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ALTERNATIVE FUNDING RESOURCES FOR HIGHER EDUCATION[1]

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I. THE BACKDROP

This paper discusses the funding of higher education, starting (Section II) with the theoretical answers to a number of key questions. Section III sets out alternative funding packages, and Section IV considers recent developments in a number of countries. To make such a vast topic manageable, the paper is limited in several ways. It discusses the funding but not the production of higher education. It does not discuss the nature of the 'product', nor the specific issues raised by the funding of research. It looks only at advanced industrialised economies.[2] Finally, it attempts to be systematic in surveying broad options, but not in surveying countries.

Since policy can usefully be assessed only against stated aims, a word is needed about objectives. *Macro efficiency* aims relate to the total quantity of resources devoted to higher education, i.e. to the size of the sector. *Micro efficiency* is concerned with the division of total higher education resources between teaching and research and between different subject areas, and with the quality of the output and the extent to which it satisfies the demands of its three major constituencies, students, employers and government. *Equity* aims relate to the distribution of higher education by socio-economic group. Improving access for students from disadvantaged backgrounds depends on the organisation both of higher education and of the school system. Thus equity includes discussion of how resources should be divided between higher education, and policies to promote access earlier in the system.

UK policy is concerned particularly with macro efficiency (e.g. expansion of the higher education system) and with improving access. Other countries, such as the United States, with large systems and a fairly broad class composition, are more concerned with aspects of micro efficiency, most particularly the quality of education and its contribution to broader aims such as output growth.

These different concerns should not be surprising, since they follow fairly directly from the different nature of the two systems. Large taxpayer subsidies (for tuition fees and/or living costs) create supply-side constraints because of the desire to contain public spending. Where, as in Britain, qualified students have no automatic entitlement to a university place, the constraint takes the form of a view (typically by the Treasury) about student numbers. The result

[1] I am grateful to Mark Blaug, Bruce Chapman and Howard Glennerster for helpful comments on an earlier version. Remaining errors are my responsibility.

[2] For discussion in developing economies see Albrecht and Ziderman (1992), Psacharopoulos and Woodhall (1985), and World Bank (1986).

is a high-quality system, but one which (at least by admission standards in other countries) turns away qualified applicants. In countries where students have an entitlement (explicit or implicit) to a place, the impact of cost containment is mainly on quality. With less public funding per student, as in the United States, there are no externally imposed supply-side constraints. However, unless limited taxpayer funding is sufficiently redistributive, 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. This painful tension highlights the need for a clear view of objectives and of a policy strategy to fulfil them.

II. ECONOMIC THEORY

This section summarises the answers economic theory suggests to three key questions.

Should higher education be subsidised? Should funding be primarily public, as in the United Kingdom till relatively recently, or substantially private, as is more the case in the United States? There is a strong presumption that higher education should be subsidised, but it is important to be clear about why quantification is problematic. The investment case for higher education rests on the (usually unstated) assumption that it increases individual productivity. The screening hypothesis argues that post-primary education is associated with increased productivity, but does not cause it (for surveys, see Blaug (1976, 1985)). The hypothesis argues, first, that education beyond a basic level does not increase individual productivity and, second, that firms seek high-ability workers but are unable, *ex ante*, to distinguish them from those with low ability. The problem is similar to adverse selection in insurance markets, or more generally to 'lemons' (Akerlof, 1970), in the sense that one side of the market has more information than the other. The validity of the hypothesis is an empirical issue which is undecided and likely to remain so, since individual productivity is determined in part by unmeasurable influences like natural ability and family background.

Alongside the screening arguments are questions about externalities. Though belief in the external benefits of education is widespread, again measurement problems make definitive answers impossible. The heart of the difficulty is the inability to measure the tendency for the education of individual A to increase B's productivity. Estimates of private rates of return are suspect because, of necessity, they omit non-monetary returns such as job satisfaction. Estimates of the social rate of return are doubly suspect: they omit non-monetary returns and (since no other procedure is possible) also ignore the screening problem.

There is one other potential external benefit. Unless the extreme version of the screening hypothesis holds, higher education raises a student's earnings and, thereby, increases his/her future tax payments. In the absence of any subsidy, an individual's investment in a degree would confer a 'dividend' on future taxpayers. This line of argument can be used to justify subsidising any type of investment which raises future income; that is precisely what usually

happens through the tax system, at least so far as business investment is concerned. The 'tax dividend' point gives an efficiency case for some subsidy, but it is not possible to show how much.

Should higher education be centrally planned? Should funds be allocated to institutions by government (the main channel in Europe), or via students and other consumers of higher-education services, as in the pure vouchers model and, up to a point, with private universities in the United States? A second, and related, question is whether there should be different answers for teaching and research. There are two strands to the argument: the bureaucratic nature of central planning; and the fact that there are better methods for allocating resources to higher education.

In Britain, the University Grants Committee (UGC), which until 1990 channelled public resources to universities, was increasingly criticised (Barnes and Barr, 1988, ch. 3). The core argument against central planning is that central monitoring of university activities requires large amounts of information: and that information is costly to acquire, can in many cases not be measured, and is often subverted by the individuals supplying it to the central planning authority.

Such costs might be inevitable if other solutions were less efficient. Though the matter is controversial, there are several reasons for believing that students and other demanders of higher education services (in sharp contrast with the case of school education) are better regarded as well-informed than ill-informed, making consumer sovereignty a useful instrument. Information is available, and more can be made available. The information is generally simple enough for the student to understand and evaluate. The student has time to acquire the information he/she needs, and time to seek advice. Finally, it should be noted that students make choices already.[3]

A separate issue is whether students are more capable than planners of making choices which conform with the needs of the economy? All the available evidence (Ahamad (1973); Gannicott and Blaug (1973); Psacharopoulos and Woodhall (1985, ch. 4)) highlights the failures of manpower planning. As an anecdotal example from Canada in the early 1980s, the graduates in greatest demand were those with degrees in philosophy, since one of the leading edges in information technology was 'fuzzy logic'. Philosophy departments in Britain at the time were under serious threat from the central planners.

A strong case can be made for a move away from central planning towards a suitably regulated market system for allocating resources towards and within higher education.

How should student loans be designed? If there are to be student loans (as in an increasing majority of OECD countries) what is their optimal design? A key distinction is between *mortgage-type* loans, with repayment in fixed instalments over a fixed period, and *income-contingent* loans, whose repayment takes the form of x per cent of the individual borrower's subsequent annual income, making

[3] For further discussion, see Cave, Dodsworth and Thompson (1992), Johnes (1992) and various of the other articles in the same issue of the *Oxford Review of Economic Policy*.

the repayment period endogenous. A second key issue is whether students borrow from the government or the private sector.

There are strong arguments for income-contingent repayments. They offer the borrower insurance against potential future poverty, a feature of greater relevance the higher the applicant's degree of risk aversion. With mortgage loans, in contrast, students bear a much higher fraction of the risk, thus deterring applicants, particularly from disadvantaged backgrounds (Bennett, Glennerster and Nevinson, 1992). This is inefficient because it wastes talent and inequitable because it reduces intergenerational mobility.

Mortgage loans create problems also on the supply side. In the absence of slavery, lending for educational purposes is risky, since there is no security. The resulting capital-market imperfection leads to a shortage of loan capital for educational investment. The point is well-known. Friedman (1962) noted the riskiness of student loans and pointed out that

> the device adopted to meet the corresponding problem for other risky investments is equity investment plus limited liability on the part of shareholders. The counter-part for education would be to 'buy' a share in an individual's earning prospects [and] to advance him the funds needed to finance his training... (p. 103).
>
> The individual... would agree to pay to the government in each future year a specified percentage of his earnings in excess of a specified sum for each $1000 that he received (p. 105).

Equity considerations, also of venerable pedigree, point in the same direction. Glennerster, Merrett and Wilson (1968, p. 26), starting from a predisposition towards tax-funding, point out that higher education, though publicly funded,

> is reserved for a small and highly selected group.... It is exceptionally expensive.... [And] education confers benefits which reveal themselves in the form of higher earnings. A graduate tax would enable the community to recover the value of the resources devoted to higher education from those who have themselves derived such substantial benefit from it.

Despite their very different starting points, the ability-to-pay approach in the latter quote and the benefit principle implicit in the Friedman quote lead to identical policy prescriptions.[4]

Given the UK objective of expansion, a second key aspect of policy design is that the source of borrowing, to the extent possible, should be the private sector. In theoretical terms the source of funds should not matter. Suppose it is efficient to expand higher education, and that students borrow from public funds. If additional public borrowing crowds out private investment, it will only be less efficient private investment which is crowded out – a result which is itself efficient. That conclusion, however, rests on stringent assumptions, in particular that government and taxpayers must be rational and well-informed. Neither is true. Public funding requires that taxation is higher than would

[4] Robbins (1980, p. 35) was eventually converted to this policy.

otherwise be the case, with possible disincentive effects; and higher public spending may affect financial and foreign-exchange markets. If students borrow from private funds no issue of taxation arises, and adverse incentives are minimised. Separately, it can be argued that diversifying the sources of funding contributes to the independence of higher education.[5]

III. ALTERNATIVE POLICY PACKAGES

Table 1 sets out a simple framework for analysing funding sources. The columns show different sources of support. The three major beneficiaries of higher education, are students, their employers and 'society', the last represented by government. The first three columns therefore refer to Students (taken to include parents, acting on behalf of their children), the Private sector (notably employers) and the Taxpayer (including, for example, the Funding Councils and Research Councils in the United Kingdom and the National Science Foundation in the United States). The fourth column contains other sources of student support, in particular the educational institutions themselves and other private donors (e.g. the Ford Foundation), which can act as surrogates for agents in the first three columns. The different types of income, shown in the left-hand column, fall into three categories: Transfers; Current earnings; and Loans, which are repaid out of future earnings.

Funding institutions. The major source of transfers to institutions are block recurrent grants (e.g. funding from the former UGC in the United Kingdom), capital grants, and tax expenditures (e.g. universities' charitable status). The major sources of earnings are tuition fees, which can be paid by students, by sponsoring firms, by government (e.g. the Higher Education Funding Councils in the United Kingdom), or by other outside bodies; from research contracts from industry or government, or from abroad; and from other commercial activities (e.g. the use of university property for conferences). A third, though typically smaller, source of income is through loans.

In policy terms, institutions can be funded in either or both of two generic ways: directly (e.g. via a block grant); or through students and other demanders of higher education services, e.g. via fees and user charges.

Model 1: direct funding of institutions. This is the common model in mainland Europe, where resources, by and large, are channelled to institutions in the form of transfers (line 1), usually tax funded (column C), with low or no fees for students. In Britain also, until recently, tax funding with low fees for home students was the norm.

Model 2: funding institutions via students and other demanders of higher education services. With substantial private funding, as with private universities in the United States, universities receive much of their income from fees, research grants and contracts, and commercial activities, i.e. line 2, columns A and B.

A variant of model 2 is the vouchers model, the utility of which depends on the extent to which student choices are regarded as superior to those of

[5] For further discussion of loan regimes, see Barr (1989, 1991) and Barden, Barr and Higginson (1991).

Table 1

Sources and Types of Higher Education Funding

Mechanisms	Sources (A) Student (i) Him/herself (ii) Parent	(B) Private sector	(C) Taxpayer	(D) Other (i) University (ii) Philanthropy
Funding for institutions				
1 Transfers				
(a) Block recurrent grant				
(b) Capital grant				
(c) Tax expenditure				
2 Current earnings				
(a) Tuition fees				
(b) Research contracts				
(c) Commercial activities				
(d) Other				
3 Loans				
(a) Commercial				
(b) Subsidised				
Funding for students				
4 Transfers				
Cash				
(a) Grant				
(b) Scholarship				
(c) Tax expenditure				
Subsidies				
(d) Subsidised tuition fees				
(e) Subsidised accommodation				
(f) Subsidised food				
5 Current earnings				
(a) From university				
(b) From other sources				
6 Loans				
Commercial				
(a) Mortgage				
(b) Income-related				
Subsidised				
(c) Mortgage				
(d) Income-related				

planners. In the simplest model, the state gives students tax-funded vouchers which they spend at the institution of their choice, thus combining taxpayer support (column C) with funding mainly through institutional earnings (line 2), hence without the need for the apparatus of central planning. The model is very flexible. It is both possible and desirable to give larger vouchers to students from poorer backgrounds. If it is thought that some subjects (classics, perhaps) are less suitable to competitive behaviour by institutions than others (economics, accounting) it is possible to issue vouchers tied to subjects (or institutions) which one wishes to protect. Vouchers can also be issued by private firms, for instance tenable at a local institution. With vouchers, in short, the system can be given any desired redistributive tilt; and appropriately designed constraints can make the degree of competition a policy variable

which, moreover; can be varied by subject and by region (Barnes and Barr (1988, ch. 6); Glennerster (1991); Le Grand (1989)).

Funding students. The lower part of Table 1 discusses the funding of students, again through the generic methods of transfers, current earnings and loans. Transfers can come from the student's family (true in all countries), from industry (e.g. sponsorship), from taxpayer grants (as in the United Kingdom) or from higher education institutions themselves (more common in the United States). A second type of transfer is scholarships, i.e. a transfer related to the student's academic performance (to oversimplify, grants are normally income-related, scholarships performance-related). Students may also receive transfers which are not specific to the educational system, e.g. cash benefits for which students and non-students are eligible. Finally, students may receive transfers in the form of tax expenditures, e.g. tax relief on certain types of educational spending.

There are also various forms of in-kind transfer. Assistance with living expenses includes subsidised accommodation, food or transport. Accommodation can be subsidised by the student's family (if he/she is living at home), by the taxpayer or by the university. Second, and highly important, are subsidised tuition fees, which are the major tax-funded transfer to students in mainland Europe. Student income also derives from current earnings whilst a student, a common source in the United States, and increasingly common in Britain.

With unsubsidised loans the source of student support is the student him/herself, i.e. the student is redistributing from himself in later life to himself during student days. Subsidised loans are a mixture of loan and implicit grant; the source of support is in part the student himself and in part the taxpayer (if it is the state which pays the subsidy). As a practical matter loans in most countries are subsidised, in some cases substantially (for arguments against such subsidies, see Barr, 1991, pp. 161–2).

Historically loans in most countries have had mortgage repayments, and the United Kingdom introduced such a scheme in 1990. As discussed shortly, however, Australia and Sweden have recently introduced loans with income-contingent repayments.

The world, of course, does not always conform neatly with the simple categorisation in Table 1. There are sources of support other than the beneficiaries, e.g. a named endowment, whose purpose is to perpetuate the name of the benefactor. But the categorisation gives a framework for simplifying complex institutional data; and it facilitates discussion of which packages offer the most efficient and equitable forms of funding.

IV. POLICY IN THE OECD

The United Kingdom: a botched reform. Abstracting from a mass of detail (see Cave and Weale (1992) for further discussion), policy is threefold.

(1) *A move towards a more market-oriented system* of higher education (see UK Department of Education and Science, 1991) implies *inter alia* that institutional

funding will come less from transfers and more from current earnings in the form of fees and, separately, research grants and contracts (i.e. a move from line 1 in Table 1, to line 2). As argued earlier (though the matter is controversial) such a move could increase the efficiency of higher education by giving students and other consumers a greater role on the demand side, and by allowing competition between institutions to facilitate the supply-side response. In reality, the centralising tendency of recent years has, if anything, been exaggerated.

(2) *A stated desire for expansion without any significant increase in public spending* implies a move from tax-funding towards funding from students and other private-sector sources (i.e. a move from column C to columns A and B). In the late 1980s, only about 15 per cent of the relevant age range went on to higher education, a smaller fraction than in any advanced industrialised country (UK Department of Education and Science, 1988, Chart F). A central inconsistency in government policy is the introduction of competitive pressures to expansion without either a significant increase in public spending or policies to facilitate private expenditure. Policy has therefore failed completely to grasp the dilemma posed at the end of Section I.

(3) *The recent introduction of student loans* (UK Department of Education and Science, 1988) illustrates this failure precisely. Students borrow taxpayer money, with mortgage repayments. Since the scheme introduces no private funds, there is no public expenditure saving in the short or medium term (on the Government's own figures (*Hansard*, WA, 24 July 1989, col. 441) the scheme produces no cumulative net saving for at least 25 years).[6] Thus the scheme simultaneously harms access and yields no savings, and hence frees no resources for expansion. The introduction of private funds is central to the expansion of student numbers. A loan scheme which combines private funding with income-contingent repayments is proposed in Barr (1989).

The United States: the finger-in-the-dyke approach. The funding of institutions is decentralised. Alongside a large range of private institutions, funded mainly by student fees and other forms of earnings, is a range of state colleges and universities funded in part by transfers and in part by student fees. The age-participation rate is about 40 per cent. The major concern of US policy-makers is not expansion or access, but the quality of the system and its contribution to economic growth. As discussed at the start of the paper, these problems are the result of a system with limited public funding, coupled with no supply-side constraints.

Student funding derives largely from transfers from their families, from current earnings and from various forms of loan. The problems of student loans in the United States are well known (see Reischauer, 1989, pp. 34–42). First, it is unduly kind to talk about a loan 'system': '[t]he complex range of grants and loans from federal, state and campus sources is a major administrative problem for most institutions. Students seldom understand all that is available' (UK Department of Education and Science, 1989, para. 123). Mortgage

[6] Even that figure is an under-estimate, in that it omits any interest charge on the cumulative deficit over the 25 years.

repayments are the rule. Interest subsidies are pervasive and default rates high. The combined effect of interest subsidies and defaults is that the system is costly and of only questionable benefit in encouraging participation from lower-income groups (Bosworth, Carron and Rhyne, 1987, ch. 6).

Reischauer (1989) proposes a system with income-contingent repayments piggy-backed onto the federal social security system. To date there has been no action.

Sweden: the evolutionary approach. In Sweden, as in most of the rest of mainland Europe, institutions receive substantial tax funding, with only a limited role for fees. Student support in the 1960s was mainly in the form of a tax-funded grant plus parental support. A loan scheme with interest subsidies and mortgage repayments was introduced in the mid-1960s, which over time took on an increasing fraction of student support. Worries about student indebtedness led to major reform in 1989 including an increase in tax-funded student support, the abolition of mandatory parental contributions, a reduction in interest subsidies, and the introduction of income-contingent repayments. Sweden, in short, introduced loans early, learned from its mistakes and, through a process of evolution, moved towards an increasingly well-designed system (for details, see Morris, 1989).

Australia: the revolutionary approach. Until 1989, institutions were mainly tax funded. Expansion and improved access entered the policy agenda in the mid 1980s, and the recommendations of the Wran Report (AGPS, Australia, 1988), as amended, took effect in January 1989. The core of the reform package was a Higher Education Contribution Scheme, whereby students became liable to a contribution intended to be about one fifth of the average tuition fee (i.e. the contribution does not vary across subjects). Students have the option of paying the contribution on enrolment at a 15 per cent discount. Otherwise the contribution is paid out of a loan at a zero real interest rate. Repayment is suspended for individuals with annual earnings below the national average. Thereafter, repayment is 1 per cent of taxable income, rising to 2 per cent and, at the highest incomes, to 3 per cent, collected through the tax system.

Though often represented as a tax, the scheme is properly thought of as a loan: it is voluntary, since the fee charge can be paid upon enrolment; and the additional contribution is 'switched off' once the charge has been paid. Several points are noteworthy: the revenue from the scheme will finance expansion of higher education; and repayments are income-contingent explicitly to avoid compromising access (see Hope and Miller, 1988). In the latter aim, research findings strongly suggest, the scheme has been successful (Chapman, 1992, ch. 12).

V. CONCLUSION

Overall conclusions are twofold. First, higher education funding should be designed as a coherent strategy, not as a patchwork of *ad hoc* policies. Second, funding should not rely excessively on any one source. This is not a very dramatic conclusion, but non-economists seem to have a strong (and usually inappropriate) attraction to corner solutions.

The high public-sector cost per student, through Treasury control of public expenditure, kept the higher-education sector in the United Kingdom small. In contrast, higher education in the United States is substantially funded from the private sector and faces much less constraint. This is the dilemma posed earlier: the greater the public-sector subsidy to higher education the greater the pressure on the system not to grow. There are two possible solutions. One is to keep expenditure constant, but admit more students, i.e. to trade off quality against increased enrolment. The second is to set up mechanisms which allow a greater role for private-sector funds.

As a response to the tradeoff between size, quality and public expenditure, countries like Britain and Australia, with substantially tax-funded systems, are seeking to introduce more private funding. Countries like Sweden, whose reliance on loans in the past was excessive, are moving in the opposite direction. Any move away from tax funding, however, must rest on a loan scheme which (*a*) does not deter access and (*b*) brings in private funds. Loans, from both an efficiency and an equity perspective, are thus the key to reform.

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