

Financing higher education: Lessons from developed economies, options for developing economies

Nicholas Barr

December 2006

Paper to be presented at
World Bank: Regional Bank Conference on Development Economics
Beijing 16-17 January 2007

Draft. Not for quotation

Abstract

Education faces a collision between fiscal constraints and a need for more resources for all levels of education. Technological change requires more, more varied, and more frequent education and training, and demographic change points to more investment in physical and human capital. However, international competitive pressures exert downward pressure on fiscal capacity, and fiscal pressures are compounded by competing demands connected with population ageing and medical advances.

In the face of these pressures, policy makers face a tradeoff between the size of the higher education system, its quality, its capacity to widen access, and its fiscal cost. Student loans can ease the tradeoff by supplementing public funding with private finance. But loans have institutional capacity requirements that frequently receive insufficient weight. The paper explores policy design, drawing on economic theory and international experience, and also discusses the institutional prerequisites that are necessary if a loan system is to be implemented effectively.

As well as considering how to locate resources, the paper also considers how to use those resources most effectively, that is, mechanisms through which to allocate resources to educational institutions (for example, how competitive a regime) and to students (loans or grants, needs-based or merit-based transfers).

Finally, the paper explores the instruments which policy makers can use in seeking to expand educational opportunities, arguing that the issue is much wider than education finance. Financial measures include savings schemes, government subsidies (for example, ('free' tuition), and cost sharing through current charges and student loans. Information measures seek to inform school children and raise their aspirations. Educational measures include better early schooling. Thus an important message is that policy makers should consider higher education policies not in isolation, but from a life-cycle perspective that includes earlier education – a message very much in accord with those of the *2007 World Development Report*.

Financing higher education: Lessons from developed economies, options for developing economies¹

Nicholas Barr²

This paper works outwards from economic theory. Section 1 seeks to establish three core propositions that underpin analysis of higher education finance in developed economies and thus offers principles on which developing countries should have their eye in the medium term, as fiscal and institutional capacity grow. Section 2 discusses the lessons for policy design as they apply in developed countries, and section 3 some cautionary tales explaining how easily things can go badly wrong if implementation does not receive equal billing with policy design. Section 4 considers policy options in developing countries where fiscal and, institutional capacity constrain what is feasible.

A number of caveats are necessary. The paper is about how to finance teaching, leaving on one side the difficult question of research funding. It is rooted in economic theory, but is not quantitative. Though country experience is discussed, it is not a comparative paper. Finally, though the intellectual centre of gravity of the paper is economic, that in no way denies that higher education matters also for other reasons: to promote cultural values, to protect the freedom of ideas, and to pursue new knowledge for its own sake.

1 Lessons from economic theory

In most countries, the core objectives for tertiary education are to expand quantity, to improve quality, and to widen access, all subject to a fiscal constraint.

¹ I am grateful for helpful comments from two anonymous referees. The section on implementation has benefitted considerably from discussions with Hugh Macadie.

² Professor of Public Economics, London School of Economics and Political Science, Houghton Street, London WC2A 2AE, UK: Tel: +44-20-7955-7482; Fax: +44-20-7955-7546; Email: N.Barr@lse.ac.uk; <http://econ.lse.ac.uk/staff/nb>.

In developed economies, economic theory – drawing largely the economics of information – suggests three core propositions which underpin policies to achieve those objectives.

- The days of central planning of tertiary education are gone
- Graduates should contribute to the cost of their degrees
- Well-designed student loans have core characteristics, notably income-contingent repayments, and an interest rate not lower than the government's cost of borrowing.

1.1 The days of central planning have gone

The literature on the communist system (see Kornai, 1992, Ch. 9) distinguishes extensive and intensive growth. The former refers to an era when surplus inputs, notably agricultural labour, could be brought into the industrial sector, characterised by rapid growth in the Soviet Union in the 1930s. Intensive growth, when surplus inputs had been used up, depends on technological advance and more efficient use of inputs. Central planning was not able to cope with the more complex problems that arose when inputs became scarce and with more advanced technology, as manifested by declining, and in some countries negative, growth rates in the 1980s and 1990s.

The analogy with higher education is instructive. Fifty years ago, richer countries generally had small university systems offering degrees in a limited range of subjects. In that world it was possible, as a polite myth, to assume that all universities were equally good and hence to fund them broadly equally. Today there are more universities, more students, and much greater diversity of subjects. As a result, the characteristics and the costs of different degrees at different institutions vary widely, so that institutions need to be funded differentially. In principle this could be done by an all-knowing central planner. In practice, the problem is too complex. A mass system in an increasingly complex world needs a funding mechanism which allows institutions to charge differential prices to reflect different costs and missions. Central planning is no longer feasible.

Nor is central planning desirable. On the demand side, students are potentially well-informed consumers, and thus able to make choices which conform with their interests and those

of the economy. Though that proposition is robust, there is an important exception: people from disadvantaged backgrounds might not be fully-informed, emphasising the need for action to promote access, discussed later.

Two points are noteworthy about this line of argument. The same analytical approach leads to very different conclusions for school education: attendance is compulsory, so that education is consumed by all young people; small children are not well informed; for younger children, the range of choice about content is constrained; and a case can be made in terms of social cohesion for providing all children with a similar educational experience. These arguments and others provide a compelling case for publicly funded and largely publicly organised schools. A second noteworthy point – emphasised by the first – is that the argument for regulated market forces in tertiary education is not primarily ideological, but rooted in the economics of information.

1.2 Graduates should contribute to the cost of their qualification

A second – and separate – lesson from economic theory is that graduates should contribute to the cost of their qualification. Tertiary education creates benefits beyond those to the individual – benefits in terms of growth, social cohesion, and the transmission of values. Thus taxpayer subsidies are rightly part of the landscape. However, graduates also receive private benefits, often substantial private benefits. Thus it is both efficient and fair that graduates (not students) should bear some of the costs.

However, most students cannot afford to pay for tertiary education, leading to the third set of lessons from economic theory – about the design of student loans.

1.3 Well-designed student loans have core features

At least in richer countries, loans should have three core features: they should have income-contingent repayments, be large enough to cover tuition fees and, if possible at least part of living costs, and should charge an interest rate related to the government's cost of borrowing.

Income-contingent repayments – repayments calculated as $x\%$ of the borrower's subsequent earnings, preferably collected alongside income tax or social security contributions – have major theoretical advantages. The point was first made by Milton Friedman, whose starting point was the capital market imperfection that arose because borrowing to finance investment in human capital has no physical security.

‘[I]n a non-slave state, the individual embodying the investment cannot be bought and sold. But even if he could, the security would not be comparable. The productivity of ... physical capital does not ... depend on the co-operativeness of the original borrower. The productivity of the human capital quite obviously does.... A loan to finance the training of an individual who has no security to offer other than his future earnings is therefore a much less attractive proposition than a loan to finance, say, the erection of a building....

‘A further complication is ... the inappropriateness of fixed money loans to finance investment in training. Such an investment necessarily involves much risk. The average expected return may be high, but there is wide variation about the average’ (Friedman 1955, p. 137).

But in accepting the problem he also proposed a solution.

‘The device adopted to meet the corresponding problem for other risky investments is equity investment plus limited liability on the part of shareholders. The counterpart for education would be to “buy” a share in an individual's earning prospects: to advance him the funds needed to finance his training on condition that he agree to pay the lender a specified fraction of his future earnings’ (*ibid.*, p. 138).

On that basis he advocated loans from government, in return for which,

‘[t]he individual would agree in return to pay to the government in each future year x per cent of his earnings in excess of y dollars for each \$1,000 that he gets in this way. This payment could easily be combined with payment of income tax and so involve a minimum of additional administrative expense’ (*ibid.* p. 140).

Friedman's key conclusion is that, for technical reasons, bank lending, though the right model for home loans, is the wrong model for loans to finance investment in human capital. In the latter case, income-contingent loans are a better model.

A second feature of well-designed loans, is that the loan should be large enough to cover fees and, at least in richer countries, living costs, resolving student poverty and promoting access by making tertiary education largely free at the point of use.

Finally, loans should attract an interest rate broadly equal to the government's cost of borrowing. The question of interest rates bears examination. Many countries, including Australia and the United Kingdom, offer loans at a zero real interest rate, that is, there is a blanket interest subsidy. In a system with income-contingent repayments, this policy achieves not a single desirable objective. The subsidy is enormously expensive in fiscal terms. Because of the resulting fiscal pressures, loans are too small, harming access. The subsidies also crowd out university income, harming quality. Finally, the subsidies are deeply regressive.

The regressivity point merits attention.

- The subsidies do not help students (graduates make repayments, not students).
- In a well-designed system, they give relatively little help to low-earning graduates, since unpaid debt is eventually forgiven.
- They do not help high-earning graduates early in their careers – with income-contingent loans, monthly repayments depend only on earnings; thus interest rates *have no effect on monthly repayments*, but only on the duration of the loan.
- Thus the major beneficiaries are successful professionals in mid career, whose loan repayments are switched off earlier because of the subsidy than would otherwise be the case. This is not the target group that policy makers had in mind.

In contrast, *targeted* interest subsidies have much to commend them.

In sum, income-contingent repayments improve efficiency by protecting borrowers and lenders from the uncertainty of a loan that is not secured by physical collateral: borrowers are

protected because monthly repayments are calibrated to the borrower's subsequent earnings, and lenders are protected from the risk of an unsecured loan, not least because repayments are collected alongside income tax. Income-contingent repayments also protect access because the loan has built-in insurance against inability to repay. Note that what is being discussed is not a tax, which goes on forever, but a genuine loan, where repayments cease once principal plus interest have been repaid. Income-contingent repayments have a profound effect that is insufficiently understood (for fuller discussion, see Barr, 2001, Ch. 12).

2 Policy design: lessons from developed countries

Developed countries offer positive and negative lessons.

2.1 Positive lessons

This section discusses three sets of lessons: the importance of mass tertiary education, lessons about tuition fees, and lessons about student loans.

Mass tertiary education is essential

Policy makers – especially in Ministries of Finance – are keen to know the answers to two questions:

- What is the efficient level of spending on education?
- What is the efficient level of taxpayer subsidy?

These questions, though central, can be answered, at best, only indicatively. The conclusion of a very different literature (Sen, 1999; Barr, 1999) is that it is not possible to quantify a value-free definition of poverty. Instead, the decision about where to pitch the level of poverty relief depends on social choice constrained by fiscal realities. This does not mean that there should be no poverty studies, but that judgement is needed in interpreting evidence. Analogously, problems – both of concept and measurement – mean that the benefits to education cannot be quantified in any definitive way. Of course, a conceptual impasse cannot be allowed to interfere with operational imperatives. Equally, however, one of the scarcest of all scarce resources is high-grade brain power, which should not be wasted in the search for a Holy Grail.

QUANTITATIVE ARGUMENTS. In principle, the efficient volume of resources to devote to tertiary education is that whose marginal social value equals the marginal social costs of the resources involved. Though it is possible to approximate the costs of education, there are two sets of reasons why there is no definitive quantitative measure of its social benefits: measuring outputs and inputs face major problems; and, even were these to be solved, causality is problematic. The arguments are summarised briefly below; for fuller discussion, see Barr (2000).

The first problem is that output cannot be measured, not least because there is no single definition of a 'good' education. Test scores are imperfect measures even of output defined narrowly as technical achievement; they fail to capture broader benefits of education to the individual; and they take no account of the a range of external benefits, including shared values. That the broader benefits are largely unmeasurable does not make them unreal.

Even if output could be measured, connecting that output to educational inputs faces further problems. Measuring inputs is not easy. It is possible to measure some, such as the quantity of teachers' and pupils' time, buildings, equipment, etc. But it is much harder to measure critically important factors such as the quality of teachers, natural ability and the quantity and quality of parenting. A second problem is establishing the production function that connects inputs and outputs. Studies tend to assume (since no other assumption is available) that schools have a single, simple objective – maximising their pupils' test scores. Though that model is analytically tractable and seems on the face of it plausible, it is fundamentally flawed: it implies, for example, that a school should stop teaching children who are not capable of passing tests.

Establishing causality creates a further set of problems. The discussion above implicitly assumes that education increases individual productivity. The 'screening hypothesis' questions the causal link, at least for post-primary education, arguing that education is associated with increased productivity but does not cause it.³ The argument has two elements.

³ The large literature on this and other aspects of the economics of education is surveyed by Blaug (1976, 1985) and Glennerster (1993).

- Just as good health may be due more to a naturally strong constitution than to medical care, individual productivity may be the result of natural ability rather than post-primary education.
- Firms seek high-ability workers but, prior to employing them, cannot distinguish high-ability workers from low-ability workers, just as insurance companies may not be able to distinguish high- and low risks.

The two elements together suggest that there is no social benefit from post-primary education, but a private benefit, since individuals have an incentive to make themselves stand out. The screening hypothesis argues that post-primary education does exactly that: it gives a signal to prospective employers which it is in the individual's interest to acquire – it signals that he or she is a high-productivity worker.

There are various reasons why the strong form of the hypothesis does not hold. It fails where education includes professional training, for example medicine. It also fails where there is more than one type of job: since skills and job characteristics are heterogeneous, it is necessary to match workers and jobs, so that education has a social benefit as a matching device. Whether the hypothesis has *some* validity is an empirical matter. The verdict is undecided and likely remain so, since individual productivity, as discussed above, is partly determined by unmeasurable factors such as natural ability and family background.

QUALITATIVE ARGUMENTS. Despite these difficulties in quantifying the efficient level of spending on education, it is possible to make progress with qualitative arguments. The starting point (due to Thurow 1996), is that human capital is a more important determinant of differential national economic performance today than in the past. The simplest way to make the point starts from a conventional production function:

$$Q = f(K, L, M) \tag{1}$$

where output, Q , is related to inputs of capital, K , labour, L , and raw materials, M , through the production function f . Considering each of these in turn:

- In the nineteenth century, access to raw materials was critical. A century ago, almost all the largest US firms were involved with raw materials. Today value-added comes

increasingly from other sources: the material component of computers is a trivial part of their cost; the steel used in a modern car costs less than the electronics.

- Historically, countries with a larger capital stock would typically be richer and so, through higher savings, could invest more than poorer countries, thus further increasing their capital stock. With today's global capital markets, domestic investment is less constrained by domestic savings: investment by an entrepreneur in Thailand is no longer wholly constrained by domestic savings.
- Technology (i.e. the function, f) remains a critical determinant of relative economic performance. Historically, technology tended to be tied to specific countries. Today, not least because information flows are instant, technological advance moves across countries more quickly than hitherto.

Thus f , K and M are less important explanations of differential economic performance today than in the past. The remaining variable, L , thus assumes increasing importance. In short, a combination of technological advance and international competitive pressures makes education a more important source of economic performance than ever.

There are several sets of reasons why this might be so. Technological advance is a key driver. Though technological change reduces the need for some skills (e.g., computers are increasingly user-friendly), it mostly increases the demand for skilled workers. Furthermore, skills date more quickly and need to be replenished. The 'information age' can be taken to mean a need for education and training that is larger than previously, more diverse, and repeated, given the need for periodic retraining.

Demographic change offers a second reason for increased investment in education. The rising proportion of older people foreshadows increased spending on pensions, medical care and long-term care. Part of the solution is to increase output sufficiently to meet the combined expectations of workers and pensioners.⁴ If workers are becoming relatively more scarce, the

⁴ On the analytics, see Barr and Diamond (2006).

efficient response is to increase labour productivity. Demographic change is thus an argument for additional spending on investment both in physical and human capital.

For these reasons, the case for expanding tertiary education is strong, albeit quantification problematic. Thus it is not surprising that the demand for higher education is growing, usually rapidly, in advanced and in many developing countries. Though the underlying drivers are those just discussed, they can be muted or strengthened by country-specific factors. Participation has grown particularly rapidly in countries where supply-side constraint has been relaxed, for example, in the United Kingdom after 1990 and, for very different reasons, in the European former-communist countries. Participation has also grown rapidly in countries with rapid economic growth, China being a case in point.

Lessons about tuition fees

Three lessons should be pondered: fees relax the supply-side constraint; big-bang liberalisation is politically destabilising; but no liberalisation is also a mistake.

FEES RELAX THE SUPPLY-SIDE CONSTRAINT. The funding of higher education faces a paradox. Large taxpayer subsidies can create supply-side constraints because of the desire to contain public spending. Where qualified students have no automatic entitlement to a place, the constraint takes the form of a view (typically by the Ministry of Finance) about student numbers. The result can be a high-quality system, but one that turns away qualified applicants. In countries where students have a right to a place, cost containment impacts mainly on quality. In contrast, in countries which offer less public funding per student (e.g. the USA), there are no externally imposed supply-side constraints. Unless limited taxpayer funding is sufficiently redistributive, however, students from lower-income backgrounds will be deterred from applying. Thus high subsidies can harm access on the supply side, but their absence can harm it on the demand side.

Table 1 shows public and private spending on higher education in OECD countries, and also participation rates. Given the differences in country systems and in definitions, comparisons should not be pushed too far. However, in a range of countries (Australia, New Zealand, Korea and (from other data sources) Canada and the USA), high private spending goes along with high

participation rates. A few countries combine high participation with little private spending, notably Finland and Sweden, but those are the two countries with the highest public spending on higher education – levels that might be unsustainable given other budgetary demands and international competitive pressures.

[Table 1 about here]

What matters is not only the total amount of spending, but also how it is determined. With flat fees, government controls total funding. If fees go up and public spending on higher education declines, all that happens is a change in balance between public and private finance. In 1989 Australia introduced centrally-set tuition fees to address a funding crisis. Over the years, fee income increased but tax funding fell back. By 2000 the system was back in crisis, leading to reform, announced in 2003, partially liberalising fees.

BIG-BANG LIBERALISATION CAN BE POLITICALLY DESTABILISING. In 1992, New Zealand introduced twin reforms: fees set by universities, with no constraint on fee levels; and student loans which (a) had income-contingent repayments, (b) charged a positive real interest rate related to the government's cost of borrowing, and (c) covered all fees and realistic living costs.

Though the design of the system had much in common with the strategy set out below, mistakes were made. First, reform was to some extent big-bang. Student loans were new, and fees, though not new, were fully liberalised. Second, though the system included targeted interest subsidies for low earners, more could have been done. In addition, active measures to promote access were not strongly emphasised. Fourth, and equally important, the politics were not handled well: the government failed to continue to explain the reforms and, in particular, to explain to students and parents the considerable advantages of income-contingent repayments. As a result, when nominal student debt rose over the years, worried middle-class parents created political pressures. The scheme was diluted in 2000, with further dilution since.

WITHOUT LIBERALISATION QUALITY AND ACCESS SUFFER. The opposite policy direction – no liberalisation – is equally a mistake. 'Free' higher education or low fixed fees create two

problems. Quality suffers because the education budget has to compete with other budgetary imperatives; and within the education budget, universities compete with nursery education, school education and vocational training. As a result, real funding per student declines.

Access also suffers. If places are scarce, it will tend to be middle-class students who get them; and if places are not scarce, the need to finance a mass system typically means that resources for the pro-access strategy is limited.

Lessons about loans

Discussion focuses on four lessons: income-contingent loans do not harm access; interest subsidies are expensive; positive real interest rates are politically feasible; and the design of the student loan contract matters.

INCOME-CONTINGENT LOANS DO NOT HARM ACCESS. Australia introduced a system of income-contingent loans in 1989 to cover a newly-introduced tuition charge, and thus offers the longest historical record. Chapman (1997; see also Chapman and Ryan 2003) note the increase in overall participation since 1989 and find, superimposed on that trend, that women's participation grew more strongly than men's, and that the system did not discourage participation by people in the lowest socioeconomic groups.

There are two sets of reasons why we should expect these results. First, the income-contingent mechanism is designed explicitly to reduce the risks borrowers face. Secondly, fees supported by loans free resources to promote access.

INTEREST SUBSIDIES ARE EXPENSIVE. In the United Kingdom, student loans charge a rate of interest equal to the inflation rate, i.e. a zero rate of interest. In contrast, when the government borrows, it has to pay a positive real interest rate. The interest subsidy on student loans is expensive: for every 100 the government lends, between 30 and 35 is never repaid simply because of the interest subsidy (Barr, 2002, paras. 33-37). In other words, the interest subsidy converts nearly one-third of the loan into a grant.

New Zealand offers parallel evidence. A government elected in 1999 acted early on a manifesto commitment. They introduced an interest subsidy in the form of a zero *nominal* interest rate while a student was still at university (previously a real interest rate was charged from the time the student took out the loan). In addition, the real interest rate charged after graduation was frozen at somewhat below its previous rate. The impact of these changes was startling. Previously, according to official estimates, every 100 that was lent, 90 would be repaid. As a result of the changes, it was estimated that only 77 out of every 100 would be repaid (New Zealand Ministry of Education 2002, p. 7). The change is so expensive precisely because the subsidy to students while still at university applies to *all* students. A key message is that seemingly small adjustments can be very expensive.

Not least for these reasons, an official inquiry concluded:

‘Participation goals should continue to be supported through a Student Loan Scheme with income-contingent repayments as at present. The Commission believes, however, that the current policy of writing off interest on loans for ... students while they are studying is not an effective use of the government’s resources. While this policy has decreased the length of time taken to repay loans after graduation, it has also led to an increase in the number of students taking out loans and in the overall level of student debt. To compound matters, the policy has made it possible for learners to borrow money and invest it for private gain (arbitrage). Consequently, the Commission believes that this policy should be discontinued – or that, as a minimum, the incentives for arbitrage should be removed. Any savings ... should be reinvested in the tertiary education system and be used for the benefit of students’ (New Zealand Tertiary Education Advisory Commission, 2001, p. 14).

POSITIVE REAL INTEREST RATES ARE FEASIBLE. In the Netherlands and Sweden, and more recently also in Hungary, a real interest rate is charged from the moment the student takes out the loan, both matters which are taken for granted. As noted earlier, with income-contingent loans a higher interest rate does not increase a graduate’s monthly repayments, only the duration of the loan.

CONTRACT DESIGN IS IMPORTANT. International labour mobility is high and likely to increase, raising questions about potential default if a person emigrates. In Australia, loan repayments are part of a person's tax liability, so that someone outside the Australian tax net has no liability to make repayments. With interest subsidies this is a costly error. In the United Kingdom, in contrast, there is an explicit loan contract which includes the collection of repayments through the tax system, but does not exempt a person outside the United Kingdom from making repayments. Clearly default and administrative costs are higher for people working abroad, but the effect is not large. Certainly there is no question of emigration causing a repayment black hole.

2.2 Negative lessons

Alongside these positive lessons are a number of myths.

MYTH 1: TAX FINANCE PROMOTES QUALITY AND ACCESS. Excessive reliance on taxation creates three sets of problems. First, it fails on access. The United Kingdom illustrates the point. In 2002, 81 per cent of children from professional backgrounds went to university; the comparable figure for children from manual backgrounds was 15 per cent (UK Education and Skills Select Committee, 2002, p. 19).

Second, excessive reliance on tax finance can reduce quality. There are two sets of drivers.

- If resources are static, rising student numbers lead to a decline in funding per student.
- Systems which rely mainly on tax finance are typically controlled by government, hence universities are not competitive, attenuating incentives to improve quality.

European countries which display such problems include France, Germany and the United Kingdom; precisely for those reasons, in 2006, the United Kingdom introduced a system with stronger competitive incentives. Several Scandinavian countries have managed to combine expansion with quality, but these are countries with high tax rates; the Scandinavian political economy of high tax rates may not easily be replicable elsewhere, and may face increasing international competitive pressures.

Thirdly, tax finance is generally regressive, since participating in higher education is disproportionately an activity of the better off.

MYTH 2: GRADUATES PAY FOR THEIR HIGHER EDUCATION THROUGH THEIR SUBSEQUENT HIGHER TAXES. Some people argue that higher education should be financed from taxation because graduates earn more than non-graduates and therefore pay for their higher education because of their larger total income tax payments. This argument is superficially plausible, hence its regular reappearance, but is wrong. There are three counterarguments.

First, income tax raises only about one-quarter of government revenue. The tax is paid by many more non-graduates than graduates: in 2000, 82 percent of working-age adults in the United Kingdom did not have a degree (OECD 2002, Table A3.1a).

The second argument is best shown by example. Consider three individuals: A is a graduate with average graduate lifetime earnings; B is a non-graduate with average non-graduate lifetime earnings; and C is a non-graduate with the same lifetime earnings as A. Suppose that A pays £100,000 more in income tax over his working life than B, and that £20,000 of A's total tax payment is deemed to pay for his higher education.

- Comparing A and C: £20,000 of A's total tax payment pays for his higher education; by implication, therefore, the remaining £80,000 goes towards the national health service, school education, etc., less than the £100,000 contributed to those services by C. It follows that C is paying part of the contribution A should be making to the national health service, etc. This is horizontally inequitable.
- Comparing A and B: one of the following arguments must hold. *Either* B's taxes pay for A's higher education (the argument in this chapter), which is regressive, i.e. vertically inequitable; *or* A's taxes pay for his own higher education. in which case poorer B is paying part of the contribution that A should be making to the national health service, etc. This is both horizontally and vertically inequitable.

Third, if the argument is that the taxpayer gets a ‘good deal’ by paying for people’s investment in higher education, the same logic says that the US taxpayer should pay all Microsoft’s development costs.

MYTH 3: IT IS IMMORAL TO CHARGE FOR EDUCATION. It is immoral if people with the aptitude and desire are denied access to higher education because they cannot afford it; it is also immoral if under-resourced earlier education means that they never even aspire to higher education. Similarly, it is immoral if someone is malnourished because he cannot afford a healthy diet. That, however, does not mean that it is immoral to charge for food, meaning that food would be free for everyone, including the rich; rather it is an argument for income transfers to allow everyone to afford a healthy diet.

Making something free for everyone can be justified in efficiency terms where market failures make consumer sovereignty problematic, and in equity terms where consumption is not largely by the better-off. School education is an example. Higher education conforms with neither criterion: as argued earlier, consumer sovereignty is useful, and there is a steep socioeconomic gradient in consumption. As a result, taxpayer subsidies are regressive: the taxes of truck drivers pay for the degrees of old Etonians. That is, indeed, immoral.

MYTH 4: HIGHER EDUCATION IS A BASIC RIGHT AND SHLD THEREFORE BE FREE. It is sometimes argued that tertiary education is a basic right and should therefore be financed out of taxation. There is a range of counterarguments. First, the fact that something is regarded as a right does not mean that it should be tax-financed. Access to nutrition is a basic right, yet nobody argues that it is wrong to charge for food. The moral imperative is not about *instruments* (e.g. prices) but about *outcomes*, i.e. that a bright person should be able to go to the best school or university irrespective of his or her financial circumstances. Second, the worldwide collision between expanding tertiary education and fiscal pressures means that exclusive reliance on tax finance creates downward pressure on quality. Third, the historical record in many countries shows that tax finance has done little to widen access. Finally, as noted, tax finance is deeply regressive. If it is unfair to ask graduates to pay more of the cost of tertiary education, it is even more unfair to ask non-graduate taxpayers to do so.

MYTH 5: ELITISM HAS NO PLACE IN HIGHER EDUCATION. Two separate elements are often conflated. Most people agree with the value judgement that social elitism is wrong – access to the best universities should not be influenced by a person’s social class background. In contrast, intellectual elitism is both proper and desirable. The best musicians and athletes are chosen precisely because of their abilities, irrespective of whether their background is poor (Pele) or middle-class (Tiger Woods). There is nothing inequitable about intellectually elite universities. The equity objective should be a system in which the brightest students are able to study at the most intellectually demanding universities, and that their ability to do so is determined by their ability and wishes, but not by their socioeconomic background.

2.3 A general strategy

This section sets out a general strategy for efficiency and equity with three elements: variable fees, well-designed loans, and active measures to promote access.

Element 1: Variable fees

EFFICIENCY ARGUMENTS. In this approach, tertiary institutions are financed from a mix of taxation and tuition fees. Each institution sets its fees, which for each student are covered by his or her loan entitlement. Variable tuition fees are controversial in Europe but less so in Central and Eastern Europe, and are taken for granted in the USA and many countries in Asia. Fees give institutions more resources to improve quality and, through competition, help to improve the efficiency with which those resources are used, thus improving quality and diversity, and assisting choice. As discussed earlier, the argument for competition is rooted in the idea that students in tertiary education are broadly well-informed and that their information can be further improved. Thus the argument is not for law-of-the-jungle competition but for regulated markets.

EQUITY ARGUMENTS. Perhaps counterintuitively, variable fees are also fairer than other approaches, notably by facilitating redistribution from better-off to worse-off. One of my earliest newspaper articles criticised the 1974 Labour government in the United Kingdom for restoring universal milk subsidies. The aim was to help the poor, but the subsidy was worth more to the middle-class because they drank more milk. Much more progressive to have charged

an unsubsidised price for milk, and used the resulting savings to increase benefits designed more explicitly for poverty relief.

Variable fees replace the former strategy, price subsidies for milk, by the latter, income transfers targeted at particular people. The strategy has two elements:

- Variable fees introduce higher charges for those who can afford them (note that with income-contingent loans, ‘can afford’ refers to earnings as a graduate, not to family circumstances while a student).
- Redistributive policies help poor people to pay those charges.

To an economist, these elements are staggeringly familiar: the first, a price increase, represents a movement *along* the demand curve. Taken alone, this element would harm access. However (*a*) the fees are deferred (Element 2, below), and (*b*), there are targeted transfers to groups for whom access is fragile (Element 3). This moves their demand curve *outwards*.

Thus the strategy is deeply progressive. It shifts resources from today’s best-off (who lose some of their fee subsidies) to today’s worst-off (who receive a grant) and tomorrow’s worst-off (who, with income-contingent repayments, do not repay their loan in full).

The obvious argument against fees is that they deter students from poor backgrounds. That is true of upfront fees, but not where students go to university or other tertiary education free and make a contribution only after they have graduated. This brings us to the second part of the strategy.

Element 2: A well-designed loan scheme

Student support is through loans with income-contingent repayments. The loan entitlement should be large enough to cover fees and, in richer countries, also living costs, and should carry an interest rate broadly equal to the government’s cost of borrowing.

Some amplification is needed about interest rates. The default rate should be related to the government’s cost of borrowing. However, if someone has extended spells out of the labour

force, her loan can spiral upwards. In terms of strict rationality that should not matter, since repayments will never exceed x per cent of monthly earnings, and the loan is eventually forgiven. But in practice, large nominal debts worry people. Thus, though there is a strong case against blanket interest subsidies, there are good arguments for targeted interest subsidies, discussed shortly, for people with low earnings or out of the labour force.

If loans are large enough to cover fees, the package resembles ‘free’ tertiary education financed through taxation. Students pay nothing at the time they go to university. Part of the cost is paid through taxation and part through their subsequent income-contingent repayments. From the viewpoint of the graduate, the latter are different from tax in only two ways: they are paid only by people who have been to university and benefited financially; and they do not go on for ever. Thus income-contingent loans are logically equivalent to free tertiary education financed by an income-related graduate contribution.

The viewpoint from the Ministry of Finance is somewhat different. Though loans bring in private resources in the longer-term, a loan scheme, by definition, has up-front costs because it lends the money first and receives repayments later. Thus there are major advantages if students can borrow from private sources, but – particularly in a developing country – private lenders will charge a substantial risk premium unless there is a government guarantee; and if there is a government guarantee, the loans will be classified as public spending. Potential solutions exist in this highly technical area, but require considerable care in design.⁵

Element 3: Action to promote access

Assume that all students are well-informed and with a good school education. In that case, a good income-contingent loan is all that is needed.

However, not all students are well-informed. Most particularly the group for whom we want to promote access is not well-informed. Addressing the problem requires measures to tackle exclusion.

⁵ For fuller discussion, see Barr (2001, Ch. 14).

THE ROOTS OF EXCLUSION. It can be argued that there are three roots to exclusion:

- (a) Shortage of money, i.e. the student comes from a low-income family.
- (b) Shortage of information, e.g. the student is badly-informed about the benefits of education and training; information in this context includes aspirations.
- (c) Shortage of education, e.g. attending a failing school.

Thus a person might not participate in tertiary education because he or she:

- left school at the minimum leaving age, because of any combination of these three shortages; or
- never considered staying on, not least because of a shortage of information; or
- thought about staying on but thought, wrongly, that he or she did not have the capacity to succeed; or
- was debt averse.

DEBT AVERSION. The last item requires amplification. It can be argued that income-contingent loans have built-in insurance against inability to repay and, to that extent, are a no-lose bet. Provided loans are large enough to make tertiary education free at the point of use, the argument continues, such loans are all that is needed.

If all students are well-informed, that argument is strong, and consumption smoothing through income-contingent loans is, for the most part, all that is necessary. But not all potential students are well-informed. In particular, they might under-estimate the benefits of tertiary education and/or over-estimate the costs. There is empirical support for this conjecture. Usher (2005) finds that the average Canadian underestimates the benefit of university education by a factor of five. In those circumstances, *given what they know*, it is rational for people to be unwilling to take out a loan, even an income-contingent loan. This is the origin of so-called debt aversion. For groups to whom the analysis applies loans alone are not enough, hence the third element in the strategy – measures designed to promote access directly.

POLICES MUST ADDRESS ALL THREE ROOTS OF EXCLUSION. Measures to address financial poverty should be wide-ranging.

- An income-tested grant for children above the minimum school leaving age would encourage them to complete school.
- An income-tested grant or scholarship could cover some or all costs at university or college. There may be advantages in offering full scholarships to first-year students from poor backgrounds, unsure about whether they are well-suited to university. By the end of their first year they are no longer badly-informed and, if doing well, are more prepared to finance the rest of their degree, at least in part, through a loan.
- Both policies could be supported by financial incentives to tertiary institutions to widen participation, and by extra resources to provide additional intellectual support at tertiary institutions for students from disadvantaged backgrounds.

A second set of money measures supports access by offering assistance for people with low incomes after graduation.

- Targeted interest subsidies could freeze the real value of debt of people with low earnings, including people who are unemployed.
- People with low lifetime earnings could be protected by writing off any loan not repaid after (say) 25 years.
- The loans of workers in the public sector could be progressively written off.
- People caring for young children or elderly dependants could be granted loan remission.

Information poverty, the second strategic impediment to access, receives far too little attention. Action to inform school children and raise their aspirations is therefore critical. The saddest impediment to access is someone who has never even thought of going to university.

Finally, problems of access to post-compulsory education cannot be solved entirely within the tertiary education sector. More resources are needed earlier in the system, not least because of the growing evidence (Feinstein 2003) that the roots of exclusion lie in early childhood.

3 Lessons about implementation

3.1 The importance of implementation

Fiscal pressures make loans attractive to Ministries of Finance. However, loans are not easy to implement, so many countries have a lamentable record of collecting repayments. It is one thing to design a good loan system, quite another to make sure that the money is paid promptly and accurately to the right people and that repayments are collected effectively.

Effective reform rests on a tripod of skills: strategic policy design, political implementation, and administrative/technical implementation. In many ways, policy design is the easy task. The more difficult part is to make schemes work in practice, both in political and administrative terms.

Most people are not aware of implementation or, where they are, underestimate what is involved and/or pay only lip service to its importance. The idea that if one understands a policy one can establish a programme for implementing it is generally false. A person with one of the skills frequently fails to grasp the importance of the other two. Academics, whose expertise is policy design, generally ignore implementation. Politicians may give too little weight to the coherence of a policy strategy or to meeting its administrative requirements (for example by allowing enough time and by including an adequate administrative budget). Technical experts may take an excessively narrow approach.

Alongside technical aspects, discussed below, implementing student loans has obvious and major political dimensions. Though largely taken for granted once they have become established, their initial introduction has been politically difficult in many countries. In the United Kingdom, the introduction of student loans in 1990 provoked enormous demonstrations, though today, loan design is part of my undergraduate teaching. In 2004, in the crucial Parliamentary vote on a bill to bring in variable tuition fees a government with a Parliamentary majority of 160 won by 5 votes. In Australia, similarly, the proposal to introduce an income-contingent charge in 1989 to pay for part of tuition costs provoked political turbulence, but the system is now regarded as part of the landscape.

The experience of the United Kingdom and Australia illustrate the need for robust political capacity. That capacity is necessary not only at the time the scheme is introduced, but needs to sustain support for the policy. New Zealand illustrates the case where initial reform momentum faltered for lack of continuing action by government to sustain support. As already noted, New Zealand introduced a system with variable fees fully covered by an income-contingent loan charging an interest rate broadly equal to the government cost of borrowing. Political pressures plus populist politics combined so that expensive and regressive blanket interest subsidies were introduced.

3.2 Prerequisites for an effective loan system

Implementation also has major administrative implications which policy makers typically underestimate or ignore.

TECHNICAL PREREQUISITES. A country should not embark on a loan scheme without:

- A reliable method of identifying individuals, a responsibility of national government.
- The capacity to maintain records of amounts borrowed, cumulative borrowing and interest charges, and the value of each person's repayments. This task is the responsibility of the loans administration.
- The capacity to collect repayments. Income-contingent repayments are best collected by the tax or social security authorities or, failing that, by employers. Evidence (e.g. Chile, the Republic of South Africa) shows that relying on educational institutions to collect loan repayments does not work well. As well as domestic repayment is it also necessary have the capacity to collect repayments from graduates who are working in other countries.
- The capacity to track the income of each borrower. Ideally this is the task of national government through personal income tax or social security contributions.

The first three elements apply to any loan scheme. As explained more fully below, a country that cannot implement income-contingent repayments will generally have difficulties collecting conventional loan repayments.

ESTABLISHING A LOANS ADMINISTRATION. A series of requirements have to be in place if a loan scheme is to be put in place successfully.

- Enough time has to be allowed for getting from the passage of legislation to the delivery of loans to the first cohort of borrowers.
- Strong political sponsorship is essential: someone must have the vision and power to make sure that the policy happens as proposed.
- Clear ownership of also essential, e.g. the Education Department.
- The introduction of a loan system is not an event, but a process. Thus political support has to be strong when the system is being established and continuing when it is in operation.

A further series of requirement are more narrowly technical, including ensuring that there are enough people with the necessary skills, legislative preparation, IT development, and effective project management.

A number of problems are common.

- Policy makers may introduce changes to the scheme once work is under way. Such changes are often incompatible with the planned administrative structure.
- The political timetable for the introduction of a scheme is often incompatible with the timetable necessary for administrative purposes. A besetting problem of UK governments is that they consistently underestimate the time, skills and energy necessary to make policy work.
- Ownership of the scheme may be unclear or diffuse.

RUNNING THE SCHEME. As already noted, running a scheme once it has been established involves identification of the student, record keeping (amounts borrowed, repayments, accumulation of interest), and collection of repayments within the country and from graduates working abroad.

More specifically, at the time a student first takes out a loan it is necessary to establish her identity reliably; to provide her with information about her entitlement and about the operation of the loan; to establish the size of the loan to which she is entitled, which will require information about the degree she is taking, the university at which she is studying, and perhaps also her own income and that of her parents; and to establish that she actually turns up at the relevant university.

During the time a student is at university, it is necessary to establish that she continues her studies, and to keep track of the dates and amounts of further borrowing.

After a the student has left university, it is necessary to keep track of him or her through any changes of identity and changes of address; to collect repayments, liaising as necessary with the tax authorities if that is the main route by which repayments are collected; to collect repayments in other ways for people who are outside the country; to ensure that any concessions on repayment are granted; to pursue delinquent repayments; to answer queries; to record repayments and calculate the outstanding balance; to keep the borrower notified of the balance of his or her loan; and to cause the collection of repayments to cease once the loan has been repaid.

Depending on how the loan scheme is financed, the loans administration may also need the skills to operate in financial markets.

ILLUSTRATIONS. Merely to list all these requirement indicates the size of the task. The following tales from the front are intended to add life to the general points above.

- Some institutions have a large peak in communications from the customer, e.g. tax returns around the filing deadline, or student loan applications at the start of the academic

year. If such a system is paper-based, as until recently, how does one deal with tasks like opening envelopes when there can be literally millions of them to open?

- Where the system is electronic, the analogous problem is whether the system can cope with a huge peak without crashing.
- If a loan scheme processes loan applications by optically scanning handwritten paper applications, can the scanner cope with an application that has spent two weeks folded in a student's pocket or has a large coffee stain on it?
- Does the system have a way of coping where an applicant for a loan misspells (paper based) or mistypes (electronic) his or her own name (this is not fanciful)?
- Can the system cope with a massive peak of phone enquiries, for example by automatically moving people from other tasks to manning the phones at such times. Again this is not fanciful. If any element in the system breaks down (e.g. the system of loans disbursement fails), there will be a large surge of telephone enquiries; if nothing is done, a breakdown in disbursement is rapidly followed by a breakdown in the system of telephone enquiries.

Given the wide array of institutional requirements both to establish a scheme and to run it,

'it is not surprising that successful income-contingent loans in advanced economies – including Australia, New Zealand, the Netherlands, Sweden, and the United Kingdom – are not echoed in poorer countries. Chile and South Africa have such schemes on a small scale, with repayments collected by universities, a method that has proved unsatisfactory. Both schemes have met with some success, but would be fiscally costly on a larger scale. Thailand is planning to introduce an income-contingent loan scheme in 2006, the success of which will depend greatly on the effectiveness of income tax collection. Designing a cost-effective repayment mechanism in poorer countries should be at the top of the policy-maker agenda' (World Bank 2006, Box 3.7).

3.3 An implementation myth

Alongside the myths about policy design discussed earlier, there is an implementation myth – that it is easier to collect repayments with conventional loans, with fixed monthly repayments, than with income-contingent loans. In particular, it is sometimes argued that an advantage of conventional loan repayments is that they do not depend on tax collection, and can therefore be used in a country without an effective income tax system. That argument is false.

MORTGAGE REPAYMENTS REQUIRE A FAIRLY SOPHISTICATED COLLECTION MECHANISM.

Commercial banks are expert in collecting repayments for loans which are (a) short term and (b) secured on a physical asset. This is the point Friedman noted 50 years ago. Neither applies to student loans. There are good reasons for wanting student loans to have a fairly long duration: it is efficient if the lifetime of a loan bears a rational relationship to the lifetime of the asset being financed by the loan – hence there are 25-year home loans but 3-year car loans; and a longer repayment period makes possible smaller monthly repayments and/or larger loans. In addition, as already noted, there is no security for borrowing to finance human capital. For both reasons, collection by banks is likely to be administratively demanding and hence to require some sort of government guarantee. However:

GOVERNMENT GUARANTEES TO PRIVATE LENDERS CREATE PROBLEMS. If the guarantee is not generous, banks will decline to get involved. But if the guarantee is sufficiently generous, banks have no incentive to pursue repayments vigorously, not least because they have no desire to alienate people who will become their best customers. The incentive structure is thus inimical to effective collection, leading to high default rates.

A second problem with government guarantees is what is known as the classification problem. There are international guidelines for national accounting which determine whether spending is public or private. If students borrow money from banks, but the government guarantee is generous, the government, in effect, takes the risk of default. Thus there is no genuine risk transfer and, under international guidelines, lending by banks to students counts as

public borrowing. The classification problem is central to discussion of ways of bringing private finance into postcompulsory education.⁶

A PUBLIC COLLECTION AGENCY? One way to get round these problems is to abandon the idea of private collection of loan repayments and instead to have a public collection mechanism. This, however, requires considerable administrative capacity. Even where that administrative capacity exists, the public sector ends up running a student loan collection agency *and* a tax collection system, raising the question of whether resources devoted to collection of mortgage-type student loan repayments would not be used better to bolster the effectiveness of the tax system. In the United Kingdom, the need for the Student Loans Company to conduct an annual reconciliation of individual accounts with the tax authorities helped to strengthen the effectiveness of both institutions.

MORTGAGE REPAYMENTS REQUIRE A CAPACITY TO IMPLEMENT AN INCOME TEST. Whether collected by a public or a private agency, mortgage repayments require an income test. The argument is simple. If repayments (say \$100 per month) are unrelated to a person's income, a mechanism is needed to protect people with low or no earnings, both for equity reasons and to ensure that the scheme remains politically viable. But the corollary is that the agency organising repayments has to administer an income test. This is a difficult task of measurement and enforcement even in an advanced country, let alone in a poorer country which does not have an effective tax system (which was the argument for having mortgage-type loans in the first place). An income test, in short, will be administratively demanding and costly. With a mortgage scheme, these costs will be *in addition* to those of the tax system.

In sum, mortgage-type loans, for the well-established reasons discussed in earlier discussion, work well for physical assets such as housing. With lending for human capital, in contrast, the theoretical arguments suggest that they expose both borrower and lender to excessive risk and uncertainty. The outcome is inefficient because it wastes talent and inequitable because capital market imperfections bear most heavily on the least well-off.

⁶ For fuller non-technical discussion, see Barr (2001, Ch. 14). The full technical details are in International Monetary Fund (2001).

Separately, mortgage loans are considerably more administratively demanding than is generally realised.

4 Options for developing countries

This section discusses options that might be available to policy makers in a country with severely constrained fiscal resources and limited institutional capacity. After initial exposition of the core tradeoffs, subsequent discussion focusses on ways of finding the resources to finance higher education, ways of allocating those resources, and the possible role of international agencies. The bottom line is that there are no easy answers: if there were, we would not be having this conference.

4.1 Core tradeoffs

Countries pursue (a) larger systems of higher education and (b) higher quality, while (c) operating within resource constraints. At its simplest, in a publicly-financed system,

$$E = nq \tag{2}$$

where E = total public spending on higher education

n = the number of students

q = a measure of quality

It is feasible to achieve any two of these objectives but even rich countries face problems in achieving all three, particularly in countries which rely mainly on taxation to finance the system.

- It is possible to have a large system that is mainly tax-financed. But in countries with such systems (for example France, Germany and Italy) the major concern is quality.
- It is possible to have a high quality system that is tax-financed. But in countries with such systems (the United Kingdom until 1990) the system is small, with worries both about national competitiveness and about access for students from poor backgrounds.

- It is in principle possible to have a system that is large and high quality that is tax financed (Scandinavia), but such a system is expensive in fiscal terms, with doubts about the long-term quality of the system as scarce fiscal resources are increasingly pressed by population ageing, rising health spending, and similar trends.

If tax finance is scarce, it follows that there are three broad strategies:

- A small, tax-financed system that at best can be of good quality;
- A large tax-financed system that will generally be of low quality;
- A system with mixed public and private finance, thus easing the quantity/quality tradeoff.

4.2 Finding resources: the Ministry of Finance question

A number of questions stand out: what is the efficient size of the funding envelope; what is the proper role for private finance and, within that, what role for student loans; and what options remain where loans are not feasible?

WHAT IS THE EFFICIENT RESOURCE ENVELOPE? What volume of public resources should be put into education generally and, within that, what should be the rule for dividing that total between primary, secondary and higher education, and, within higher education, between teaching and research?

Though these are the right questions for Ministries of Finance to ask, none of them has a complete answer. As discussed earlier, the root of the problem is the difficulty of quantifying the benefits of education. This conclusion is not a counsel of despair, but an argument against spurious accuracy in attempts at quantification; in reality, as in other areas such as setting a poverty line, a large part of the decision about budget allocations is a joint product of fiscal constraints, political negotiation and social values.

What can be said? At least in richer countries there is a case for rebalancing public funding from tertiary education towards primary and secondary education. Part of the argument, set out in the first section, is that tertiary education is well-suited to partial private finance. A

second element is that such rebalancing affects a person's life chances in ways that are equitable *and* which assist development outcomes.

Notwithstanding the major measurement problems already mentioned, there is strong evidence that resources are misallocated. Carneiro and Heckman (2002) find that rates of return to human capital decline monotonically across nursery, primary, secondary and tertiary education. The implication is that taxpayer subsidies should broadly follow this pattern. Yet in most countries public education spending per recipient *rises* across the education spectrum, being lowest for nursery education and highest for universities (for the case of the United Kingdom, see Alakeson, 2005, Figure 1).

This line of argument suggests two sets of lessons. First, policy makers should not consider higher education finance in isolation, but from a life-cycle perspective that includes earlier education.⁷ Second, the division should probably change over time: certainly, the balance between finance for schools and for higher education should be kept under review. On the one hand, the balance of public funding should tip increasingly to school education as efficient sources of private finance for higher education become available; but in the other direction, as economic development proceeds a country will typically need more higher education, including more spending on research. The two trends, taken together, suggest that as economic development proceeds, the balance between public and private finance of higher education should generally move towards the latter. This policy direction is not based on ideology but on the theoretical arguments at the start of the paper.

WHAT ROLE FOR PRIVATE FINANCE? Family resources have the advantage of simplicity, but two disadvantages: well-known capital market imperfections lead to an inefficiently low level of investment in human capital; and the approach restricts access to students whose families can afford to pay and, perhaps, a small number on scholarships. Access to loan finance starts to address both sets of problems.

⁷ The 2007 *World Development Report* (World Bank 2006, Ch. 3) emphasises this approach.

Wholly private loans have the advantage of relaxing fiscal constraints. However, such loans (for example, from banks) will generally be available only where the student borrower can provide a guarantor such as a home-owning parent. This approach does not make loans accessible to poor people but (a) makes the system less regressive and (b) over time brings in additional resources.

Palacios (2004) advocates privately-financed income-contingent loans in the form of so-called human capital contracts. These have much in common with Milton Friedman's (1955) original proposal for student support to be based on equity finance rather than loan finance. The idea is interesting analytically. But a major question remains about the ability of an unsecured privately-financed system to offer a good deal to applicants from poorer backgrounds. The approach also faces implementation issues: on what basis will private finance be available in an area with little market experience; and how would cost-effective collection of income-contingent repayments through private-sector mechanisms work?

PUBLICLY-ORGANISED LOAN SCHEMES. Publicly-organised loan schemes can be less selective than private schemes, and ideally should be available to all students without cherry picking. But, as noted earlier, though it is easy to give out money, getting it back is administratively much more demanding. One option is to introduce a small loan scheme, accepting that it will have a high default rate and high administrative costs. This is risky, however, since it risks discrediting the idea of loans.

How could a developing country implement income-contingent repayments?

- In the form of fixed monthly repayments, but where people can appeal for a lower payment if they can demonstrate that their earnings are below a threshold, as in the Netherlands. Though in principle the least demanding administratively, the approach depends on the capacity to measure earnings; where this is not possible, for example where informal earnings are widespread, income-contingent repayments become impossible.

- On the basis of a person's last completed tax return, hence lagging by an average of 18 months, as in Sweden and Hungary.
- As a payroll deduction alongside income tax and social security contributions, as in the United Kingdom, Australia and New Zealand. Though preferable in educational terms, since loan repayments track earnings with no lag, this approach is unlikely to be implementable in most developing economies.

If there is no feasible way to implement income-contingent repayments, might mortgage repayments be an alternative? Perhaps, but not in a simple or automatic way for the reasons set out earlier. Not the least of the problems is that if a loan is repaid in equal monthly or annual instalments, those instalments need to be fairly large, to ensure that the loan is repaid reasonably quickly; but that requires a system of deferring repayments if a person's earnings are low; and that in turn gets back to the need to measure a person's income, the inability to do which was the reason for considering mortgage repayments in the first place.

WHAT IF A PUBLIC LOAN SCHEME IS NOT FEASIBLE? Where institutional capacity is insufficient for an effective loan scheme, the best short-run approach is to rely on the imperfect private mechanisms described above, using limited taxpayer finance for targeted financial assistance. In addition, development assistance can ease the tradeoffs between fiscal stringency and widening access.

One clear error should be avoided. It is mistaken to instigate a large-scale public loan scheme and assume that things will somehow turn out right. The resulting ill-effects are twofold: a fiscally incontinent loan scheme is expensive; and a badly-implemented scheme risks discrediting a good policy option for the future.

4.3 Allocating resources: the Ministry of Education question

The previous section discussed where resources for higher education might come from. This section discusses the parallel question: through what mechanisms should those resources be allocated (a) across higher education institutions and (b) across students. Discussion considers

three questions: central planning or competition; how large a university system; and allocating resources to promote access.

How much competition?

The general arguments were set out earlier; central planning is less and less useful the larger and more diverse is the higher education sector. Central planning of universities may be feasible in countries where the sector is small, but earlier arguments suggest a move towards more competitive allocation of resources as the system becomes larger.

With central planning, public resources go directly to higher education institutions; in a more competitive environment at least some of the resources are channelled to universities via students. In the former case, how should public resources be allocated to universities? Once more, there are no easy answers.

- A fixed sum per student, perhaps with some variation by subject, e.g. more per medical student than per law student: this is administratively the simplest, but creates no incentives for universities to improve quality nor to widen access.
- As above, but adjusted for quality: the question then is which measure of quality to use – does it refer to the quality of the process (e.g. high teaching quality) or to the quality of outcomes (e.g. how many graduates find relevant jobs relatively quickly after graduation). One has only to state the question to indicate the measurement problems.

COMPETITION VIA QUANTITY (student numbers). Competition between universities can take different forms. For arithmetic simplicity, suppose that there are five universities, each currently with 1,000 students, and suppose further that each university receives \$1 million from the government, i.e. \$1,000 per student, as its only source of finance. This is a system of pure central planning. At the other extreme, the government could give a \$1,000 voucher to each of 5,000 students and give them free choice about where to study. Competition thus arises on the quantity side; a university that attracts more students will grow, and vice versa; in the extreme, a university that attracts too few students will go bankrupt. There is an infinity of intermediate cases: some funding could go via student vouchers and some directly to universities; or

vouchers could be tied to subjects that policy makers wish to encourage, or to particularly universities, for example for reasons of regional balance.

The advantage of competitive incentives is the potential for greater efficiency of resource use including the incentives to improve quality. But such a system requires institutional capacity. Higher education is not suited to law-of-the-jungle competition (Winston 1999) but more to regulated markets; governments need to have the capacity to regulate effectively. In addition, competition can create incentives deleterious to quality, such as grade inflation; thus quality assurance is important; again, government needs the capacity to ensure that quality assurance takes place (though it does not have to be a public-sector activity).

COMPETITION VIA PRICE (tuition fees). The vouchers model discussed above implicitly assumed that all universities charge the same fee or, that where fees vary, it is only by subject. But competition can arise also on the price side, if universities are allowed to set their own fees. The theoretical argument for price variation is strong for a large, diverse system, as discussed in section 1. But, again, there are arguments in favour of regulated markets rather than free markets and, again, implementation issues.

Price competition is desirable where three sets of conditions hold.

- Where a university system is large and diverse, making the allocation issue too complex for the central planner along;
- Where consumers (students and employers) are well-informed, not least through an effective system of quality assurance, so that consumer sovereignty is welfare-improving; and
- Where a system of loans is in place that addresses capital market imperfections.

Even then, there are good arguments for imposing a maximum level on fees. The level of the ceiling should be high enough (a) to bring in extra resources and (b) to strengthen competitive incentives, but low enough (c) to preserve the longer-term political viability of the reform and (d) to allow universities with little experience of operating in a competitive

environment time to build the necessary management capacity. Over time the ceiling can be lifted. But a case can be made for retaining the ceiling, at least as a reserve power for government, not least because the top universities (i.e. the most likely to charge high fees) are not wholly competitive: they sell not only good teaching (which is competitive) but also a place in a student's elite peer group, i.e. access to the network, which is a positional good and thus gives the university an element of monopoly power.

Though the direction of travel is clear, implementation imposes major constraints. First, competition brings greater gains in a larger system, with well-informed consumers, and with a well-functioning loan system. These all impose heavy demands on institutional capacity. So do quality assurance and the capacity to regulate markets, for example via the ceiling on fees.

What size university system?

Should a country have a small, elite system or a larger system offering more choice. The issue is important both in terms of economic development and in terms of fiscal capacity.

A SMALL, TAX-FINANCED SYSTEM? Though advanced countries need large systems of higher education so that, once more, the direction of travel is clear, poor countries might be better off with small systems, using higher education as a major mechanism of technology transfer and economic growth. But in a poor country the demand for higher education may be low so that participation would be low even were a loan scheme in place. Thus financing higher education with public resources (domestic and international) and providing it free or with low tuition charges to students selected by a competitive screening process might be a better initial strategy to increase the supply of skilled labour. In such a scheme, limited taxpayer resources could finance good quality higher education for a few students, or there could be a hybrid system, with taxpayer resources to pay for (say) two years of university education, leaving the rest to private finance. A potential worry is that in such a system the best and brightest are the most susceptible to brain drain. A loan scheme would partly address this problem, but in the poorest countries is likely to be infeasible and, for the reasons just indicated, perhaps also undesirable.

A LARGER SYSTEM WITH MIXED PUBLIC-PRIVATE FINANCE? In countries with high growth rates and rising per capita income (China, for example) growing fiscal and institutional capacity make it possible and desirable to have a larger, more diverse system of higher education. Introducing competition is desirable; and the system should draw in both public and private resources. A loan scheme is a significant element in bringing about the last.

Allocating resources to promote access

Looking narrowly at higher education, the question is whether public resources given to students should be in the form of a grant (i.e. not repayable) or a loan. Separately, where students are given grants, should they be needs-based or merit-based?

- Loans make scarce fiscal capacity go further but in the poorest countries are unlikely to be feasible.
- Merit-based awards are likely to be mainly a middle-class benefit because it is usually children from middle-class backgrounds who do best in tests, etc. Entry to the top US universities is mainly middle-class even where admission is needs blind, precisely because the pool of applicants with top grades is heavily skewed.
- These considerations suggest that where loans are not feasible and fiscal capacity highly limited, taxpayer support to students should mainly be needs-based.

That said, as earlier discussion made clear, action at 18 to widen access is only part of the story. Governments serious about widening access need to target resources much earlier.

4.4 What role for international agencies?

International agencies can help in various ways.

ASSISTANCE WITH STRATEGY. The World Bank and other agencies can provide assistance to maximise the extent to which policy-makers are well-informed. This involves pooling knowledge both as between richer and poorer countries and between poorer countries. The long history of failed loan schemes illustrates the extent to which countries have tried, and failed, to

reinvent the wheel. Part of that role should be to warn against loans if the institutional prerequisites are lacking.

FINANCIAL ASSISTANCE. Financial assistance can be tied to reform of the educational system or in the form of more general budgetary support.

SPECIFIC HELP WITH LOAN SCHEMES. Once a country develops the institutional capacity to organise a loan scheme effectively, international agencies can help in several ways. First, they can offer technical assistance in designing a loan scheme which minimises administrative demands. Countries like the United Kingdom, Australia and New Zealand have extensive experience with income-contingent loans.

Second, the existence of an effective mechanism for collecting repayments opens up the possibility of raising part of the initial cash-flow costs from nongovernmental sources, including international financial organisations and commercial lenders (the Hungarian loan scheme receives a significant part of its finance from the European Investment Bank).

It might also be possible to foster international co-operation in collecting loan repayments. Many graduates from poor countries emigrate, typically to richer countries. A potentially important role for the World Bank or OECD would be to help to broker bilateral or multilateral agreements between developing countries and OECD countries, whereby the latter help to collect loan repayments of immigrants from developing countries.⁸

⁸ For fuller discussion, see Barr (2001, Ch. 14).

References

- Alakeson, Vidhya (2005), *Too Much, Too Late: Life chances and spending on education and training*, London: Social Market Foundation
- Barr, Nicholas (1999), 'Comments on "Economic Policy and Equity: An Overview" by Amartya Sen', in Tanzi, Vito, Chu, Ke-young, and Gupta, Sanjeev (eds), *Economic Policy and Equity*, Washington DC: International Monetary Fund, pp. 44-8.
- Barr, Nicholas (2000), 'The benefits of education: what we know and what we don't', in *Economic Growth and Government Policy*, Papers presented at a HM Treasury seminar held at 11 Downing Street on 12 October 2000, London: HM Treasury, pp. 33-40, downloadable from <http://www.hm-treasury.gov.uk/media/132BF/252.pdf>
- Barr, Nicholas (2001), *The Welfare State as Piggy Bank: Information, risk, uncertainty and the role of the State*, Oxford and New York: Oxford University Press, downloadable from <http://www.oxfordscholarship.com/oso/public/content/economicsfinance/0199246599/toc.html>
- Barr, Nicholas (2002). 'Funding Higher Education: Policies for Access and Quality', House of Commons, Education and Skills Committee, *Post-16 Student Support*, Sixth Report of Session 2001-2002, HC445, (TSO, 2002), pp. Ev 19-35.
- Barr, Nicholas (2004), 'Higher education funding', *Oxford Review of Economic Policy*, Vol. 20, No. 2, Summer, pp. 264-283.
- Barr, Nicholas and Diamond, Peter (2006), 'The Economics of Pensions', *Oxford Review of Economic Policy*, Vol. 22. No. 1, Spring, pp. 15-39
- Barr, Nicholas and Iain Crawford, *Financing Higher Education: Answers from the UK*, Routledge, 2005.
- Blaug, Mark (1976), 'The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey', *Journal of Economic Literature* (Sept.), 827-56, reprinted in Mark Blaug, *The Economics of Education and the Education of an Economist*, Cheltenham: Edward Elgar, 1987, 100-28.
- Blaug, Mark (1985), 'Where Are We Now in the Economics of Education?', *Economics of Education Review*, 4/1: 17-28, reprinted in Mark Blaug, *The Economics of Education and the Education of an Economist*, Cheltenham: Edward Elgar, 1987, 129-40.
- Carneiro, Pedro, and Heckman, James (2002), *Human capital policy*, NBER Working Paper No. w9495, Cambridge, Mass.: NBER.
- Chapman, Bruce (1997), 'Conceptual Issues and the Australian Experience with Income Contingent Charges for Higher Education', *Economic Journal*, 107/442 (May), 738-51.
- Chapman, Bruce and Ryan, Chris (2003), 'The access implications of income contingent charges for higher education: Lessons from Australia', Australian National University, Centre for Economic Policy Research, Discussion paper no. 463, April.

Feinstein, Leon (2003), 'Inequality in the Early Cognitive Development of British Children in the 1970 Cohort', *Economica*, 70/277, 73-98.

Friedman, Milton (1955), 'The Role of Government in Education', in Solo, Robert A. (ed.), *Economics and the Public Interest*, New Brunswick, New Jersey: Rutgers University Press, pp. 123-44.

Glennerster, Howard (1993), 'The Economics of Education: Changing Fortunes', in Nicholas Barr and David Whynes (1993), *Issues in the Economics of the Welfare State*, London: Macmillan, 176-99.

International Monetary Fund (2001), *Government Finance Statistics Manual 2001*, Washington DC: International Monetary Fund, downloadable from <http://www.imf.org/external/pubs/ft/gfs/manual/index.htm>.

Kornai, János (1992), *The Socialist System: The Political Economy of Communism*, Princeton, NJ: Princeton University Press.

New Zealand Ministry of Education (2002), *Annual Report: Student Loan Scheme*, Wellington: Ministry of Education.

New Zealand Tertiary Education Advisory Commission (2001), *Shaping the Funding Framework: Fourth Report of the Tertiary Education Advisory Commission: Summary Report*, Tertiary Education Advisory Commission, Wellington, New Zealand, November, <http://www.teac.govt.nz/fframework.htm>.

OECD (2002), *Education at a Glance, 2002*, Paris: OECD.

Romer, Paul (1993), 'Ideal Gaps and Object Gaps in Economic Development', *Journal of Monetary Economics*, 32: 338-69.

Palacios Lleras, Miguel (2004), *Investing in Human Capital: A Capital Markets Approach to Student Funding*, Cambridge: Cambridge University Press.

Sen, Amartya K. (1999), 'Economic Policy and Equity: An Overview', in Tanzi, Vito, Chu, Ke-young, and Gupta, Sanjeev (eds), *Economic Policy and Equity*, Washington DC: International Monetary Fund, pp. 28-43.

Thurow, Lester (1996), *The Future of Capitalism: How Today's Economic Forces Shape Tomorrow's World*, London: Nicholas Brealey.

UK Education and Skills Select Committee (2002), 'Funding Higher Education: Policies for Access and Quality', House of Commons, Education and Skills Committee, *Post-16 Student Support*, Sixth Report of Session 2001-2002, HC445, London: TSO.

Usher, Alex (2005), *A Little Knowledge is a Dangerous Thing: How perceptions of costs and benefits affect access to education*, Toronto: Educational Policy Institute.

Winston, Gordon (1999), 'Subsidies, Hierarchies and Peers: The Awkward Economics of Higher Education', *Journal of Economic Perspectives*, 13/1 (Winter), 13-26.

World Bank (2006), *World Development Report 2007: Development and the Next Generation*, Washington DC: World Bank.

Table 1: Spending on tertiary education and participation rates, OECD

	Spending as % of GDP 2003			Net entry rate 2001 ^a
	Public	Private	Total	
Australia	0.8	0.8	1.5	65
Austria	1.1	0.1	1.1	34
Belgium	1.2	0.1	1.3	32
Canada	1.3	1.0	2.4	n.a.
Czech Republic	0.9	0.2	1.1	30
Denmark	1.7	0.1	1.8	44
Finland	1.7	0.1	1.8	72
France	1.1	0.2	1.4	37
Germany	1.0	0.1	1.1	32
Greece	1.2	negligible	1.3	n.a.
Hungary	1.0	0.3	1.3	56
Iceland	1.1	0.1	1.2	61
Ireland	1.0	0.1	1.2	38
Italy	0.7	0.2	0.9	44
Japan	0.5	0.8	1.3	41
Korea	0.6	2.0	2.6	49
Mexico	0.9	0.4	1.3	25
Netherlands	1.1	0.3	1.3	54
New Zealand	0.9	0.6	1.5	76
Norway	1.5	0.1	1.5	62
Poland	1.0	0.5	1.5	67
Portugal	1.0	0.1	1.1	n.a.
Slovak Republic	0.8	0.1	0.9	40
Spain	0.9	0.3	1.2	48
Sweden	1.6	0.2	1.8	69
Switzerland	1.6	n.a.	n.a.	33
Turkey	1.1	0.1	1.1	20
United Kingdom	0.8	0.3	1.1	45
United States	1.2	1.6	2.9	42
OECD average	1.1	0.4	1.4	47

n.a. ' not available

Numbers do not always add, due to rounding

Source: OECD (2003), *Education at a Glance: OECD Indicators 2006* (Paris: OECD).

n.a. ' not available

Numbers do not always add, due to rounding

a The net entry rate is based on the probability of a 17-year old entering higher education for the first time by the age of 30.