Towards setting student numbers free

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1. One of the strengths of the Browne Review (Independent Review of Higher Education Funding and Student Finance, 2010) is that it offers a genuine strategy (Barr 2010*b*). An important element in the strategy is to set student numbers free by keeping the taxpayer cost of expansion low. The Review aims to do this by

- Abolishing taxpayer support (the T grant) for 'chalk and talk' subjects, notably arts and humanities, and social sciences;
- Imposing the cost of non-repayment of loans on universities, through a levy on fees above £6,000.

2. This note makes three sets of arguments:

- The aim of setting student numbers free is right.
- The method proposed for doing so in the Browne Review has deficiencies, which the government's response has aggravated. Abolishing the T grant will lead to higher fees on average, which risks damping down the demand for higher education. As argued below, such damping down is inefficient. And higher fees will lead to larger loans, and thus to a larger average loss on loans; those losses are made worse by some of the subsequent changes to the design of the loan. The resulting cost of the loan system will be financially challenging in the future, damping down future expansion on the supply side. In short, the present proposals risk a self-defeating vicious circle.
- The main purpose of this note is to set out a better way of setting numbers free. The opening section explains why the objective is important. Section 2 explains why abolishing the T grant entirely is inefficient and inequitable, and argues for partially restoring taxpayer support for teaching through a targeted T grant. Section 3 explains the design flaws in the proposed loan arrangements and how to fix them. The final section briefly summarises our conclusions.

1 Why setting numbers free is important

3. The objectives of policy for higher education are taken to be:

- Quality (improving);
- Access (widening);
- Size (to meet the technologically-driven rising demand for skills).

4. Liberalising supply is important to all three objectives. It is directly relevant to size, and beneficial to improving access. It is also relevant to improving quality, the strategy for which has three elements: competition, robust quality assurance, *and* eliminating the shortage of places. The last is central. In a competitive market, if the quality of university Z

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declines, the effect is to reduce demand, creating downward pressure on price and quantity (i.e. fewer students, paying lower fees). Excess demand for places largely negates those pressures.

5. If competition is to have beneficial effects on quality, excess demand has to be eliminated. In principle this could be done by (a) allowing fees to rise enough to choke off excess demand, or (b) allowing the supply of places to increase. Given the centrality of human capital to national economic performance, option (a) is a thoroughly bad one. What is needed is an increase in supply.

2 Strategic direction 1: Partially restoring taxpayer support for teaching

6. Economic theory argues that where an activity generates benefits to society over and above those to the individual, a pure market will lead to too little of that activity taking place. A person who pays to be vaccinated against measles benefits personally because he will not get measles (the private benefit) but also confers a benefit on others because they won't catch measles from him (the external benefit). In the absence of a subsidy, too few people will choose to be vaccinated. The same argument applies to higher education, which creates external benefits in well-known ways (Box 1).

Box 1: The external benefits of education

Education creates external benefits in a range of ways.

Future tax payments: if education increases a person's future earnings, it increases her future tax payments. Her investment in education thus confers a 'dividend' on future taxpayers. In the presence of such an externality, the resulting flow of investment will be inefficiently small. A standard solution is an appropriately designed subsidy. For precisely that reason, most countries offer tax advantages for a firm's investment in physical capital.

Production benefits arise if education makes someone more productive, and also makes others more productive. Individuals may become more adaptable and better able to keep up with technological change. The economic spin-offs of an occupationally mobile population are relevant in this context. It is not surprising that much 'high-tech' industry occurs in clusters near leading universities, like Silicon Valley, Cambridge (Massachusetts), and Cambridge (England), and education lies at the heart of endogenous growth theory.

Cultural benefits: education can create cultural benefits in the form of better parenting, through increased civic engagement and, though harder to document, by strengthening tolerance of diverse views.

That some of these externalities are hard to measure does not make them unreal. The first is unambiguous. As regards growth effects, the case for widening and deepening human capital is not simply as investment, but also as insurance (the risk of under-investing is that of being overtaken by South Korea).

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7. When deciding whether or not to go to university people consider only their private benefit. As a result, in the absence of a subsidy, too few people will choose to go. This outcome is inefficient for individuals and risky in terms of national competitiveness. Abolishing the T grant risks precisely those effects.

8. In principle, this suggests that the T grant should be retained. That, however, is not the whole story. The starting point is to observe that though the argument in the previous paragraph is generally correct, it does not hold where demand is price inelastic, i.e. where the number of people applying to Oxbridge would change little, if at all, if fees increased by, say, £1,000, whereas a fee increase of that size would have a major impact on the demand for places at Balls Pond Road University. In that case, the absence of a subsidy for Oxbridge does not reduce demand or supply, hence there is no efficiency loss, hence no case for a subsidy. This does not imply that there is no social benefit, merely that there is no efficiency reason for subsidising its production.

9. To illustrate the argument, assume that the demand curve for Oxbridge is vertical and that for Balls Pond Road University shallow. In that case the simple externality argument suggests that Balls Pond Road University receives the T grant but Oxbridge does not.

10. There are two sets of reasons why the demand curve facing Oxbridge might be vertical: the majority of students are from middle-class backgrounds and not very sensitive to differences in fee levels; separately, the private benefit of an Oxbridge degree is very high. Neither argument applies strongly to Balls Pond Road University.

11. MODEL 1: A TARGETED T GRANT. In practice, we do not observe complete stratification of students by university, i.e. it is not only middle-class students who apply to Oxbridge. An alternative approach notes that there are two reasons for subsidising students, an efficiency reason, recognising external benefits where demand is price elastic, and an equity reason, to promote participation by students from disadvantaged backgrounds. This suggests an arrangement, which (a) aims to ensure that almost all universities receive at least (say) £6,000 per student, but (b) that no university charging more than (say) £7,000 receives any T grant for the arts and humanities, or social sciences. Thus, for example:

- Fees of £4,500 or less receive a T grant of £1,500.
- As fees rise above £4,500 the T grant falls by £60 for every £100 increase in fees, i.e. by £300 for every £500 increase in fees, as shown in the table.
- Fees of £7,000 or more attract no T grant.

With different thresholds it would, of course, be possible to have a lower taper.

Gross fee	T grant	Net fee
£4,500	£1,500	£6,000
£5,000	£1,200	£6,200
£5,500	£900	£6,400
£6,000	£600	£6,600
£6,500	£300	£6,800
£7,000	£0	£7,000

12. The idea behind this arrangement is that that price elasticity at a university charging high fees is likely to be low, while that at a university charging low fees is likely to be higher. Thus far the argument is an efficiency one. In addition, for equity reasons, there should be a pupil premium payable for each disadvantaged student, independent of university. The premium could be paid to the university as additional income, creating an incentive to recruit

students from disadvantaged backgrounds, or to the student, acting as a scholarship by paying a fraction of fees upfront.

13. In the resulting system:

- Oxbridge, charging £9,000, receives no T grant, but receives a pupil premium for each disadvantaged student (at Oxbridge such students would be the minority).
- Balls Pond Road University, charging £4,500, receives a targeted T grant of £1,500 for each student plus a pupil premium for each disadvantaged student (at Balls Pond Road University, the majority).

14. Advantages: the arrangement:

- Encourages a diversified system, where each university sets its fee level.
- Recognises external benefits, but does not subsidise them where demand is price inelastic.
- Subsidises students at universities that charge lower fees and – in addition – students from disadvantaged backgrounds.
- Is flexible, since a university could test the market by charging a fee above £7,000 but could, by reducing the fee over time, qualify for some T grant.
- Avoids 'big bang' reform that risks destabilising the system, for example by allowing rapid changes in the numbers of students at different universities.
- Improves efficiency and equity in a way that reduces the number of students for whom T grant is paid and thus contains the taxpayer cost of increasing student numbers.

15. MODEL 2: TARGETED T GRANT AS A BLOCK GRANT. As a variant, HEFCE could set an annual budget and invite bids from universities wishing to offer reduced fees below £7,000 in exchange for a block T-grant, using the taper schedule above. Agreements could be for (say) 3-5 years. In addition to the advantages above, this arrangement allows HEFCE to choose which courses it wishes to subsidise, but also allows the Treasury to control the size of the higher education budget.

16. LIBERALISING THE SUPPLY SIDE has two aspects.

- The marginal taxpayer cost of an additional student should be as close as possible to zero, to allow the total number of students to grow.
- The relative size of Oxbridge and Balls Pond Road University should be able to change over time.

17. Model 1 in its pure form allows the relative size of different universities to change. A student brings a targeted T grant with her if she goes to Balls Pond Road University but not if she goes to Oxbridge. If she is from a disadvantaged background, she brings a 'pupil premium' in either case; thus Balls Pond Road University gets both T grant and pupil premium. However, in the simple case of Model 1, the marginal taxpayer cost is zero only for a middle-class student at Oxbridge who attracts neither T grant nor pupil premium. Model 2, because it takes the form of a block grant, can be arranged to have a zero marginal cost of expansion but the disadvantage that decisions by HEFCE over the block grant to

different universities could constrain changes in the relative size of different institutions and degrees.

18. Thus policy design faces a tradeoff: in comparison with model 1, greater reliance on block grants reduces the taxpayer cost of an extra student but impedes changes in the relative size of different institutions and degrees. The only complete solution is that in the Browne Review – no T grant: thus the marginal taxpayer cost of expansion is zero and there is no constraint on changes in the relative size of institutions or degrees. As argued earlier, however, this approach is inefficient because it takes no account of social benefits listed in Box 1, and hence restricts size on the demand side. Thus policy has to optimise across the size and taper of the T grant and the way it is translated into block grant.[3]

19. Though the proposals in the previous paragraphs moderately raise measured public, two points are noteworthy. First, the spending is highly targeted to achieve efficiency gains. Second, the effect on public spending may be small. Suppose that 50 per cent of lending to students at Balls Pond Road University is not repaid. Then a targeted T grant would add £1,500 gross to public spending, but saves the £750 that would otherwise have been spent on fees loans that were not repaid. Even if a targeted T grant cannot wholly be accommodated within the parameters of the Comprehensive Spending Review, it is an important element for the future.

3 Strategic direction 2: Making the loan system less leaky

20. The Browne report recommends:

- A real interest rate of 2.2 per cent for graduates with sufficiently high earnings, with a zero real rate for graduates with lower earnings;
- An increase in the repayment threshold from £15,000 to £21,000, which is close to average earnings;
- Indexing the repayment threshold to earnings;
- Forgiving any loan that has not been repaid after 30 years (rather than 25).

21. The loan arrangements proposed by Browne are leaky (Barr 2010*b*, paras. 34-42), and subsequent modifications amplify the problem. Thompson and Bekhradnia (2010) point out that the government's estimates of the performance of the loan system are very sensitive to assumptions about the average level of fees (and hence the size of the average loan), and to the growth of real earnings (and hence repayment performance). There are good grounds for regarding the underlying assumptions as optimistic. In addition, the threshold at which repayment start is (a) high and (b) generously indexed.

22. To set student numbers free, three sets of changes are necessary to reduce the taxpayer cost of the loan system as much as possible:

- Reducing leaks by ensuring that higher-earning graduates repay in full;
- Shifting the costs of non-repayment by graduates with low lifetime earnings away from the taxpayer.

[3] This is a classic example of what economists call 'second-best' analysis, in that there is no perfect solution.

- Removing the perverse incentive to universities to charge the maximum fee, an incentive which arises because the cost of non-repayment of loans does not fall on the university or its graduates.[4] The resulting higher fees increase non-repayment and hence the cost of the loan system.

23. MAKING THE LOAN AS LEAK PROOF AS POSSIBLE by avoiding interest subsidies for graduates with low current earnings but high lifetime earnings (for fuller discussion, see Barr and Johnston 2010). Specifically:

- A real interest rate should apply from the moment the loan is taken out. Grace periods, whereby no real interest is charged during student days, are expensive and badly-targeted, since all graduates (except those with a substantial private income), even the highest earners, have low income while a student.
- The repayment threshold should be raised periodically in the light of the performance of the loan system or, failing that indexed, to prices. Indexing the threshold to earnings reduces the monthly repayment of all graduates including the highest-earners; again, this is badly-targeted and undermines the repayment performance of the loan scheme.

24. SHIFTING THE COST OF REMAINING LOSSES AWAY FROM THE TAXPAYER. In principle there are two ways of doing so: a national cohort risk premium, or an insurance premium paid by each university's cohort.

25. A national cohort risk premium:

- In this approach on a national basis, higher-earning graduates who have taken out a student loan pay the loss on the loans of low earning graduates.
- Thus on average there is a cross-subsidy from Oxbridge to Balls Pond Road University.
- This arrangement, however, gives all universities an incentive to charge £9,000, since they face no cost from doing so, nor do their low-earning graduates.

26. University insurance:

- In this approach each university pays an insurance premium calculated actuarially to match the predicted loss on the loans its students take out. This arrangement removes the cross-subsidy, and so the incentive for all universities to raise fees to £9,000 mainly to extract subsidies.
- One problem with this approach is that the insurance costs for Balls Pond Road University may be so high as to make the university unsustainable. At first sight this looks odd since its fees would be lower. The reason is that there are two effects at work: other things being equal, a higher fee increases non-repayment and higher income reduces non-repayment. If the earnings of Oxbridge graduates are high enough relative to those of Balls Pond Road University graduates, they will outweigh Oxbridge's higher fees. Thus on the face of it, Balls Pond Road University would pay a higher insurance premium than Oxbridge, even though its fees are lower. As a result, however, Balls Pond Road University's income, net of the insurance premium,

[4] This point has been made by many commentators. Perhaps the clearest account, seen from a university perspective, is by Smith and Smith (2010).

may be too low to provide an acceptable level of education, i.e. Balls Pond Road University may not be financially viable without some cross subsidy. Thus sole reliance on this approach is likely to be unsustainable.

- A second problem is the incentive for universities to try to cherry pick students who are likely to be high earners. Since women's repayment performance is less good than men's, universities would, for example, face incentives to expand economics departments (where men are over-represented) relative to social policy departments (where women are over-represented).

27. PROPOSAL 1: A HYBRID. This arrangement makes use both of a national risk premium and university-specific insurance.

28. A national cohort risk premium covers maintenance loans plus fees loans of up to £7,000 (including the first £7,000 of fees at universities whose total fee is higher than £7,000):

- The loss on low lifetime earners is paid via a national cohort risk premium. This could be arranged either by increasing the interest rate by (say) 2 per cent or by adding (say) one year of additional repayment to the duration of each graduate's loan (Barr, 2010*a*).
- Since this is a national scheme, universities with higher-earning graduates on average (Oxbridge) subsidise those with lower-earning graduates (Balls Pond Road University), i.e. this is a form of social insurance within higher education.
- Since the arrangement applies only to fees up to £7,000, the incentive to charge high fees mainly to extract subsidy is muted.

29. University-specific insurance on borrowing covers fees above £7,000.

- Each university pays an actuarial insurance premium to the state reflecting (a) the extent to which its fees are higher than £7,000 and (b) the earnings of its graduates.
- Since the scheme is actuarial, it removes incentives for everyone to charge £9,000.
- Since it applies only to borrowing to cover fees above £7,000 it avoids the problem that the arrangement might be unsustainable for Balls Pond Road University.
- For similar reasons, the incentive to cherry pick high future earners is muted.
- Since the premium relates to the level of student borrowing rather than to the level of fees, there is no disincentive to philanthropic payment of fees (an unintended consequence of the levy in the Browne Review).
- This approach means that allowing universities to charge above £7,000 has no fiscal implications.

30. Self-insurance by the university: another variation is to make university-specific insurance voluntary on borrowing to cover fees above £7,000. In such a regime, it would be open to Oxbridge:

- Not to pay an insurance premium;
- Not to receive fee income above £7,000 upfront from the Student Loans Company or successor body;

- Instead, to receive fee income collected as income-contingent repayments once the graduate has paid off his/her maintenance loan and fees loan on fees up to £7,000, i.e. income-contingent fees (Shephard, 2010). Such an arrangement increases the autonomy of universities, which is a key driver of long-run teaching and research performance.

31. PROPOSAL 2: LOAN DESIGN TO ENCOURAGE FUNDRAISING. In the US, fundraising to forgive fees is popular. Yet under the current proposals, Oxbridge has no incentive to do so, given the way that benefits spill over to the Treasury, since fee bursaries reduce the size of the loan students take out, thus reducing the loss on the loan.[5] This is bad policy design. Fundraising to forgive the fees (particularly fees above £6,000) of poorer students would be highly beneficial both to the student and the Treasury. There are two ways forward.

- With university-specific insurance or self-insurance, as outlined above, universities are rewarded for fundraising, actively encouraging philanthropy.
- Alternatively, in an adjustment to current proposals, the Treasury could give universities (say)10 per cent of any philanthropic upfront payment of the fees of poorer students as a form of kick back to encourage such activities. From one viewpoint, the kickback is another 'pupil premium'. But it is a pupil premium that is more than self-financing for the Treasury. A fee bursary of £3,000 would cost the Treasury £300 in kickback; in contrast, with a RAB charge of 28 per cent, an additional student loan of £3,000 would cost £840; and if the estimated RAB charge of turns out to be higher, the savings would be correspondingly greater.

4 Conclusion

32. A targeted T grant improves equity and harvests available efficiency gains without wasting taxpayers' resources. The proposed approach – no T grant – wastes available efficiency gains, while a blanket T grant creates deadweight costs and thereby wastes taxpayers' money.

33. As things stand, the proposed loan arrangements have echoes of a dodgy PFI: with optimistic assumptions, they look good when measured in PSBR terms but are likely to have a high-long run cost. High long-run costs (a) will have deleterious effects in both efficiency and equity terms and (b) can be fixed. They should be.

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[5] Since the loss on loans occurs at the margin, reducing the size of the loan has a significant effect on reducing non-repayment.

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