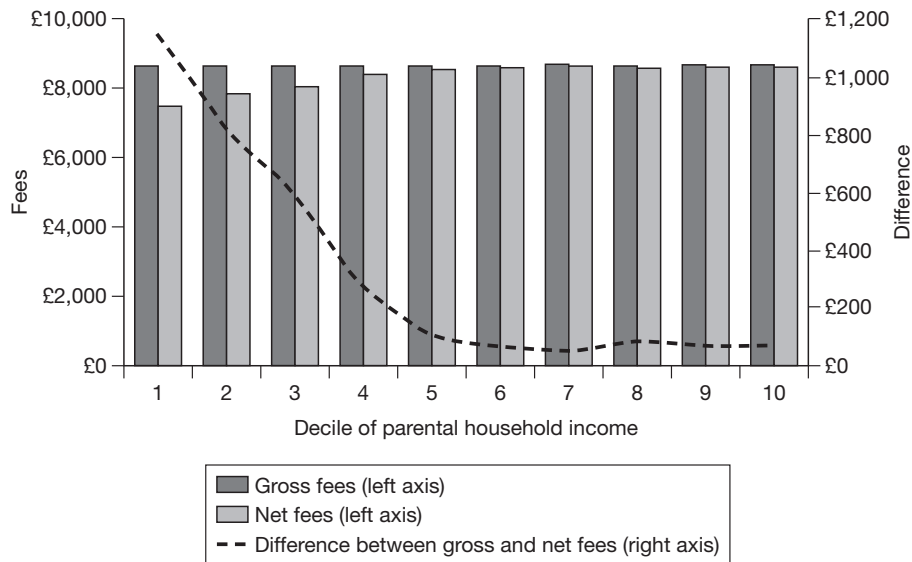


TABLE 2
Average debt upon graduation, by decile of parental income

Decile of parental income distribution	Total debt upon graduation (in 2012 prices)	
	Current system	New system
Poorest	£22,236	£37,713
2 nd	£22,185	£38,239
3 rd	£22,205	£38,739
4 th	£22,744	£39,910
5 th	£24,939	£42,400
6 th	£25,952	£43,585
7 th	£24,805	£42,573
8 th	£22,406	£40,121
9 th	£22,229	£39,865
Richest	£22,253	£39,880
All	£23,195	£40,302

(net) fee of £9,000.³⁴ We estimate that 94 per cent (81 per cent) of students will face a gross (net) fee greater than the government's central assumption of £7,500.

The fee waivers are largely, but not wholly, targeted at students from the poorest backgrounds. This is demonstrated in Figure 3, which plots 2012–13 gross and net fees by parental income decile and shows that even some students in the top decile of the parental income distribution receive small fee waivers.

Table 2 demonstrates the relationship between parental income and debt upon graduation. In each decile, students graduate with significantly more debt on average under the new system. Under the current system, students in the sixth decile leave university with the highest debts on average, having received the maximum maintenance loan in each year of their degree. This is also true under the new system. The poorest 30 per cent of students graduate with a debt level similar to that for the richest 30 per cent under the current system, since they receive similar levels of maintenance loans. Under the new system, however, the poorest 30 per cent will have the lowest debt upon graduation. This reflects the facts that such students are less likely to attend universities charging the highest fees and that some of them are eligible for fee waivers under the National Scholarship Programme.

2. Student support

As outlined in Section III above, we have collected detailed information about the bursary schemes in place in most universities in England. This enables us to provide new evidence showing how the university bursary

³⁴Note that in Figure 2, the final category is composed entirely of £9,000 fees.

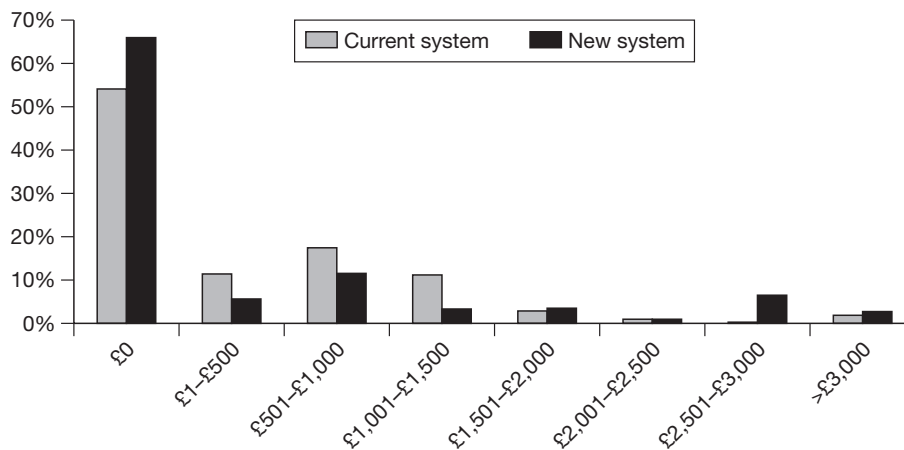
system has changed as a result of the 2012–13 reforms and the introduction of the National Scholarship Programme (NSP). Summary statistics are given in Table 3, and Figure 4 compares the distribution of first-year bursaries under the 2011–12 and 2012–13 systems. The table shows that average first-year cash bursaries have increased from £425 to £580 per year.

However, bursaries are just one aspect of student support. In order to fully understand the distributional consequences (for students) of the new funding regime, we examine how the full package of student support – covering government grants, university bursaries and scholarships, and maintenance loans (but not fee loans) – varies by parental income. Figure 5 shows the *change* in up-front support by parental income, as well as the change in each component thereof.³⁵ It shows that students across most parts of the distribution of parental income will get more up-front support under the new system than under the current system in year 1,³⁶ although the

TABLE 3
Cash bursaries for year 1 under the current and new systems

	2011–12 system	2012–13 system
Median	£0	£0
Mean	£425	£580
90 th percentile	£1,165	£2,100

FIGURE 4
Distribution of first-year cash bursaries under the current and new systems

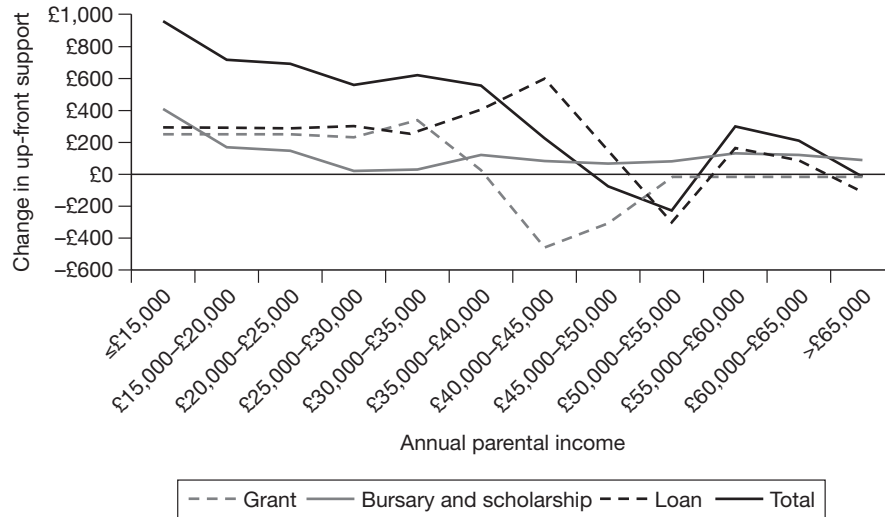


³⁵Note that the figure plots the change in support in year 1 of the course, not the annual change.

³⁶We compare the support package for the first year of the course because, in later years, universities may provide more than currently promised. In particular, universities may allocate some of the future NSP funding on the 2012–13 cohort.

FIGURE 5

Average change in financial support in year 1, by parental income



increases generally fall as parental income rises. Notably, those with family income between £45,000 and £55,000 will on average get less support under the new system. This is mainly driven by changes to government grant and maintenance loans. The reduction of maximum income at which a grant is payable from £50,695 to £42,600 means those with income in this range will experience a substantial fall in the grant. Meanwhile, the income for maximum loan entitlement changes from around £50,800 to just below £43,000 under the new system. This compensates the group with income in the £40,000–£45,000 band, while leading to the overall reduction of up-front support for those with incomes just above £50,000. Another way to understand the non-linear pattern here is to recall Figure 1, which shows that those with income near £50,000 will get less up-front support from the reform while everybody else will get more. At other parts of the income distribution, Figure 5 suggests the total gain will be bigger for students from poorer families. Those with family income below £15,000 can expect to gain around £960 in year 1 from the reform. More than half of their gain stems from greater generosity of government grants and loans rather than bursaries.

Overall, while the 2012–13 reforms involve a substantial increase in (deferred) tuition fees, they also involve an increase in up-front support for students across most parts of the distribution of parental income. We now move on to consider the implications of these reforms for students once they graduate from university.

V. Implications of the reforms for graduates

This section uses our simulated graduate lifetime earnings profiles to estimate the loan repayments that different graduates would make under the current and new HE finance systems. This enables us to consider the distributional effects of the reforms according to graduate lifetime earnings.

We start by calculating the net present value (NPV) of debt repayments that graduates are expected to make (i.e. net of any subsidies they gain from the tapered real interest rate and debt write-off), the number of years over which graduates can expect to repay their loans, and the effective taxpayer subsidy implicit in the repayment terms (expressed as a percentage of the original loan). In all cases, we show how these outcomes vary across the distribution of graduate lifetime earnings.

Table 4 shows how each element varies across the distribution of lifetime earnings under the new system, for all graduates and for males and females separately. The broad pattern is one of progressivity: graduates with lower lifetime earnings are expected to make smaller lifetime repayments and to receive a greater subsidy. The poorest 10 per cent of graduates repay roughly a tenth of the amount that the richest 10 per cent of graduates repay.³⁷ Graduates in the bottom earnings decile are heavily subsidised by the repayment structure, paying back only 11 per cent of the amount they borrow. This is largely due to the write-off of any outstanding debt after 30 years. Virtually all of the poorest 30 per cent of graduates reach this point and have some debt written off. Effectively, it is as if they face a 30-year graduate tax set at a marginal rate of 9 per cent. The richest graduates, on the other hand, actually pay back more than the amount they borrow. This is due to the higher interest rate (up to 3 percentage points above inflation) that high-earning graduates face, which exceeds the government's real discount rate of 2.2 per cent (which is used in the NPV calculations).

A corollary of the system's progressivity is that it is more generous, on average, to female graduates, who tend to have lower lifetime earnings than male graduates. The average female graduate will pay back just over half of what they borrow, compared with 87 per cent for the average male graduate.

We now turn to comparisons of the new system against the current system in order to illustrate in more detail the implications of the reforms. Figure 6 plots the NPV of repayments across the distribution of graduate lifetime earnings, both under the current system (in grey) and under the new system (in black). The two lines cross around the 30th percentile; on average, graduates with lifetime earnings above this point are worse off as a result of

³⁷Here and in the rest of this section, we use 'amount repaid' to mean the net present value of the stream of future repayments, using a discount factor of RPI + 2.2 per cent. This is the discount factor the government uses in its accounts for quantifying the costs and revenues arising from the HE finance system. We do not mean the cash or nominal amount of repayments.

TABLE 4
Graduate payments under the new funding system, by lifetime earnings

Decile of lifetime earnings	Debt upon graduation			NPV repayments			NPV repayments as percentage of loan			Years to repay loan		
	All	Females	Males	All	Females	Males	All	Females	Males	All	Females	Males
Poorest	£40,027	£40,009	£40,245	£4,064	£3,920	£5,764	11.1%	10.7%	15.9%	30.0	30.0	30.0
2 nd	£40,295	£40,274	£40,397	£9,533	£9,155	£11,344	25.9%	24.9%	30.8%	30.0	30.0	30.0
3 rd	£40,031	£40,149	£39,677	£15,236	£14,483	£17,514	41.5%	39.3%	48.2%	29.9	30.0	29.8
4 th	£40,293	£40,291	£40,298	£20,941	£19,996	£22,804	56.8%	54.2%	61.8%	29.7	29.8	29.5
5 th	£40,395	£40,319	£40,509	£26,731	£25,824	£28,087	72.2%	70.0%	75.7%	29.0	29.3	28.5
6 th	£40,273	£40,325	£40,218	£31,159	£30,437	£31,924	84.0%	82.1%	86.0%	27.7	28.2	27.2
7 th	£40,418	£40,647	£40,255	£34,965	£35,002	£34,939	93.5%	93.1%	93.9%	25.4	25.9	25.1
8 th	£40,234	£40,407	£40,152	£36,823	£37,153	£36,668	98.4%	99.0%	98.1%	22.8	22.7	22.8
9 th	£40,583	£40,514	£40,607	£38,693	£38,771	£38,666	102.1%	102.5%	102.0%	20.1	19.9	20.2
Richest	£40,473	£40,650	£40,446	£40,195	£40,368	£40,168	106.2%	106.3%	106.2%	16.2	16.5	16.1
All	£40,302	£40,281	£40,328	£25,833	£20,028	£32,655	69.2%	53.8%	87.2%	26.1	28.2	23.6

Note: NPV repayments are the net present value of the stream of future repayments, using a discount factor of RPI + 2.2 per cent.

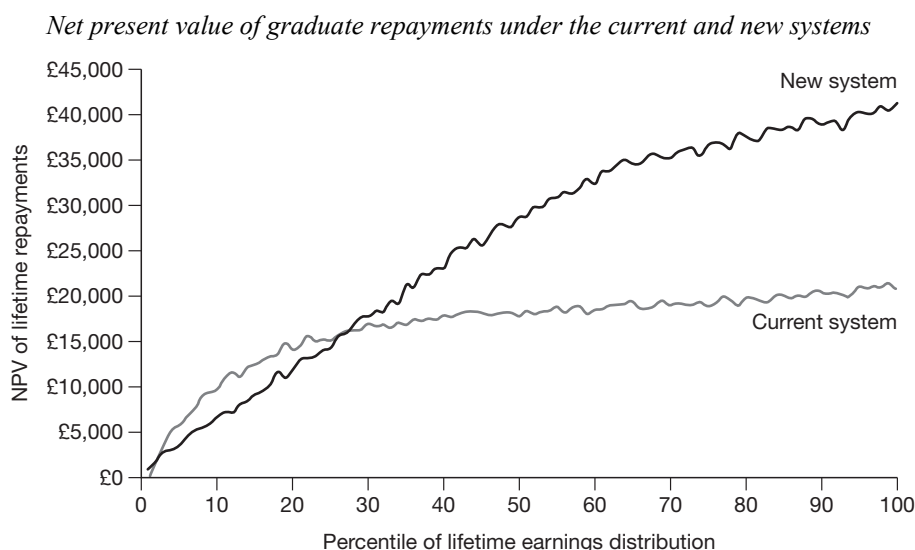
the reforms – in terms of the repayments they make – while graduates below this point are actually better off.³⁸ Low-earning graduates benefit from the reforms because of the increase in the earnings threshold, which (in combination with the debt write-off after 30 years) ensures that the majority of the amount they borrow is never repaid.

The new system also exhibits a more progressive pattern of repayments than its predecessor. Under the current system, the richest graduates pay back only slightly more than those at the median. Under the new system, the relationship does not flatten out very much as income rises; it remains steeper and approximately linear until around the 60th percentile of graduate lifetime earnings. Hence there is a stronger link between what graduates earn and how much they repay over their lifetime under the new system.

Figure 7 shows that under both the current and new systems, poorer graduates are subsidised more as a result of the terms of the loan repayments than richer graduates, but this is clearly accentuated under the new system. A key difference is that under the current system all graduates benefit from the loan subsidy, whereas under the new system the richest 15 per cent of graduates receive a negative subsidy, i.e. they repay more than the value (in NPV terms) of what they borrow.

Figure 8 illustrates the length of time for which graduates at different points of the lifetime earnings distribution make loan repayments. Under the

FIGURE 6



³⁸Of course, high-earning graduates may also have benefited from more generous up-front support while at university under the new system. This is not taken into account here.

FIGURE 7

Subsidy as a percentage of loan under the current and new systems

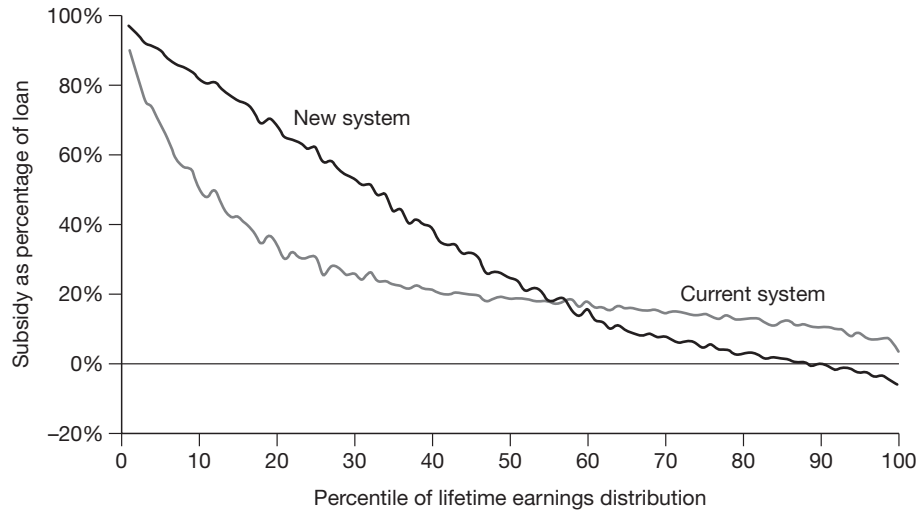
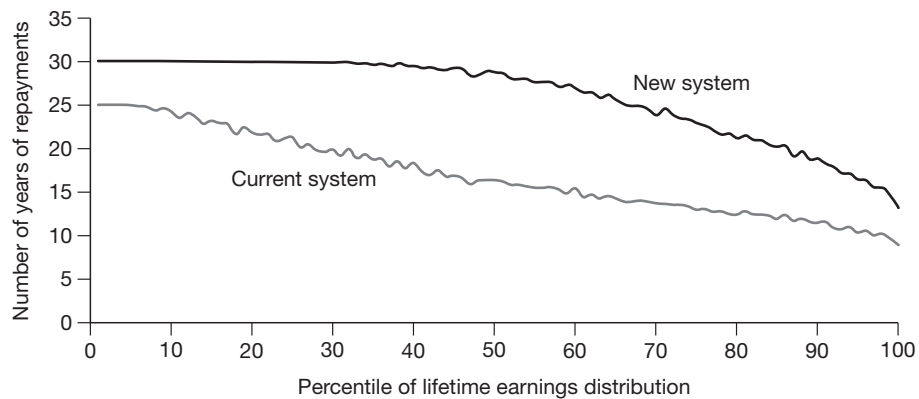


FIGURE 8

Years to repay loan under the current and new systems



current system, around 21 per cent of graduates³⁹ (and almost all graduates in the bottom decile) reach the debt write-off point of 25 years. At the other end of the distribution, the very richest graduates take less than 10 years to complete repayments. Under the new system, characterised by higher initial debt, a higher repayment threshold and a longer repayment period, all graduates make repayments for longer. The net effect is that the proportion

³⁹This number is higher than might be implied by Figure 8 at first glance, because it includes graduates in other earnings deciles who also have debt written off.

of graduates who reach the new debt write-off point of 30 years increases to 56 per cent (including almost all graduates in the bottom three deciles). The very richest graduates will typically complete repayments in less than 15 years.

VI. The shifting balance of contributions to the higher education system

Sections IV and V have detailed the distributional effects of the new system for students and graduates. This section compares the overall effects on these groups with the effects on taxpayers and universities. In so doing, we show how the reforms shift the balance of funding for HE between the public and private sectors.

We illustrate who pays for the system of HE funding in England by means of a circular flow of payments. Table 5 sets out our calculations of the sources and destinations of funding in the HE system, allocating them between universities, students, graduates and taxpayers, under the current and new funding systems. Accounting for both where payments come from and where they go to results in a zero-sum game. Comparing such zero sums across different systems gives us a clear indication of the net winners and losers from the new reforms.⁴⁰

The figures in Table 5 are not annual costs; they instead represent cumulative totals per graduate, over the course of their degree. However, the estimates can be multiplied by the cohort size to give an amount broadly indicative of the total annual cost (or transfer) in the steady state of the new system. According to our simulations, under the current system shown in column 1, the taxpayer contributes £20,690 to the cost of the average degree, just over half of which is accounted for by the public funding of universities through the Higher Education Funding Council for England (HEFCE). The second element of public funding is the provision of non-repayable maintenance grants to students from poorer backgrounds, which, on average, total £4,020 over the course of a degree. The final source of taxpayer contribution is the subsidy to graduates inherent in the loan repayment structure. As a result, the government provides an effective loan subsidy – Resource, Accounting and Budgeting (RAB) charge – of 25 per cent, or 25p of every £1 issued in loans.

⁴⁰Of course, in reality, the distinction between these different groups is more blurred than our analysis suggests. For example, students go on to become graduates, so transfers between these two groups are really transfers across time rather than between people. Most graduates, and some students, are taxpayers. Money paid to universities will, in general, benefit the students who attend them and the graduates they go on to become.

TABLE 5
Circular flow of sources and destinations of funding

	(1) Current system	(2) New system	(3) Change (£)	(4) Change (%)
Source of funding per graduate				
Taxpayers	£20,690	£18,210	-£2,480	-12.0%
HEFCE funding	£10,990	£460	-£10,530	-95.8%
National Scholarship Programme spending	£0	£130	£130	
Maintenance grants	£4,020	£4,520	£510	12.7%
£ loan subsidy	£5,690	£13,100	£7,410	130.2%
% loan subsidy (RAB)	25%	33%	8%	
Graduates	£16,990	£25,830	£8,850	52.1%
Fee loan repayment	£7,530	£15,960	£8,420	111.8%
Maintenance loan repayment	£9,450	£9,880	£430	4.6%
Destination of funding per graduate				
Universities	£20,160	£24,460	£4,300	21.3%
HEFCE funding	£10,990	£460	-£10,530	-95.8%
National Scholarship Programme spending	£0	£130	£130	
Fees	£10,420	£25,760	£15,340	147.2%
Less Fee waivers	£0	-£600	-£600	
Net fees	£10,420	£25,160	£14,740	141.5%
Bursaries and scholarships	-£1,250	-£1,290	-£40	3.2%
Students	£17,520	£19,580	£2,060	11.8%
Maintenance grants	£4,020	£4,520	£510	12.7%
Maintenance loans	£12,250	£13,770	£1,520	12.4%
Bursaries and scholarships	£1,250	£1,290	£40	3.2%

The other source of funding is graduates, who, on average, according to our simulations, contribute £16,990 in repayments over their lifetime under the current system.⁴¹

The first destination of funding is universities themselves, which in total receive £20,160 to educate the average student under the current system. The other destination of funding is the student while they are studying. The major transfer to students is the maintenance loan, which totals £12,250 per student under the current system.

Column 2 of Table 5 contains the projected balance of contributions and receipts under the new 2012–13 system, column 3 shows the net change between the two systems for each item and column 4 shows the percentage

⁴¹This can be split into repayments for tuition fee loans and repayments for maintenance loans, under the assumption that maintenance loans are repaid first; the government's own models of HE finance make this assumption. However, it is not an important part of the analysis here.

change. Under the new system, the total taxpayer contribution is lower, driven mainly by a dramatic cut in public funding through HEFCE. Offsetting this reduction is an increase in the average generosity of maintenance grants, new spending on the National Scholarship Programme (NSP)⁴² and a large increase in the effective loan subsidy (due to an increase in the amount of money loaned out). The net effect on the taxpayer contribution is negative, i.e. the package of reforms saves the taxpayer £2,480 (12 per cent) per graduate overall. Across the entire cohort, this equates to a total saving of some £760 million.⁴³

The reduction in the taxpayer contribution is more than offset by an increase in the expected contribution from the average graduate, who will in future make repayments totalling £25,830 over their lifetime – an increase of 52 per cent compared with the current system. Thus the total amount spent on higher education (from both private and public sources) is expected to increase as a result of these reforms.

The benefits of the increase in overall funding are split between universities and students. Under the new system, universities receive a total transfer of £24,460, a 21 per cent increase compared with the current system. This is primarily because the tuition fee levels under the new system have increased more than enough to offset the loss of public funding through HEFCE. Under the new system, universities also provide fee waivers and increased bursaries and scholarships to poorer students; despite this, their net financial position has improved on average.

The average student enjoys an increase in cash support during their degree of some 12 per cent, amounting to £19,580 in total. This is due to an increase in the average generosity of maintenance grants, maintenance loans, and bursaries and scholarships.

Overall, therefore, the net beneficiaries from the reforms are the taxpayer and universities. Students are better off on average while at university, but worse off on average after they graduate. This indicates a net shift in the contribution to HE funding away from the public sector towards private individuals.

We have also estimated the implications of the reforms under different future scenarios for economic growth (see Appendix D for more details⁴⁴). Clearly, the share of the burden that falls upon graduates depends on the level and growth of graduate earnings over a long time horizon. Under a more pessimistic outlook with slower earnings growth, reforms that aim to recover a greater share of the cost of HE from graduates will recoup less in

⁴²Note that the figure given for the NSP cost (£130 per graduate) is an estimate of the cash-flow cost, not the true economic cost. The latter will be lower because some of this funding is used to provide fee waivers, thereby reducing the amount of debt that students graduate with, which in turn reduces the amount of debt written off and thus the loan subsidy (relative to a new system with no NSP).

⁴³Based on an assumed cohort size of 307,000; see footnote 17 for further details.

⁴⁴Available at http://www.ifs.org.uk/docs/fsjun12_chowdryetal_appendices.pdf.

graduate repayments, and the taxpayer saving will be lower. We find that under a pessimistic scenario where graduate earnings only increase by 1.5 per cent a year in real terms, the taxpayer would only save £1,640 per graduate from the reforms (£500 million across the cohort). Conversely, under an optimistic scenario where graduate earnings increase by 2.5 per cent a year in real terms, the taxpayer would save £3,030 per graduate (£930 million across the cohort).

VII. Discussion and conclusions

This paper has investigated the likely financial implications of the reforms to higher education funding in England that were first announced in 2010 and that will come into effect in September 2012. We find that, compared with the system in 2011–12, the 2012–13 funding regime will lead to increases in gross tuition fees of over £15,000 over the course of a degree. Nonetheless, students will be significantly better off while they study due to the increased generosity of student support. The average graduate will be roughly £8,850 worse off over their lifetime, while universities will, on average, be better off as they are more than able to make up for the loss of public funding through higher fees. The taxpayer is set to lose 33p of every £1 loaned to students (up from 25p under the current system) because of the generosity of the loan repayment terms, although the new regime is still expected to save the taxpayer around £2,500 per graduate on average. Overall, the reforms involve a substantial shift in the incidence of the cost of HE away from the public sector and towards the private sector.

While the average graduate is clearly made worse off by the reforms, this masks some important heterogeneity across the distribution of lifetime earnings. We estimate that the poorest 29 per cent of graduates actually benefit from the reforms, as they will make lower lifetime repayments than under the current system, largely as a result of the fact that any remaining debt is written off after 30 years. At the other end of the scale, richer graduates will pay back considerably more than under the 2011–12 system; the top 15 per cent even pay back more than the value of what they borrowed to finance their degree.

What implications do these results, and the reforms in general, have for social mobility? Our analysis shows that the reforms involve an increase in up-front support for students whilst they are at university, especially for those from the poorest backgrounds. It also demonstrates that the reforms will strengthen the insurance built into the loan repayment system, and will increase its progressivity. These facts should, *in theory*, suggest that HE participation rates (on average and among disadvantaged groups) will not suffer if students are sufficiently well informed and not debt-averse. Perhaps

troublingly, some survey evidence⁴⁵ suggests that students from poorer backgrounds are more debt-averse and more likely to be discouraged from entering HE as a result of fears over debt accumulation. However, empirical evidence on the *impact* of previous increases in tuition fees⁴⁶ suggests that fee increases that are matched by increases in student support do not deter participation, even amongst students from poor backgrounds. It should be noted, though, that past increases were smaller in magnitude than those under the new system. Ultimately, whether or not participation is affected in practice will depend on the degree of debt aversion among prospective students and on the ability of the government and universities to provide students with clear information about the arrangements in place and the likely costs – in both the short and long runs – of going to university.

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⁴⁵Callender and Jackson, 2005.

⁴⁶For example, Dearden, Fitzsimons and Wyness (2011).

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