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Financing Universities in Developing Countries

by

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Foreword

The World Bank has long acknowledged the important relationship between education and economic development, and in particular, the critical role of higher education institutions in providing leadership for education systems as a whole. Ever since the World Bank began lending for education in 1963, its aim has been to assist developing countries expand and improve educational systems. But the rapid expansion of higher education systems over the last three decades, compounded by the more recent global economic crisis, has left many institutions short of funds in relation to the demands imposed on them. The impact has been most severe on institutions solely dependent on governments for funding. the result has been declining quality as well as insufficient funds to help many needy students meet high living costs associated with attending universities. It is therefore crucial that nations begin to find alternative or supplementary sources of revenues for higher education institutions, as well as to utilize scarce resources more effectively and efficiently in pursuit of their educational objectives.

This study of higher education finance and reform was conducted by the Education and Employment Division of the Population and Human Resources Department of the World Bank, as a major input to the Division's program of policy work on universities in developing countries.

Ann O. Hamilton
Director
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The authors' names are listed alphabetically. Douglas Albrecht is a consultant to the Education and Employment Division at the World Bank; Adrian Ziderman, formally Senior Economist at the World Bank, is Professor of Economics at Bar Ilan University, Israel. Earlier presentations of this work have appeared as World Bank Discussion Papers (Albrecht and Ziderman 1991, 1992a), in Higher Education (Albrecht and Ziderman 1992b) and in the World Bank Research Observer (Albrecht and Ziderman 1993).

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It is hoped that the book will be of interest to higher education policy makers, university administrators and academics generally, as well as to students of, and in, the universities in developing countries.

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Chapter 1
Introduction: University Financing and the Role of the State

Pressure to reform the financing of higher education has mounted in virtually every part of the world. The problems compelling change have been developing for decades, but the economic stringency of the 1980s has exacerbated the need for reform, bringing many institutions to the brink of collapse. The crisis confronting higher education systems is not simply financial. There are justified concerns about quality, relevance, equity and specific missions of institutions. In many countries, developing and developed, all these issues need to be addressed. In writing this book, however, it is clear that putting the financial structures of higher education onto a more solid footing is essential before many of these other problems can be resolved. As we shall argue, it is not only a question of more resources, but the framework within which institutions operate that needs to be improved.

Overview of the Argument of the Book

This book addresses the financing crisis facing universities in most parts of the developing world, and in particular with the role that reform may play in easing these financing pressures. The primary focus of the discussion is on degree granting universities, although most of the messages pertain to other institutions as well. The root of the financial crisis in higher education in many developing countries lies in the combination of a dramatic, and continuing, growth in student numbers - the outcome of often imposed liberal admissions policies to ensure wide access to higher education - unmatched by public expenditures on higher education. While low and middle-level income countries experienced rapid student enrollment growth in the 1980s, real public expenditures on higher education fell. This erosion in real resources available to universities has stemmed from conditions of general economic hardship ruling in many developing countries, combined in particular with parsimony in government budgets. Policy environments have not been conducive to the promotion of greater internal efficiency within universities nor have they facilitated in these countries the development of alternative, non-government, sources of funding. The fundamental importance of clearly understanding the nature and cause of financial problems are set out in the next chapter.

A realistic view of future developments in public spending does not indicate any reversal of the current regime of tight public expenditure allocations to higher education. We therefore turn to an examination of the scope for the alleviation of financial pressures on the higher education system through the development and extension of non-government forms of funding. These have received much attention in recent years as offering a solution to the financing crisis facing universities. While such moves will be important, we shall argue that they are unlikely to be sufficient and that their potential to redress financial problems has been somewhat exaggerated.

The three major measures that have been suggested as potential solutions, to be applied separately or in concert, are: greater cost recovery through the introduction of student fees or the raising of student fees from the nominal levels charged at present in most countries; delayed cost recovery through a regime of student loans; and a broader diversification of revenue sources, particularly selling services to industry. In Chapters 3, 4 and 5 we discuss, in turn, the efficacy of these measures; we shall conclude that while each would constitute an important element of a broad program of reform of the university system, in themselves they are likely to represent only partial solutions to easing the financial pressures facing universities.

Greater cost recovery for instruction and, particularly, for student housing and meals, while critical elements in a program of financial reform, will have some adverse effects on equity and access. However, these fears are often exaggerated. Greater cost recovery would reduce subsidies needlessly paid to the less needy, and should be combined with well targeted student support schemes for those in greater need. The evidence suggests that it is not the presence of tuition fees as such that has acted as a major barrier to access to universities as much as poor access to earlier education opportunities, the costs for some of forgone earnings, and class attitudes to higher education.

Student loan schemes are potentially valuable in facilitating more extensive cost recovery. They enable students to delay payments for higher education (whether for tuition or living expenses) until they are earning the enhanced income that their higher education has made possible. However, where in place, student loan programs to date have benefited only a small percentage of students, the sums involved relate to only a small proportion of real instructional costs and living expense and, due to a combination of highly subsidized interest charges on loans and of payment default, the repayment proportion of loans has not been high. We argue that while the performance of loan schemes can be improved, their potential contribution to revenue generation is likely to be limited, and that a system of high tuition fees coupled with widespread loans is not a feasible option in many countries.

Increased cost recovery in terms of more realistic student fee levels (facilitated by student loan programs) has a central role to play in policy reform that extends beyond that of generating additional revenues. To the extent that student tuition fees replaced direct government subsidies, universities would be encouraged to become both more competitive and internally efficient; in competing for students' fee income they would have to pay increasing attention to the quality and relevance of the courses they offer, particularly as they relate to the needs of the job market and employment opportunities.

It might be possible to achieve many of the benefits of a such a student-responsive system, without moving strongly towards fee payment and cost recovery. As discussed in Chapter 6, and illustrated for Chile, state subsidies to universities could be maintained at any given level, but channelled through the students, in terms of a student "entitlement" to higher education or through subsidized loans, from which students would pay fees set by universities. This too would facilitate student choice, stimulate competition amongst

universities and make universities more responsive to labor market opportunities. Of course, it is possible to employ the two approaches in concert, dividing subsidies between direct payments to universities and indirect payments via students. However, in situations where the labor market rewards degrees rather than skills, the result may be that institutions will sell diplomas rather than education.

In addition to revenue diversification through cost recovery, universities may seek to tap other sources of non-government funding. Chapter 5 examines the potential role for such income-generating activities as the provision of short, ad hoc specialized courses, the sale of services to industry and the commercial management of research and university assets. It is not feasible to expect revenue diversification through university-industry alliances to resolve fundamental financial problems of universities in developing countries. Where university resources are not fully utilized, however, there remains significant potential to generate internal profits that could provide an important source of discretionary funds.

Universities may not be free to take full advantage of the limited opportunities for generating non-governmental revenues because conditions both within and outside the university system are not conducive to such activities. In particular, governments may impose high financial dependency on universities by putting constraints on revenue diversification, as well as restrictions on the freedom of universities to allocate funds internally, as they see fit. Government policy in this area, together with government control over student enrollments, will need to be revised if universities are to succeed in escaping from the twin ills of low internal efficiency and low quality.

It is in this context that Chapter 6 examines the mechanisms through which governments transfer and allocate resources to higher education. Given the limited possibilities for outside revenue generation, the state will remain the major source of funds, by far, in most university systems, though at a reduced level of funding. This strongly suggests that prime emphasis needs to be placed on ensuring that the transfer mechanisms of government funding to universities provide incentives for institutions to operate efficiently and make the most effective use of scarce funds in these times of financial stringency. Unfortunately, the transfer of resources to universities has for the most part been on the basis of political criteria and negotiations, rather than on objective criteria related to the internal workings of the universities. We discuss the improvements that would result (and possible shortcomings) from the use of sounder criteria for transferring funds to universities, in particular the use output-based criteria ("payment by results") or input formulas, usually based on multiplying enrollments by parameters of unit cost.

Meanwhile the rapid erosion of financial resources in relation to enrollments continues apace, with little incentive or capacity in place for universities to seek efficiency gains. This deterioration can be stemmed only if universities are granted greater autonomy over decision making in relation to admissions and resources, while ensuring accountability to the providers of funding.

Finally, we consider the case for making use of a broader form of cost recovery - repayment in kind through service to the community. While schemes of national and community service are in place in many developing countries, they are concerned for the most part with the personal development of the individual rather than with his potential contribution to society. In Chapter 7 we discuss existing national service schemes and how they may be refocussed to constitute a form of cost recovery, in kind, for higher education.

While there is no one overall formula for redressing financial problems in universities, the underlying argument of the book is that proper financial reform must include at least two elements. First, efforts must be made to mobilize more non-government resources for higher education to provide a stable source of funds, given what institutions are expected to do. Second, the resources available to institutions need to be used more productively. Such a reform will require a fundamental shift in the relation between the government and institutions, by creating an environment in which institutions are free to make decisions, but responsible for managing themselves better.

Before embarking on a detailed exposition of this argument in Chapter 2, the next two sections provide, respectively, a view of the historical development of university funding as it relates to the major themes of this book, and a conceptual account of university financial flow models, with emphasis on the role of government in university funding.

University Funding: Historical Perspectives

Higher education history reveals three important points relevant to issues discussed in this book. First, it shows the extent, until the early nineteenth century, to which university funding has been dependent on student and not government funding; universities were consumer demand-driven institutions. Second, as a consequence of this funding relationship, instructors and institutions were much more responsive to student demands. Third, the impetus for massive state intervention -- both in finance and provision -- was the training of individuals for administrative and technical careers in the civil service, a form of employer-based training. Subsequent industrialization and ongoing technical advance defined new, broader roles for the university in both basic research and in the preparation of professional and technical personnel for the growing private sectors of the economy.

Before the existence of the modern university, which appeared in Europe in the eleventh century, higher level instructions invariably took the form of students hiring teachers. In India, for example, students would attend the homes of Brahmin scholars who were hired and paid on the basis of their academic and moral reputation.

In most countries, higher education institutions trained elite administrators and religious figures. In China, for example, private schools developed to train people to become scholar administrators. In Ancient Greece, students paid itinerant scholars for moral and

scientific training that was intended to prepare them to participate in public political life of the polis, as well as to help them to enlarge their private fortunes. In the Islamic World, students could hire teachers inside mosques for religious instruction: to this day, the al-Azhar university has preserved the tradition of students hiring scholars in the central mosque.

Box 1.1. Early Instances of "Public" Intervention

A significant innovation in higher education came about during the Roman Empire. Roman education initially borrowed heavily from Greek traditions in science and the arts. However, in the first and second centuries, they developed the study of law, which was seen to be extremely important in preserving order throughout the Empire. At the same time, while the emperors showed no interest in supporting primary or secondary education, they did begin to provide financial aid to higher education and to provide endowments for particular chairs. A principal motivation for this support was to provide a well trained elite that could assist in managing the Empire.

The Byzantine emperors followed a similar tradition of endowing chairs and providing limited financial support. Constantine IX, for example, re-founded the so called "University of Constantinople", dividing it into a School of Law and a School of Philosophy in 1045 A.D. His major objective was to provide a sufficient supply of civil servants.

The renaissance period in Europe witnessed a flourishing of higher education institutions, financed mostly by students and the Catholic Church. The two major prototypes for this collective university arrangement appeared in Bologna and Paris. The Bologna institution was organized by students, who elected the administrative personnel for the institution. The student dominated prototype became common throughout southern Europe. In contrast, teachers administered the University of Paris.

A key feature of European universities as a whole was the development of areas of specialization. The Italian institutions were noted for training in Medicine and Law, the French universities for religious and philosophical scholarship, and the northern institutions in England were well regarded for their natural theology programs.

The first instances of largely state supported universities were in Germany and France at the beginning of the nineteenth century. State intervention had a clear rationale: to provide necessary technical manpower for the state to foster industrial development. The University of Berlin and the Ecole Polytechnique in Paris were founded to provide technically trained experts to work in government. In addition, the Ecoles Normales were established to supply sufficient teachers for the universities and secondary schools. Almost

every European country followed suit in establishing publicly supported national university systems.

Thus, European universities essentially became employer-based training facilities, with the government as the primary employer meeting the educational costs. In the twentieth century, these systems expanded rapidly throughout the world, particularly as more countries sought to industrialize. The pattern of publicly supported institutions to provide administrative and technical manpower was exported to many developing countries that were colonies of European powers. The universities initially trained the "colonials" living in the country for the civil service (a less expensive option than educating them at home) as well as a selected few from the indigenous populations who could staff local governments. When these countries achieved independence, the structure for the university systems was already in place and most governments chose to expand these institutions rapidly.

Financial Flows to Universities

The role of the state in university finance is dominant in most university systems; yet pressures to augment existing revenue sources are becoming ever pressing in many countries. Increasingly constrained government budgets, the greater priorities accorded to other sectors (and to other sub-sectors within education), coupled with the upsurge in social demand for higher education, fuelled in many countries by government-imposed open admission policies, all combine to underscore the crisis in university financing and the need for increased non-government sources of revenue for universities.

We now discuss three different scenarios for university financing systems, that correspond to progressively broader sources of revenues. But they relate not only to different funding sources but also to differing fundamental conceptions of the societal role that universities should, or do, perform. These three financing models, which we referred to as government dominance, cost recovery and revenue diversification models, are described in the sections that follow, and illustrated in Charts I - III. They are to be seen as constructs to facilitate analysis rather than as being fully descriptive of financing systems actually in place.

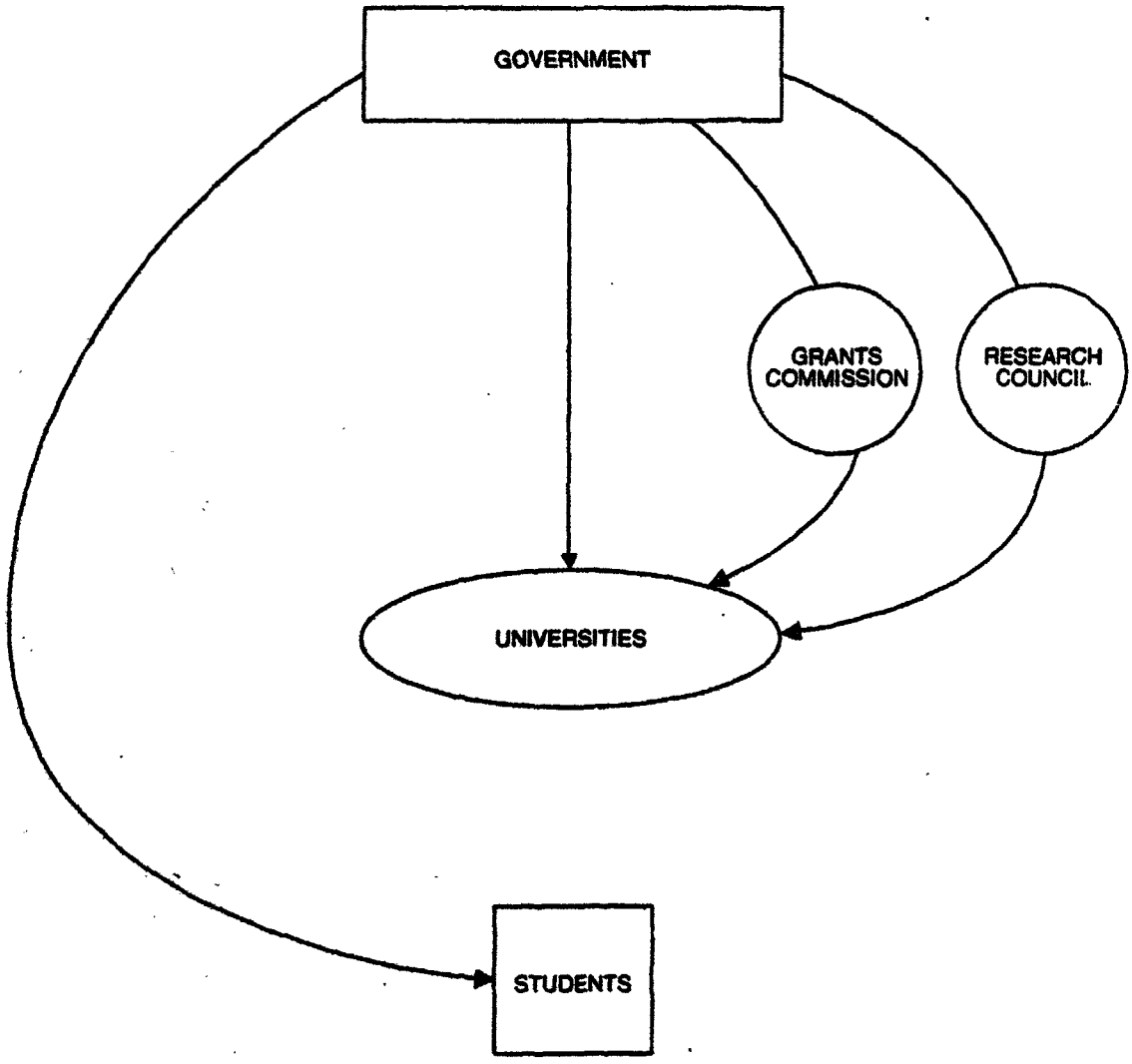
University Finance: State Dominance

Chart 1.1 illustrates the traditional financing relationship between the state and the university system, found in many developing countries. This situation may be described as one of state dominance: state run universities receive all their funding from the government which also subsidizes student living expenses. In many systems, state subsidy of student living expenses approximates, or even exceeds direct transfers to universities to cover recurrent expenditures. Typically, public funds are channelled to universities directly from ministries

of finance or education. However, some governments have established intermediate funding organizations that lie between government and the university system, in an attempt, at least initially, to insulate universities from political interventions[1].

Chart 1.1

UNIVERSITY FINANCE: STATE DOMINANCE



[1] The classic model for a buffer of this type is England's recently defunct University Grants Committee (UGC); similar institutions exist in many British commonwealth countries, including Hong Kong, India, Kenya, Pakistan, New Zealand, Nigeria and Zimbabwe as well as in various other countries such as Israel and the Sudan. The rather mixed experience of buffer organizations in successfully insulating the university sector from politiking will be discussed in Chapter 6.

There are many reasons, historical, institutional and political, that may account for the central role of government in university financing and provision in so many university systems; some of these have been provided in the preceding section. However, we shall argue that the traditional economics justification for state subsidy and provision do not seem able to explain the extent of government intervention in the university sector.

Government Finance verses Provision. While most university systems are both state run and heavily subsidized by the public purse, these two aspects of state involvement are neither synonymous nor do they necessarily go together. Private universities may benefit from large state subsidies (as in Chile, for example), while in principle state universities could charge full fees to students, obviating the need for state financial support. Our concern will be with university finance, but we will need to touch on issues of provision too, since in many university systems issues of finance and provision are inextricably bound together.

A distinction also needs to be made between the financing (and provision) of two very different university activities: the provision of educational services and research (clearly the central function of universities) and the ancillary function of student living support. In many university systems, student support represents a particularly heavy burden on university finances. Again, the state may offer financial support to cover students' living expenses (as for non-residential students in the UK), it may both provide and finance student living services (the typical Francophone African model) or it may be involved in neither (the case in most Latin American countries).

The Role of the State. The state is dominant in many university systems, both in financing and in provision. Is there a persuasive economic rationale for this, or must we look to the amalgam of historical, institutional and political factors in each country, for a explanation of this central role? The issue is somewhat differently defined for public sector provision of higher education and for its subsidy by the state.

On the side of state provision, state involvement may be explained by large scale, multi-product and joint-cost nature of the modern university, with cross-subsidization across disciplines and major activities. Many of these activities are costly, particularly research and set-up costs. These may be beyond the means of private universities, particulary in small, poor economies. While such arguments make a case more for subsidy than provision, a strong government role in provision may, none the less, be in order as long as this remains effective, responsive and efficient. There may be present factors that militate against efficient public provision of higher education, such as bureaucratic practices and the lack of the discipline of market competition[2]. But in principle, there is no perception that higher education should not be provided by public universities; the practical issue is one of

[2] If this is the case, it is possible for the state to fashion incentives for efficiency (by simulating competitive conditions), obviating the need for the discipline of private market competition; we return to this theme in Chapter 6.

providing an incentive framework for efficiency, which may, or may not, be feasible in any given case.

However, a more objective justification for state finance of higher education is required: if the university educated were rewarded in the labor market by higher earnings, arguably it is they who should bare the burden of the costs of their education. Two traditional economics arguments, which are often advanced to justify state subsidies, will be considered briefly in turn: the presence of positive externality benefits of higher education and, secondly, market imperfections. Neither of these are pervasive in the case of higher education.

The externality argument constitutes the classic economic justification for state subsidy of a good or activity. In terms of higher education, the argument runs along the following lines. Individuals deciding on a course of higher education are motivated by expected higher earnings and other, mainly job-related, benefits; these may include job satisfaction, status or wider career and study options in the future. They will not capture, nor will they take account of, any wider benefits that accrue to society as a whole from a better, more highly educated population and workforce. From the viewpoint of society, individuals will not invest sufficiently in higher education; such positive "externality effects" justify the subsidy of higher education, to ensure an adequate supply of higher educated individuals to meet wider societal needs.

There is now a sizable literature that attempts to catalogue, and less frequently or successfully, to measure the externality benefits stemming from higher education[3]. These range from the interpersonal level (more effective and efficient parents, the augmenting of the output of fellow workers, etc), to the community and regional level, through to that of the nation as a whole. These latter benefits include the provision of necessary human capital inputs for economic growth and development, the benefits of research, the assumption of entrepreneurial and leadership roles, catalysts for economic and social change (a role which may not always be positive). However, the point at issue is not whether such externalities are important (clearly they are), but rather whether they are sizable in relation to the private benefits of higher education secured by individuals, thus justifying large subsidies. A distinction needs to be made between undergraduate and vocationally oriented taught masters courses on the one hand, and research and graduate studies on the other.

Available evidence on the large earnings advantages of first degree holders in private sector employments (particularly for countries where labor markets work well, without wage differential distortion) suggests that these private benefits are indeed sizeable. More relevant, however, is a consideration of the relative size of externality benefits from undergraduate education <u>at the margin</u>. While a university system of a given size may endow society with significant externalities, once these have been secured the extra externality

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[3] Weisbrod (1962) is a classic reference; Leslie and Brinkman (1988) provide a comprehensive, and critical, review of this literature.

benefits stemming from an expansion of university output may be quite small: leadership and entrepreneurial roles constitute a case in point. Here the case for large subsidies for higher education at the undergraduate level is not strong.

The externality case for subsidizing research (particularly basic research) and doctoral student programs is much stronger; indeed, it is likely to be the case that the marginal benefits from research may increase with the size (and quality) of the research effort, particularly at given, specialized research-oriented departments.

A case may be made for the subsidy of higher education when economies suffer from imperfections in capital and labor markets. University education is, for many, the most costly item that they are likely to purchase over their lifetime, apart from housing. In many housing markets purchasers may, through mortgage payment, effectively spread the high cost over a number of years in the future; loans to finance the cost of higher education, however, are usually unavailable, even in economies with well developed financial markets. Unlike other investments that can constitute the collateral for the loans that finance them, education investments (which become embodied in the recipients themselves) are not readily accepted as security by lending institutions. The argument that high (realistic) tuition fees would militate against social goals of university access and equity, provides the rationale (but not the justification) for subsidized or zero fees. The appropriate government response is the establishment of mechanisms for student loans, that the market cannot supply, rather than subsidy. However, most student loan schemes themselves are very highly subsidized; only to the extent that labor market distortions resulted in low earnings advantages for graduates, would these subsidies be justified.

A more general argument for university subsidy is the need to keep fees low to preserve access for those coming from poorer, disadvantaged backgrounds. However, this would make out the case for targeted subsidy, through scholarships especially for the academically able, rather than for universal subsidies. More important, even university systems that do not charge fees, whether in developing or industrialized countries, have been dramatically unsuccessful in attracting students from the lower socio-economic groups; the barrier to access does not lie primarily in fees.

Our overall conclusion, then, is that the extent of state dominance typically found in developing countries cannot be justified in terms of an economic rationale alone. Some retreat by the state, particularly in the realm of the financing of higher education, can be justified. This conclusion has important implications for policy. It paves the way for a consideration of the possibilities of serious cost recovery in higher education as a means of generating additional finances, a need that has become ever more pressing in recent decades with the upsurge in the demand for higher education and constrained, even falling, university finances, stemming from the increasingly tight government budgetary environment.

University Finance: Cost Recovery

The distinction, drawn by Gareth Williams, between two very different approaches to the role of higher education institutions (OECD 1990) is relevant to our discussion of cost recovery. Universities may be regarded as "service " institutions that can be relied upon to serve the wider interests of society and the economy, or they can be seen as "commercial enterprises" that provide services for the benefit of individuals. The former view which has held sway, though less so in more recent years, corresponds to the scenario of state dominance presented. It underlies much of the higher education expansion in Europe and in many developing countries in the recent decades, and has been used to justify the heavy subsidization of a largely autonomous higher education sector. However, the universities' responses and the wider needs of society, as perceived by governments, have not always coincided. In most countries this dissonance, buttressed by increasing pressures on public sector budgets, has lead the government, as the paymaster, to seek ways of exerting greater control over the higher education sector. This process constitutes a major theme of this book.

The second approach of Williams, which sees universities operating in the context of a producer-consumer relationship with students, receives support from the new human capital[4] (and income augmenting) view of education and provides much of the rationale for moves towards increased cost recovery and tuition fee payment in university systems. This view of higher education bears resemblance to the more traditional institutional context, prior to the nineteenth century. It also provides the framework, and justification, for university financing arrangements that impose realistic tuition fees on students; we refer to such a regime as the cost recovery model.

The cost recovery model, in which universities charge realistic tuition fees to students, is illustrated in Chart 1.2. There are no university systems which are characterized by cost recovery in a pure form (though there are particular universities that are financed in this way); in practice, cost recovery operates in tandem with, and complements, state subsidy of higher education. Characterizing a system as one of cost recovery in practice relates to the breadth of student coverage of fees and their size in relation to costs.

The presence of cost recovery tells us nothing about the nature of higher education provision. The public subsidy of state, as well as private, universities could, in principle, be minimal, with both receiving the bulk of their funding from student fees (similarly, private universities could be in receipt of large state subsidies).

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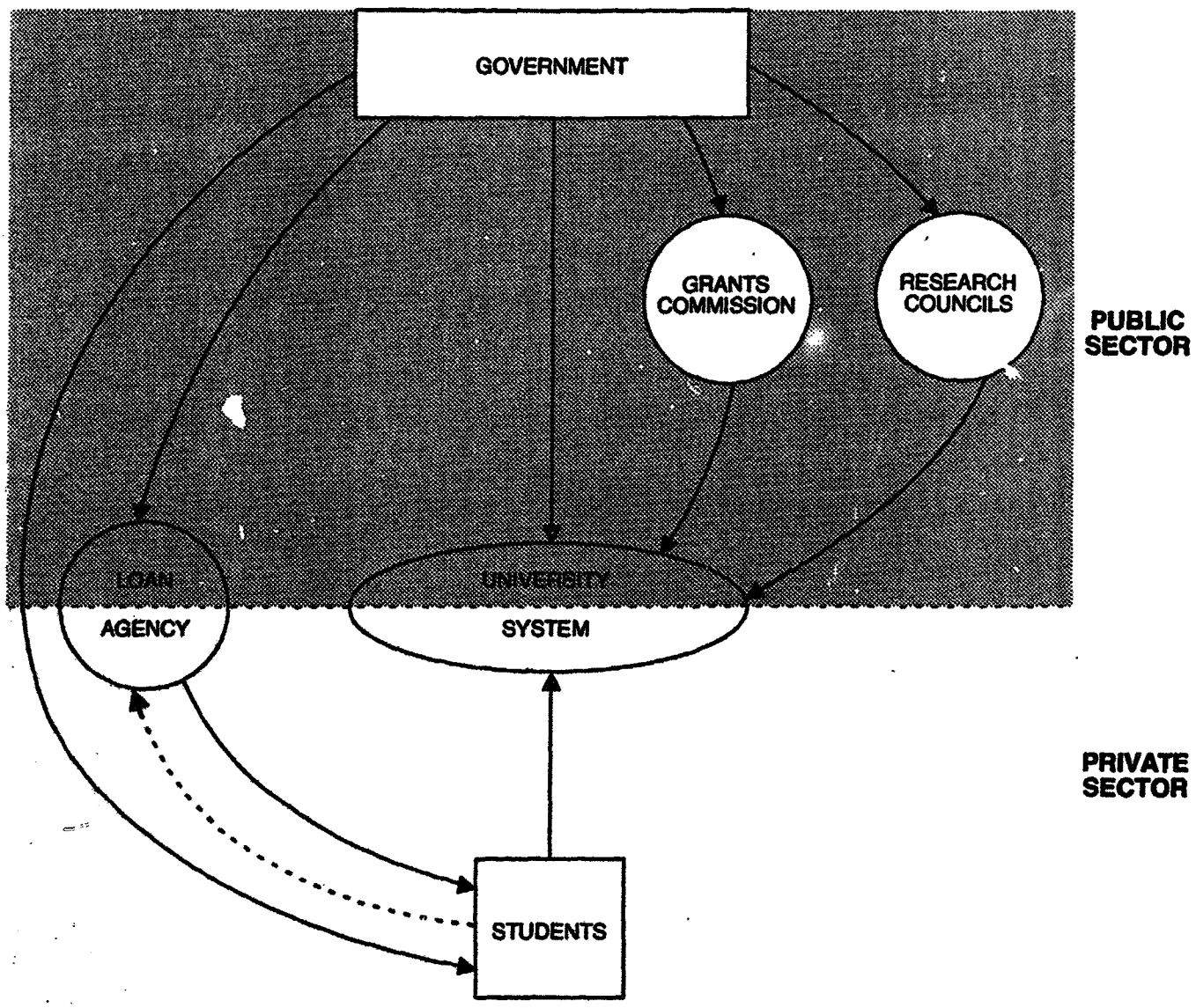
[4] It is also consistent with the "screening" model of education, as discussed in Chapter 6.

Chart 1.2

UNIVERSITY FINANCE: COST RECOVERY



There are three major benefits from a regime of cost recovery. Primarily, of course, resources are generated for the system as students pay for (and therefore may value more highly) college education; but in addition, universities respond more effectively to student demand (reflecting relative earnings and shortages in the labor market) and also, universities are forced to compete for students (in terms of price, quai[illegible] f education and subsequent marketability of skills provided). Indeed, it is argued that such a demand-driven university system will achieve internal efficiency and societal relevance more successfully than does direct government support.

High tuition fee systems may effect access negatively; they will be more acceptable socially if accompanied by scholarship support for able students from disadvantaged backgrounds. However, a market oriented, student demand driven system (with extensive cost-recovery and targeted scholarships) may not be practicable in many country settings. It might be regarded as socially as well as politically unwise to impose the heavy burden of high tuition fees, especially where parental income and savings are low and students do not have recourse to alternative sources of finance. Many countries have introduced loan schemes, covering either tuition, student living expenses or both, which are repaid from subsequent earnings after graduation. This form of delayed cost recovery is a means of effectively delaying payment until graduates from the system are able to establish themselves in the labor market and benefit from the enhanced earnings that finance earlier tuition and living expenses. However, high levels of (often unintended) subsidy are present in most student loans schemes in practice.

University Finance: Revenue Diversification

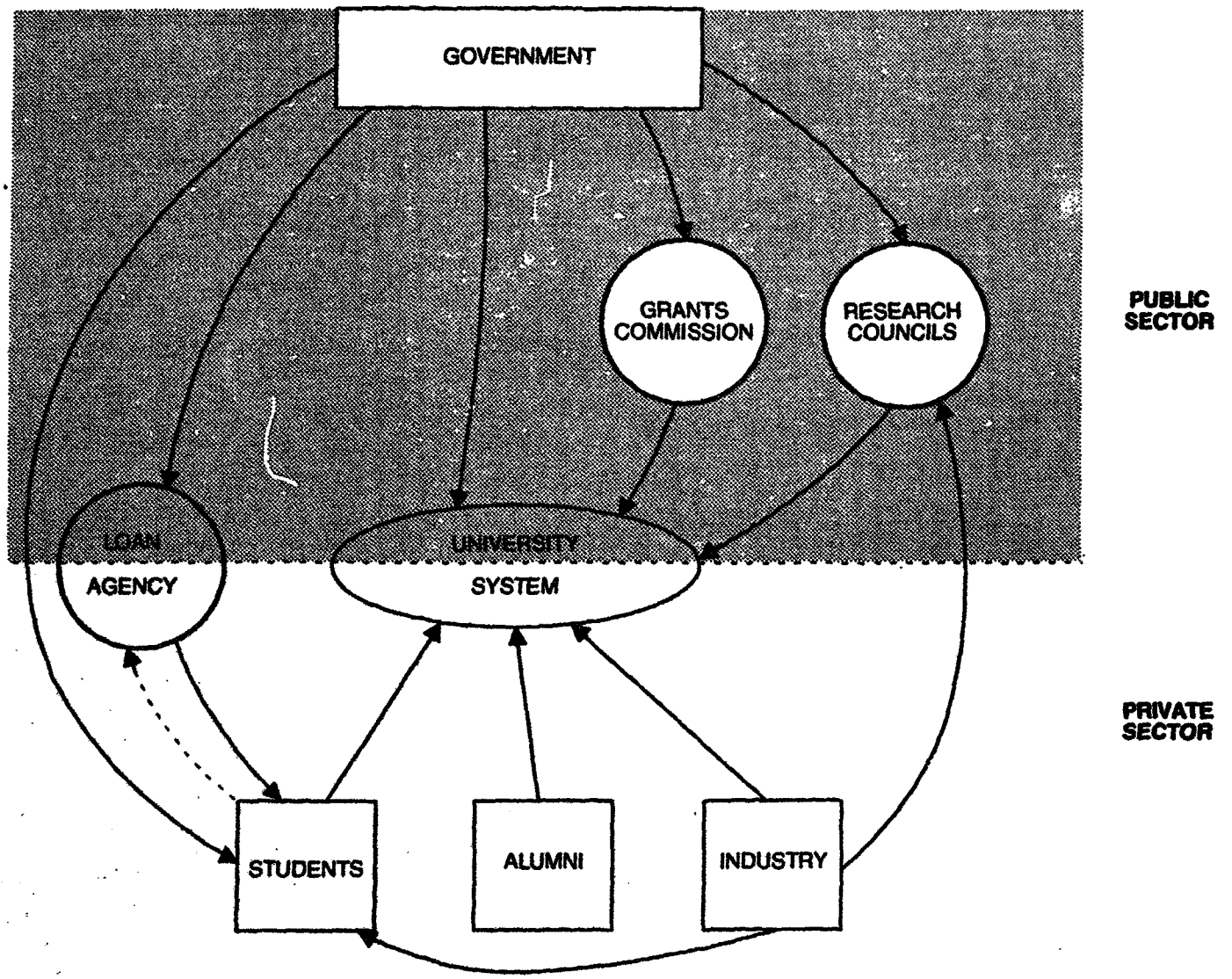
The possibilities for extensive cost recovery may be constrained in many developing countries, particularly when labor market distortions narrow the labor market earnings advantage that university graduates may expect, and subsequently limit their ability to pay realistic up-front fees or delayed ones through loans. Many university systems have sought to diversify revenue sources beyond cost recovery of traditional teaching activities, by developing additional forms of income generation from newer non-traditional activities. These activities include the provision of short ad-hoc vocationally oriented courses, applied contract research for industry, consultancy services as well as tapping alumni and industry for donations and endowments.

The revenue diversification model is illustrated in Chart 1.3. Industry may contribute to university finances directly or indirectly through research councils and sponsored students. Since revenue diversification implies also diversifying the outputs and activities of the university system, this process may lead to a change in the role of universities away from traditional teaching for degrees and research. If revenue diversification is pressed too far, on too broad a front, serious issues concerning the appropriate role of the university may arise. The potential for revenue diversification is likely to be quite limited, in practice, for the system as a whole. However, in a university system comprising a variety of types of

institution with differing missions, some institutions - certain polytechnics in Britain for example - may tilt strongly towards market-based services to industry.

Chart 1.3

UNIVERSITY FINANCE: REVENUE DIVERSIFICATION



Financing Flows: Some Country Examples

While no actual university system is financed exactly in conformity with the schematic charts, we bring three country examples that may be generally characterized as government dominant, cost recovery and revenue diversification models, respectively.

Senegal. A good example of state dominance is provided by the university system in Senegal (Chart 1.4). This is a small university system that is entirely funded by the central government; there are no tuition fees, loan programs or revenue diversification but very generous student support. The Senegalese experience also illustrates well the problem common to many university systems of rapidly growing student numbers (the result of externally imposed liberal admission policies), unmatched by expanded university instructional budgets leading, in turn, to increasingly inadequate facilities, overcrowding, low quality education and high student repetition rates.

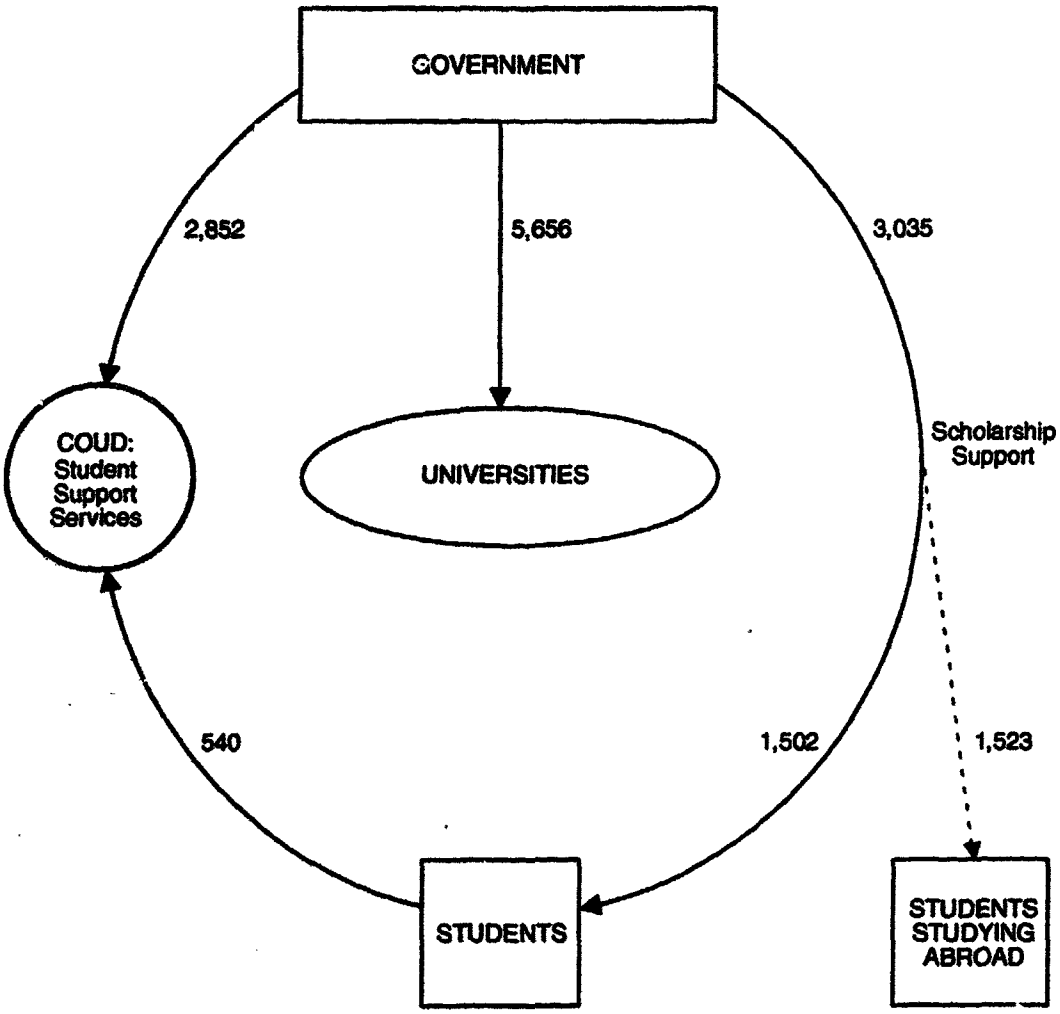
The state bears virtually the whole of the universities financing burden in Senegal. This burden extends beyond university operating costs, which constitute less than half of finance flows. In addition to these educational expenditures, high levels of student support (of two kinds) is provided by the government: a scholarship scheme, administered by the Ministry of Higher Education, and student support services through the "Centre des Oeuvres Universitaires de Dakar" (COUD). These have grown dramatically in recent years. Some 78 per cent of students now receive scholarships, half of which finances study abroad. Student support services through the COUD, for which all students are currently eligible, cover highly subsidized meals, lodging, medical services and transportation; students contribute less than 16 percent of these social costs.

The Philippines. Tertiary education in the Philippines, because of the dominance of private education, corresponds somewhat to a system of cost recovery (Chart 1.5). While public higher education institutions receive massive support from the state, students (or their households) do expend significant sums on tuition fees (albeit fixed at a low level in relation to instructional costs) and also on school-related expenditures (which includes educational materials, books and transport). The Chart does not include information on student living expenditures; however public support for this is minimal. There is a small loan scheme for tuition fees, but only one percent of all students avail themselves of this.

However, over 80 percent of all college and university students attend private institutions, financed by student tuition fees. The Chart illustrates the high levels of student expenditures both on tuition fees and on other education-related expenditures. Yet, while they receive virtually no subsidy support from the state, these institutions are far from free of the influence of government. The quality of these private institutions suffers from a tight system of detailed government control, including the imposition of detailed regulations of the internal management of the institutions and of price ceilings on tuition fees. In addition, labor market distortions which reward diplomas rather than the quality of training, compound the problem by encouraging such practices.

Chart 1.4

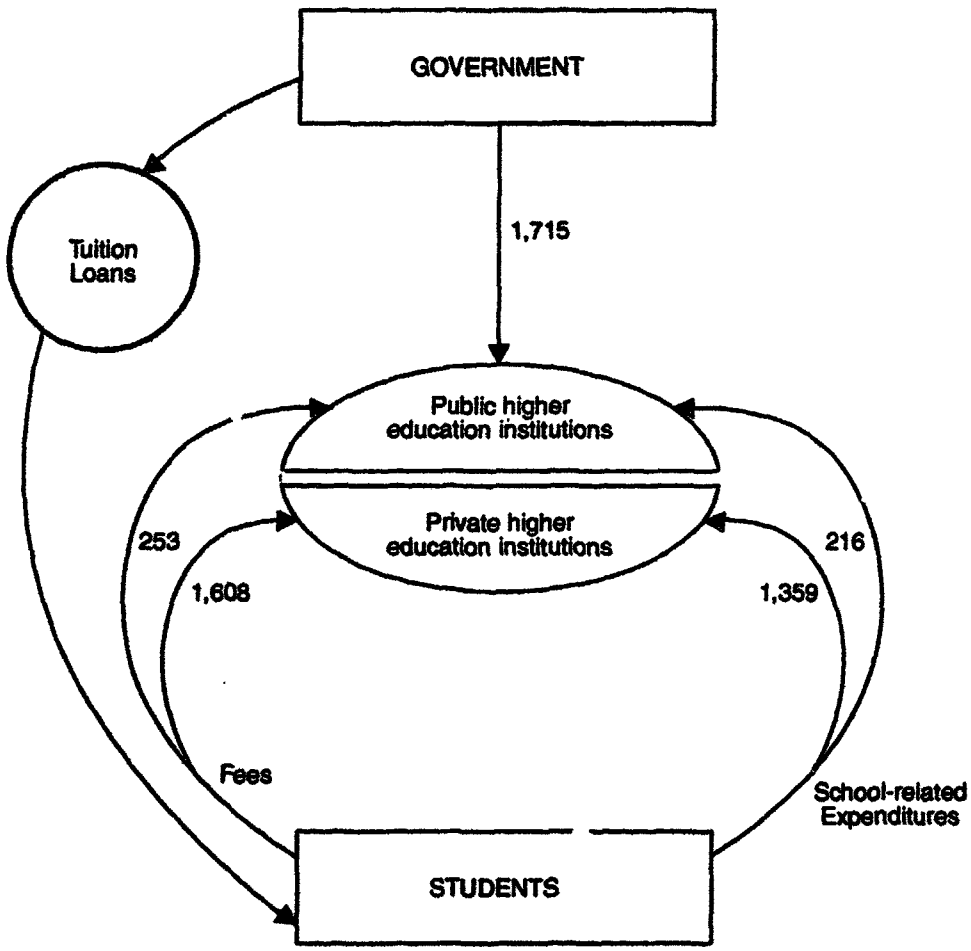
UNIVERSITY FINANCE FLOWS: SENEGAL (1986/87)*
(Millions CFAF)



*Includes Educational-related expenditures and living expenses.

Chart 1.5

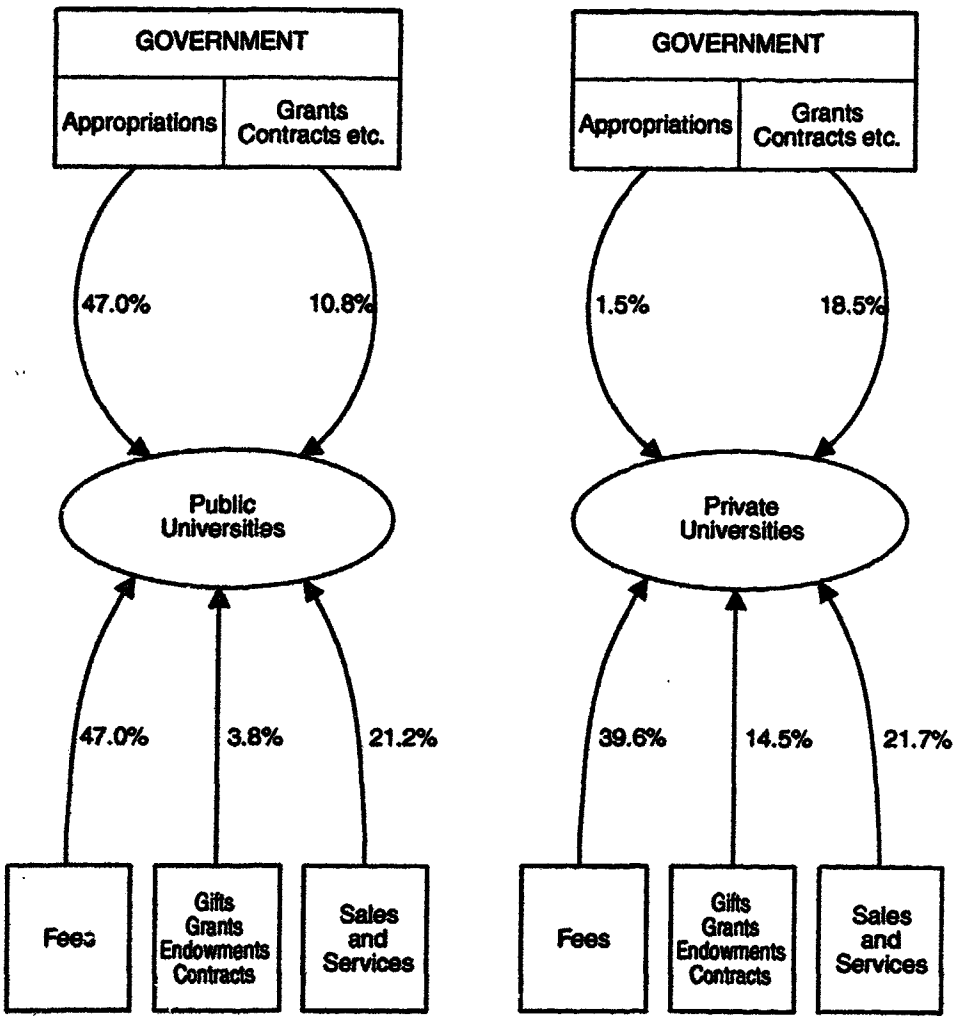
UNIVERSITY FINANCE FLOWS: THE PHILIPPINES (1986)*
(Millions Pecos)



*Includes School-related expenditures but not living expenditures.

Chart 1.6

HIGHER EDUCATION FINANCE FLOWS: USA (1988/89)*
(percent)



*Excludes School-related expenditure, living expenses and loan funds. Income from " Other Revenues " account for a further 2.0% of revenues of public and 4.3% of private institutions.

The USA. The higher education system of the USA may be described as one characterized by revenue diversification: this is true of both its public and private sectors. Chart 1.6 illustrates the major finance flows for the US higher education system. For illustrative purposes, it gives a highly simplified picture, given the breadth and heterogeneity of the system as a whole; the Chart does not include education-related student expenditures, living costs nor loan funds.

The picture emerging from the Chart is of a highly diversified system. The public university sector receives less than half of its revenue from government allocations (mainly at the state, but also at the federal and local levels) and tuition fee income constitutes not more than 40 percent of private sector revenues. Cost recovery is present in the public sector too: nearly 15 percent of public sector revenues comes from tuition fees. Both sectors rely heavily on revenues generated by market based activities. Sales and services, including revenues from other educational activities, auxiliary enterprises and university hospitals, constitute over a fifth of revenues for both sectors. However, expenditure data (not included in the Chart) show that net revenues from such market-based activities are quite small in percentage terms, illustrating that revenue diversification may relate more to a diversification of the output mix rather than the generation of net revenues. Grants and contract income from government are sizeable in both sectors.

Most developing country university systems are based on the first model, of state dominance. Although there is a great deal of variation in terms of revenue flows, those that most approximate this model are currently experiencing the most difficulties. In the following chapter, we examine in more depth the nature and cause of the financial crisis confronting university systems.

Chapter 2
The Financial Context and Policy Environment

What is the financial context under which universities operate in the developing world today? This chapter takes as its starting point the basic financial problem confronting universities in most developing countries, namely that rapid expansion has not been accompanied by commensurate funding increases. But perhaps more significantly than an erosion of real resources have been government imposed restrictions on institutions that have limited their capacity to respond. A decline in resources might lead institutions to become more efficient, to seek alternative sources of income, or to cut back on their activities. Such responses, however, have been rare. Indeed, many institutions have actually increased the number of staff. We shall argue that this counter-intuitive reaction is actually a logical response given the restrictive environment within which institutions operate. The continuing decline in per student resources and the failure on the part of institutions to realign accordingly, stems in a large part from the policy conditions under which higher education institutions operate.

The first section of this chapter will explore the magnitude of the financial problem. The second section turns to the source of the problem, i.e. the policy restrictions that have prevented institutions from responding in an effective manner to funding shortages. These restrictions are, first access (admissions) policies; second, penalties on institutions that seek alternative sources of funds; and third, limitations on the extent to which institutions may allocate their funds freely as they see fit.

The Financial Context

The most fundamental change in higher education systems throughout the world has been the attempt to democratize access. Rapidly expanding primary and secondary enrollments, increased demands for skilled labor, and the growing perception of higher education as a path to individual prosperity have fueled the pressures to expand coverage. During the past 30 years, the impact has been dramatic in developing countries. Between 1960 and 1987, higher education enrollments increased four-fold in low-income countries, ten-fold in lower-middle income countries and nine-fold in upper-middle income countries.[5]

[5] Source: World Bank data. Income groups are based upon the country listings in the World Development Report.

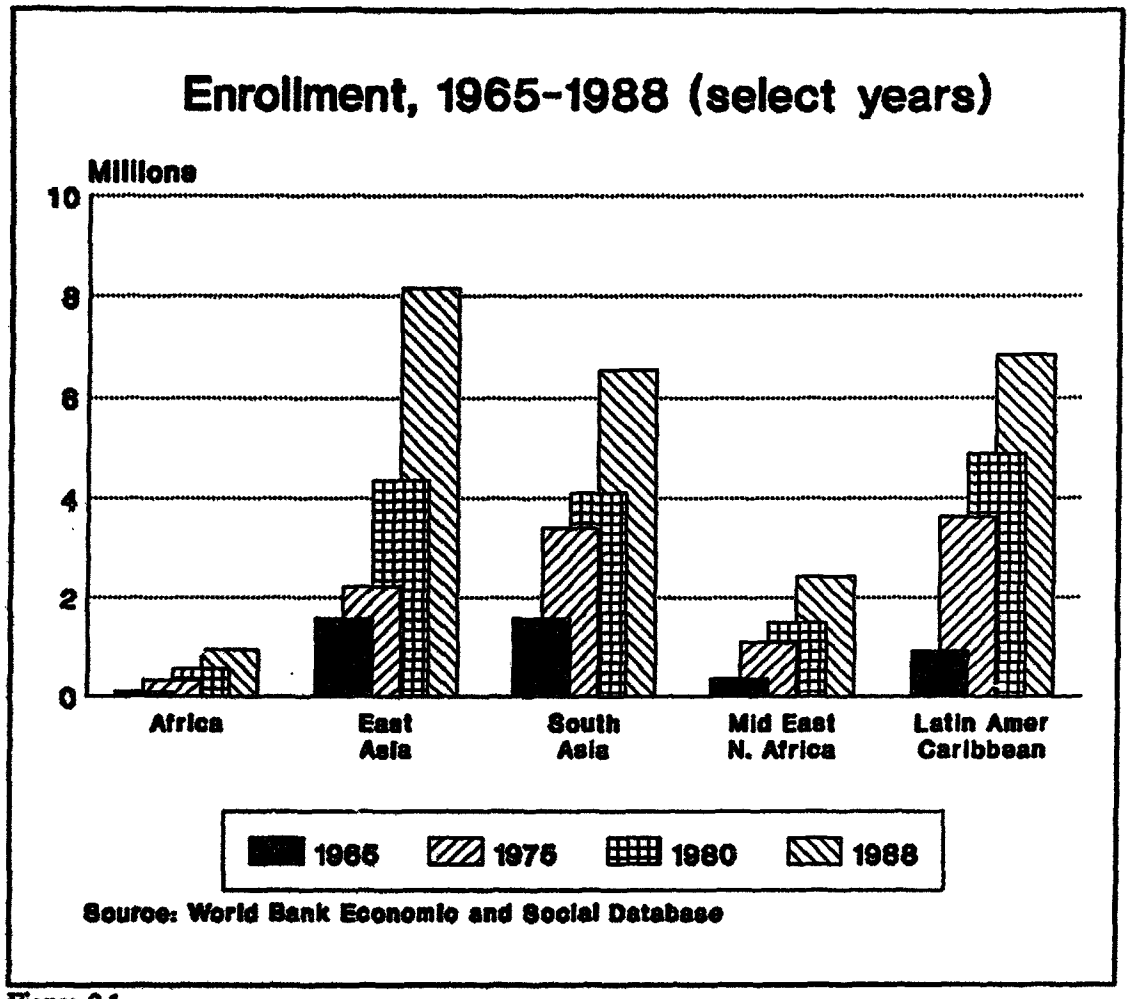


Figure 2.1

Enrollment expansion by region have been rapid throughout the world. Figure 2.1 illustrates this impact. In Africa, enrollments increased nearly ten fold between 1965 and 1988. In Latin America, the growth was nearly eight five fold over the same period. For East Asia and the Middle East, the rate was five fold and four fold respectively. Rapid expansion alone, can often have serious impacts on the quality of instruction if institutions are not well placed to absorb new entrants, or if admission standards fall to accomodate the goals of expansion.

Although higher education enrollments expanded rapidly, resources allocated to institutions did not keep pace. In fact, in many instances, particularly during the 1980s, real resources actually contracted. That is, just as more was being demanded of higher education institutions, the government ability to foot the bill was decreasing, particularly as structural adjustment programs were adopted in many developing countries.

Through the 1970s, enrollments consistently expanded at a faster rate than public resources devoted to higher education. While African enrollments expanded at an average annual rate of 13.5 percent, real resources expanded 4.1 percent per year. In Latin America, enrollment grew 12.9 percent per year while resources increased by 5.2 percent. Similar trends occurred in Asia and the Middle East. Between 1980 and 1988, however, while enrollments often continued increasing, public expenditure for higher education contracted rapidly. In Africa, spending fell from 0.72 percent of GNP to 0.5 percent. Such declines reflect the impact of public sector retrenchment in the wake of adjustment and stabilization programs that were adopted throughout the developing world. Indeed, separate data on Asia alone show that while enrollments continued growing by 6.8 percent per year, real resources contracted by 4.7 percent per year.

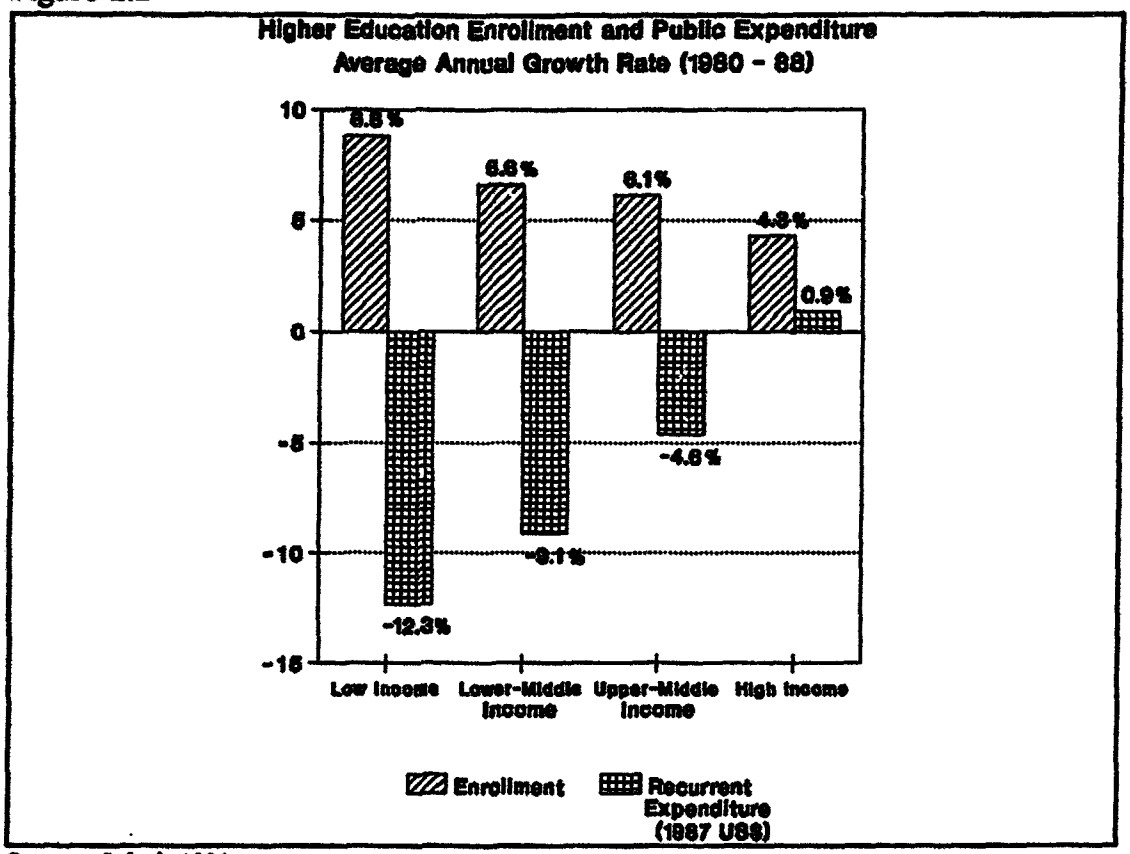
Figure 2.2 illustrates the relationship between enrollment growth and annual changes in public expenditure on higher education, according to country income groups. While the growth of public expenditures failed to keep up with enrollment growth in high income countries, expenditures actually fell absolutely in low and middle income countries, over a period that enrollments continued to expand. Table 2.1 summarizes the impact of combined enrollment expansion and diminishing public sector budgets for higher education. It lists the unit recurrent expenditures for higher education (expenditures per student) in 1975, 1980 and 1988, for countries for which data were available for all three years (see Statistical Appendix).

Table 2.1 : Unit Recurrent Public Expenditure for Higher Education by Income Level and World Region, Selected Countries
1987 US$

	Number of countries	1975	1980	1988	1988/ 1975
INCOME LEVEL					
Low	8	2,436	1,925	1,182	0.49
Lower Middle	6	4,872	3,289	1,973	0.40
Upper Middle	4	2,175	1,773	1,258	0.58
High	16	7,811	8,205	6,769	0.87
REGION					
Africa	8	6,805	4,630	2,566	0.38
Asia	6	1,078	818	605	0.56

Source: Statistical Appendix

Figure 2.2



Source: Salmi, 1991a.

The decline has been continuous and sizeable since 1975. For all country groupings shown, the level of publically financed resources per student fell between 1975 and 1980, with the exception of high income countries. The decline continued into the 1980's: there is an association between income group level and the extent of the deterioration in funding. In Sub-Saharan Africa unit recurrent expenditures in 1988 were only 38 percent of its 1975 level; for Asian countries the corresponding figure is 56 percent.[6] There was also a fall off in per student public funding for high income countries in the 1980-1988 period.

The impact of this statistical decline in per student resources is subject to alternative explanations. It could represent a deterioration of the resource base and declining quality of higher education. Alternatively, decline could (formally) be interpreted as resulting from greater internal efficiency of universities, arising from a more effective use of given (or declining) total funding, or from economies of scale. While we shall argue, in Chapter 6, that the latter view has some relevence for certain industrialized countries, the case study

[6] Reliable data for only a few countries in Latin America and the Middle East were available, obviating separate analysis for these regions.

evidence points dominantly to an explanation in terms of an erosion of public resources and consequent declines in the quality of education provision.

The divergence between resources and enrollments is almost certain to continue in the near future. Using forecasted GDP growth as an optimistic proxy of higher education budget growth, and enrollment forecasts based on primary and secondary school enrollments, real public expenditures per student would fall another 25.5 percent in Africa by the year 2000, and by 17.3 percent in the Middle East and Northern Africa. In Latin America, per student expenditure would grow by only 1.9 percent.

As long as higher education was reserved for elite groups, governments were able to meet the full cost without much budgetary strain. But the fast paced enrollment growth has not been accompanied by funding growth, particularly during the economically stringent 1980s. This rapid erosion of public resources is clearly having an important impact on the quality of educational services.

Private Finance

Thus far we have examined only the changes in public expenditure per student. This discussion is incomplete: private funds, either via fees (and other revenue generation) in public universities, or from self-financing private institutions, may offset declines in public resources. With the exception of certain Asian and Latin American countries, however, this burden shifting has not occurred significantly.

Table 2.2 illustrates that reliance on the private sector for expansion has not been consistent throughout the world. In Sub-Saharan Africa, the Middle East and Northern Africa, the private sector has played an insignificant role in both provision and finance. As a result, the per student public expenditure declines have had much more significant impacts -- except where they have been offset by efficiency gains, and there is little available evidence to suggest that any efficiency gains have been achieved. Experience in Asia and Latin America has been different.

Overall, many Asian higher education systems have fared better during a period of declining public expenditures for higher education because of the diverse sources of funding. Between 1975 and 1985, total enrollments grew 550 percent while public budgets grew 252 percent, a net decline of 46 percent per student.[7] But full fee charging private institutions have proliferated, cost recovery has been expanded at public institutions and some countries (notably China, Thailand, and Indonesia) have utilized distance technology and Open

[7] Calculated from data in Tan and Mingat 1989. Countries included: China, India, Indonesia, Korea, Malaysia, Philippines, Sri Lanka and Thailand.

Universities to provide low cost educational opportunities. All these steps have helped significantly to offset much of the public expenditure decline.[8]

Table 2.2. The Contribution of the Private Sector in Higher Education (mid 1980s)

(1)	(2)	(3)	(4)
Region	Enrolled in Private Sector (%)	Fees in public Institutions as % of total	Private sector as % of total HE Revenues 1985Expenditure
Africa	< 5	1.7	< 5
Asia	28.6	9.4	31
Middle East North Africa	3.3	1.7	--
Latin America	33.6	5.8	21
Industrialized Countries	17.0	10	--

Sources: Column 2, Tan and Mingat 1989; Columns 3 calculated in Chapter 3; Column 4 Psacharopoulos, Tan, Jimenez 1986; Levy 1986; Tan and Mingat 1989.

In Latin America student enrollments grew by 370 per cent between 1975 and 1985, while real public expenditure growth was only 210 per cent, representing a decline in public expenditure per student of 37 per cent. The private sector has expanded to relieve some of the burden on the government. But while most private institutions recover the full cost of instruction from tuition fees, public institutions recover little from students, and suffer more heavily from enrollment expansions and public resource decline. Thus, even where the

[8] The aggregate declines in per student resources could reflect the adoption of low cost "distance" schools or other low cost non-university institutions. Such institutions have represented a significant proportion of enrollments, however, in only a few Asian countries.

private sector has assumed some of the burden for paying for higher education, expenditures per student are still dropping more quickly than they are being offset by additional income.[9]

Institutional Reactions

Given the rapid decline in unit resources for higher education, how have institutions responded? If quality were to be maintained, three types of reaction might be expected. First, institutions could increase revenues from non-government sources such as students or contract income to make up for declining government income. Second, institutions could try to cut back on their activities (i.e. teach fewer students or close inefficient programs since they had less resources). Third, universities might improve their efficiency by increasing student teacher ratios and student administrative staff ratios, improving facility utilization and reducing expenditures on areas such as student welfare.

A few higher education systems have responded by increasing non-government resources via student fees. As Table 2.2 suggests, however, these institutions have been the minority; while, as will be shown, more institutions are doing so, this is not to an extent necessary to make up for past revenue falls.

The second option of scaling back on activities has for the most part not been pursued. Enrollment expansion has steadily continued throughout the 1980's with the exception of a few of the poorest countries in Africa (Saint 1992). Some higher education systems in Asia and Latin America, have curtailed enrollment growth in public institutions and pushed additional students into private institutions during the 1980's. Such options were pursued in Chile, Brazil and Indonesia, but these were exceptions.

Finally, institutions might have simply chosen to use their resources more efficiently by expanding student teacher ratios or reducing expenditures on student welfare. In Chapter 3, we will demonstrate that student welfare costs continue to represent large expenditures in many university systems. Table 2.3 examines student teacher ratios over time. It reveals that for the most part, they have remained fairly constant, despite the rapid increase in enrollments. Thus, despite growing student numbers and declining resources institutions evidently have been hiring more teachers. In many countries, student teacher ratios even decreased during the 1980s. How may this behavior be explained?

Increasing the number of teaching staff has been a logical reaction on the part of the universities to the pressures of increasing student enrollment and falling public subventions, given the presence of government imposed constraints of their freedom to respond in other

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[9] In many instances, statistics about the contribution of the private sector to offset revenue shortfalls can be misleading. One can point to increases in the relative role of private finance, but often these are not the result of changes in fee policies or relative private expansion, but due to the relative fall in the government's expenditure.

ways. In many university systems there has been a substitution of teaching staff for other university inputs, as falling real salaries of university teachers (in common with other civil servants) have progressively made teachers relatively cheaper in relation to other university inputs. But constant student teacher ratios may mask falls in quality of educational provision, as much of the expansion in teacher numbers has been in the form of additional junior, inexperienced staff. This process has been buttressed by multi-job holding of senior staff in response to low, and falling, real salaries.

Table 2.3. Higher Education Student Teacher Ratios By Income Level and World Region

	1975	1980	1988
INCOME LEVEL			
Lower	10.5	11.8	13.2
Lower Middle	15.4	15.3	16.1
Upper Middle	13.2	11.8	12.0
High	12.6	12.8	14.1
REGION			
Africa	11.0	12.1	13.6
Latin America	13.9	14.8	13.1
Middle East	16.3	13.4	14.7
Asia	12.4	15.0	15.4

Source: Statistical Appendix

The steepest declines in university expenditures have been for library books, laboratory equipment and maintenance of physical facilities. Saint (1992) illustrates the consequences for Africa. Whereas in 1984, African universities spent 8.5 percent of their budgets on research, books and library acquisitions, by 1990 this figure had fallen to three percent. Similarly, the number of library books per student fell from 49 in 1979 to only 7 in 1988, reflecting the diminishing capacity of institutions to provide learning resources and, probably, quality declines.

The Policy Environment

Besides the constraints on public expenditures in the wake of adjustment and the poor economic performance in the 1980's, why has there been such a rapid decline in resources per student in higher education and why have institutions not taken steps to counteract thse declines? The simple answer is that most higher education institutions are

required to operate in a policy environment that does not allow them the freedom to reconcile enrollments (and other activities) with their resources, nor does it permit them (much less encourage them) to make efficiency improvements.

Although much is made of the virtues of university autonomy and academic freedom, it is generally the case that universities must function within an environment that is very much subject to government regulation and control. These restrictions not only influence the incentive structure and institutional behavior of universities but also, as we argue, influence the efficacy of more general reforms of higher education. The rest of this section therefore examines in more detail the framework that has inhibited effective functioning of many university systems, stressing the need to consider these impediments along with more general reforms.

Admissions Policies

Perhaps the most destabilizing form of government intervention is the imposition of admissions requirements on higher education institutions, leading to larger enrollments than universities would freely choose. Admissions controls take several forms. At one extreme, all students who pass their secondary school exams are able to gain places in universities. This "automatic" admission policy is common throughout francophone countries utilizing a baccalaureate exam as an entitlement to university entry. A somewhat different form of control, but which achieves similar disturbances, is that of government set enrollment targets that institutions must satisfy. These targets are often negotiated at the time of budgeting, as in Latin America, or simply set out in development plans by governments. These targets do not constitute a problem for universities so long as resources are available to match enrollment plans, but in practice funding is often not commensurate. A third form of enrollment control is government specification of the fields in which students must be accepted. Governments may require institutions to accept many students in areas perceived to be central to economic development, such as engineering and scientific fields. Since these fields tend to be the more costly ones, universities have an additional burden imposed on them.

Governments impose restrictions on the freedom of institutions to formulate their own admissions policy, for both political and economic reasons; but in the end neither of these objectives may be satisfied. First, imposed admission policies often imply a rapid erosion of funding, since institutions are not allowed to charge tuition fees, and government resources usually do not keep pace with expansion. Institutional resources are quickly diverted away from instructional and research purposes and directed towards accommodating students wherever possible. Second, relatively automatic admissions policies imply a falling standard of entering students which may create new financial burdens for institutions, such as requiring them to provide remedial courses. In general, improvements in the incentives for institutions to be more efficient can have little effect if fundamental problems created by access policies are not addressed. Finally, rapid expansion of

enrollments has often been justified by the need for more higher level manpower. But in many countries, labor market data suggest that the need is not so much for more, but better trained, higher level manpower.

Box 2.1. Algeria and Argentina: The Consequences of Weak Policy Environment

In Algeria, institutions must accept all students who pass the baccalaureate exam. Negotiated budgets, strongly influenced by the political standing and influence of the university rector, have fallen well behind enrollment growth. Between 1981 and 1987, enrollments nearly doubled while real budgets grew by only 13 percent. On a per student basis, real resources in 1987 were only 53 percent of those in 1981. At the same time, there has been no evidence of efficiency gains due to economies of scale or elimination of past waste (Sack 1991).

A more serious situation exists in Argentina. Between 1975 and 1985, enrollment growth in Argentina's universities averaged nine percent per year, while real budgets fell on average by 11 percent. In 1985, public expenditure per student was 22 percent of its 1975 level. In what were once considered some of the best universities in Latin America, quality is reported to have deteriorated significantly. In both cases, economic deterioration combined with policy weakness (automatic admissions policies and the absence of tuition) has allowed for rapid declines in institutional income, quality and efficiency.

Finance Restrictions

Many governments place limits on the mobilization of private resources for higher education. Such limits may be imposed by restrictions on the private provision of education (via full-cost fee charging institutions). Again, many public higher education institutions are not permitted to seek outside sources of income, particularly through student fees or from contract activities with private enterprises. Free tuition, or token fees, is the norm in most developing countries, although during the last decade this has begun to change. We discuss the currently limited role of tuition in Chapter 3.

The problem is more general, however, than the government setting tuition levels. Governments often penalize institutions for seeking to mobilize additional resources through a variety of activities. Non tuition fees (such as library or laboratory fees), income generation from contracts, or revenue generated from the commercial use of assets are often deducted from the government budgetary allocation. In countries such as Japan, Pakistan, Canada or Morocco, when institutions receive external funding, it usually translates into reductions in their public budgets.

We shall argue that one of the most important ways to encourage reform initiatives by institutions is to allow them to generate revenues for themselves from the activities in which they engage. Too often, governments stifle such initiatives at revenue diversification.

Governments have justified tuition restrictions on both economic and political grounds. Subsidized higher education began in order to provide sufficient manpower for industrialization. Low tuition was seen as a necessary means to expand enrollments. On the other hand, free higher education also satisfied a political agenda to guarantee access for as many people as possible. However, many studies have shown that free tuition is a poor (and extremely costly) path to equity, since children of wealthier parents are far more likely to benefit from the subsidies than are poorer ones. Another rationalization offered for restrictions on income generation is the preservation of horizontal equity among institutions. Japan, for instance, reapportions all revenues generated by individual institutions. Thus, in practice, institutions generate revenue for all other institutions. Such a policy, however, may stifle initiatives at individual universities, and lead to overall underfunding and detachment of institutions from their local environment.

Internal Allocations

A third category of government restriction relates to limitations on the freedom of institutions to use their resources as they see fit. At one extreme, some systems are very liberal in this regard; institutions receive block grants which they can spend as they wish.[10] At the other extreme, each expenditure item must be approved, all staff members are considered civil servants, and fixed staffing arrangements and patterns are delineated by the government. Such restrictions are usually justified as a means of ensuring accountability; for instance, prescribed staffing patterns are supposed to ensure quality control.

These restrictions have two important, but harmful, consequences. First, institutions are prevented from seeking greater efficiency, since they cannot redeploy their resources to achieve efficiency gains. While having to maintain staffing ratios, institutions then may lack money to update their libraries. Second, institutions become extremely slow to respond to changing external demands, since government approval must be sought to redeploy resources from one program to another. As external environments change, particularly with a new emphasis on private industrial development in many countries, institutions need both the freedom as well as incentives to respond and adapt.

[10] In several countries, India for instance, while universities receive what are referred to as "block grants", universities are not free to deploy most of these resources.

Government Restrictions in Practice

A central argument of this book is that reform must begin by loosening the financial restriction placed on institutions, to give them freedom to operate and to take initiatives that will be rewarded on the basis of economic relevance to the environment. The state will need to step back from tightly controlling the behavior of institutions if those institutions are to function properly. Such freedom will need to be combined with new mechanisms for ensuring accountability of institutions.

To emphasize the need for new autonomy accountability relationships, Table 2.4 illustrates the extent of the problem of government control over higher education systems in 26 countries. Rough approximations of the degree of control (high, medium or low) are given on the basis of criteria listed in the explanatory note. Each of the classifications admittedly masks complexities inherent in each system. The systems are arranged in descending order of the extent of government control.

Several important patterns emerge from the table. First, and perhaps most importantly, developing country higher education systems tend to be more severely restricted in these areas than those of industrialized countries, particularly with regard to enrollment decision making. The sample here is biased since developing country systems are deliberately under-represented. This is done to highlight certain differences between developing and industrialized country higher education systems. The number of highly restricted higher education systems would significantly increase with the addition of more developing countries to the list. Second, lower financial dependency correlates with lower control over enrollments and internal allocation of resources (although the converse is less true); therefore, financial diversification may be an important measure to promote institutional autonomy. An essential argument that we wish to maintain is that higher education reform cannot be sustainable unless the broad policy environment and restrictions on institutions are addressed.

Table 2.4. Degree of Government Control in Higher Education Systems

COUNTRY	ADMISSIONS government control over institutional enrollments	FINANCE institutional dependence on government	INTERNAL ALLOCATIONS government control over internal budgeting for finance
Algeria	High	High	High
Morocco	High	High	High
Argentina	High	High	Medium
France	High	High	Medium
Honduras	High	High	Medium
Kenya	Medium	High	High
Sudan	Medium	High	High
Sweden	Medium	High	High
Netherlands	High	High	Low
Brazil	Medium	High	Medium
China	Medium	High	Medium
Denmark	Medium	High	Medium
Finland	Medium	High	Medium
India	Medium	Medium	High
Nigeria	Medium	High	Medium
Norway	Medium	High	Medium
Philippines	Medium	Medium	Medium
Indonesia *	Medium	Medium	Medium
Israel	Medium	Low	Medium
Japan	Medium	Low	Medium
Vietnam *	Medium	Low	Medium
Chile *	Medium	Low	Low
Ontario, Canada	Low	Medium	Low
South Africa	Medium	Low	Low
UK *	Low	Medium	Low
Japan (private)	Low	Low	Low

* Countries that have initiated reforms to increase autonomy in last decade.

Definitional Notes:

Admissions High degree of government control implies that the government has established an automatic admissions policy, obliging institutions to accept all applicants with minimum qualifications. Medium control implies numbers are set by government, but actual selection is done by institutions. Low control implies that institutions can set numbers and select applicants.

Finance: High degree of government control implies that institutions depend on public funds for over 90 percent of their operating budget. Medium control implies some diversification of funding, such as moderate cost recovery. Low control implies that governments provide less than 70 percent of institutional funding.

Internal Allocations: High degree of government control implies that government approval is required for staffing and non-staffing expenditures. Medium control implies that institutions have some discretion -- e.g. over non staffing expenditures. Low control implies that institutions have full internal budgeting autonomy.

Autonomy vs. Accountability

Given the problems that institutions face, why are restrictions still in place? University autonomy is widely regarded as a necessary ingredient for success. Autonomy applies not only to freedom of expression, but control over admissions and hiring polices, deployment of resources, decisions on types of activities to undertake. But governments are increasingly unwilling to give a blank check to universities to do as they wish. The traditional view that higher education institutions need not justify their activities to government or society at large developed at a time when very limited portions of public budgets were spent on these institutions. With the increasing demands of institutions, that position is no longer tenable. Universities may not be relied upon to persue policies that accord with societal priorities. Autonomy is both a privilege and a responsibility given to academic communities. Any institution using public funds has an obligation to show how those funds are used. The issue is not one of avoiding corruption. Rather, it is the clear enunciation of academic, research and other goals, and an accounting of how and under what conditions and costs such goals have been met. Therefore, governments need to establish a counterbalance to the vocal strengths and analytical skills of the higher education interest groups, to review and evaluate the performance of an institution it is funding.

By simply loosening the restrictions on institutions, however, governments could lose their ability to ensure that resources were being used effectively. So while the adoption of a proper policy environment for higher education systems is essential, so too is a means for funding institutions so as to preserve accountability. Through changes in sources of funding, and funding mechanisms and criteria, governments have explored various avenues that allow institutions to have autonomy over all decision making, but yet ensure accountability over the use of public funds.

Conclusions

The financial pressures facing many developing country higher education systems are severe, and it is unlikely that they can be resolved through increases in public funding. Given funding pressures, it makes sense for institutions to begin to look for solutions in terms of non-government funding. The next three chapters, therefore, will look at the role of up-front student fees, delayed fees, and revenue diversification through the provision of service. We conclude that these strategies will have important positive impacts on reform, but are likely to be only limited solutions since the majority of funding for many institutions and the higher education system as a whole, will still come from government. In Chapter 6, therefore, we turn to the mechanisms of public resource allocation to institutions, to examine how changes in the criteria of delivering funding may alter the efficiency and responsiveness of institutions.

Chapter 3
Mobilizing Student Resources: Cost Recovery

To redress the declining relative resource base for higher education, many institutions and systems as a whole, must draw on new funding sources. Greater cost recovery (for instruction and/or lodging and meals) will be essential to resolve financial problems and to ensure that resources are proportional to student numbers. It will also encourage efficiency in the use of resources as providers become accountable to students. Finally, in a market oriented economy, tuition income will give institutions important signals about employment demand. The focus of this chapter will be on increasing the mobilization of private resources from students at public institutions, although promoting fully private institutions will be discussed tangentially.

Currently, tuition represents as little as one to two percent of recurrent university expenditures in Africa and the Middle East compared with six percent in Latin America, eight percent in Asia and ten percent in industrialized countries. Some countries have pushed particularly far with cost recovery as a means to generate income for higher education. Student fees in public universities are as high as 25 percent of recurrent expenditures in Korea, Indonesia and Chile, where fees represent an estimated 60 percent of instructional costs. In many African countries, government spending on living grants, subsidized housing and meals, and student welfare services has increased faster than expenditures on instruction and research. In Senegal, we have noted, nearly half of higher education funds go towards non-educational expenditures, such as student welfare. Charging students for these services would free up considerable funds for expenditures to improve quality.

The positive financial gains of increased cost recovery, however, need to be examined alongside potentially adverse equity impacts. One of the crucial considerations with regard to cost recovery is whether the more vulnerable groups will be denied access. Rationing higher education place according to "ability to pay" would be undesirable for educational, social and political reasons. Cost recovery would increase equity in a negative sense (removing subsidies for the less needy), but without compensating measures, it would not promote access for talented students with limited resources.

Greater cost recovery will, on the margin, discourage some individuals who would otherwise have attended. However, it must be stressed that in most higher education systems, the poor are denied access, not because of user charges but because of poor access to earlier education opportunities, social attitudes to further education, and the overall private costs of higher education. Among those who do attend higher education, greater user charges will not exclude many. The key question for policy makers is to what extent the most vulnerable groups will be affected, and how governments can respond to help them. The appropriate response is to combine cost recovery with carefully targeted student support programs in the form of grants, loans and work-study.

This chapter examines the current experience with student financing of higher education. It evaluates the potential for increasing cost recovery alongside financial aid policies that could be combined with fee increases to protect vulnerable groups. (The next chapter will focus on the potential for student loans in particular as a cost recovery instrument, while Chapter 7 discusses work-study programs). The discussion is laid out as follows. The next section will examine current fee levels for instructional and living costs in across countries. The relation between tuition fees and total private costs for higher education will be examined. The third section will examine the equity of higher education participation, and the likely impact of greater cost recovery on vulnerable groups. A fourth section will examine financial aid policies, and the role of parents, students, the state, and private donors in financing a student's private costs. Finally, a section on strategies to overcome the political obstacles to fee increases will conclude the chapter.

Current Trends in Fees for Instruction and Living Costs

Cost Recovery Definitions

We have argued that greater cost recovery through raising tuition fees is a central element of policy reform. But how extensive is fee charging at present and how high are fees in relation to higher education costs?

Table 3.1 is relevant to both of these issues. It summarizes the most recent data available on fees levied for public higher education from 44, mostly developing, countries. In over half of these countries, zero or purely nominal fees are charged. The table also offers details on the fees in relation to costs per student in these countries: at the other extreme, the highest student contributions to operating costs are in Chile (26 percent), Indonesia (25 percent) and South Korea (24 percent). These figures must, however, be approached with caution because of the variety of definitions currently in vogue of higher education costs and, in consequence, of the cost-recovery ratio. Thus before considering these figures further, some clarification of university costs definitions is in order.

The problem arises because universities are essentially multi- product institutions. They provide both instruction and research and services to the community; they may also provide student services in the form of lodgings, meals and transport. In a cost-recovery measure, the numerator may relate to tuition fees, student maintenance charges, or both. Similarly, the numerator may relate just to instructional costs or more broadly to university institutional costs (including research); institutional costs may also include university expenditures on student living costs.

Table 3.1. Fees for Public Higher Education as a Percentage of Unit Operating Expenditure* (Selected Countries)

Country	Percent	Year
Algeria	No fees	1990
Argentina	No fees	1987
Benin	No fees	1991
Brazil	No fees	1989
Ghana	No fees	1990
Guinea	No fees	1990
Madagascar	No fees	1990
Malawi	No fees	1990
Morocco	No fees	1990
Niger	No fees	1991
Nigeria	No fees	1989
Papua New Guinea	No fees	mid 1980s
Senegal	No fees	1990
Sudan	No fees	1987
Uganda	No fees	1991
UK	No fees	1990
Venezuela	No fees	1990
Bangladesh	No fees	mid 1980s
China	No fees	mid 1980s
Bolivia	1	1980
France	1	1990
Ecuador	2	1980
Honduras	3	1990
Sri Lanka	3	mid 1980s
Egypt	4	1990
Pakistan	4	1990
Colombia	5	1988
India	5	mid 1980s
Thailand	5	mid 1980s
Uruguay	5	1980
Malaysia	6	mid 1980s
Costa Rica	8	1980
China	9	1991
Japan	9	1987
Guatemala	10	1980
Nepal	10	mid 1980s
Kenya	12	1991
Philippines	15	mid 1980s
USA	15	1985
Israel	20	1991
Spain	20	1988
South Korea	23	mid 1980s
Indonesia	25	1989
Chile	26	1991

* Expenditures excludes any expenditures on student housing.
Sources: Psacharopoulos et al 1986; Tan and Mingat 1989; Bellew and DeStephano 1991; OECD 1989; Brunner 1990; World Bank Data; Jimenez 1987.

The problem is highlighted by a recent international comparison of higher education user charges in developing countries (Jimenez 1987). In that study user charges are viewed from the perspective of the government: given the total amount that a government spends for higher education (regardless of what this expenditure is for), how much does it get back? Jimenez (as other, earlier, studies) computes the cost recovery ratio as the relation between total user charges and total government expenditures for higher education. This ratio does not separate out the different uses to which these government funds are put -- whether for institutional funding or student maintenance funding.

Such a cost recovery ratio as presented by Jimenez and others can be quite misleading since student private expenditures on housing and meals are counted as cost recovery if the housing and meal services are publicly provided, but are not considered as cost recovery if they are privately maintained. Thus, where students meet these expenses by paying for private facilities, student payment is not considered as cost recovery. While this is a formally correct definition of cost recovery, the following problem arises. Nigeria is cited as recovering 12 percent of costs, while Colombia only 3.4 percent. (Jimenez 1987). In Nigerian universities, instruction is free, but students partially contribute to the costs of their lodging. In Colombia, students pay the full cost of their housing (in private housing markets) plus small amounts (three percent) to institutional costs. Thus while the statistics would lead one to believe that students in Nigeria are contributing more to educational costs than in Colombia, the reverse is in fact the case.

The fundamental issue is where the boundaries defining (public) universities is to be drawn? Does the university stop at the classroom and laboratory walls, as in most countries, or do the bounds extend to include dormitories, restaurants and bookstores as in many African systems. A recent survey of the sources of revenue in 15 African universities showed that fees averaged 9.6 percent of total recurrent expenditures (Blair 1991). The author correctly noted that virtually all the universities surveyed provide students with lodging and meals; fees do not provide income to support instructional costs. In discussing fees and cost recovery, it is important to define carefully the types of costs that are being compared.

What constitutes an appropriate definition of cost recovery will depend on the issue under scrutiny. Our immediate concern is assess the share of university institutional recurrent costs (not student maintenance costs) borne by the student dequacy of funds for higher education institutions; subsequently we shall discuss the burden of student maintenance expenditures.

Fees in Relation to Institutional and Instructional Costs

Leaving aside student maintenance costs for the moment, we consider the share of institutional costs borne by students. The appropriate cost recovery ratio should relate student fee tuition payments to the costs of instruction. Since institutions conduct a variety

of activities (frequently grouped into instruction, research and service), it would be necessary to deduct non teaching related expenditures from total expenditures to obtain a measure of instructional costs. Such data are seldom available. Difficulties in data provision stem not only from the lack an appropriate statistics gathering mechanism, particularly in developing countries; they also persist because of the intrinsic problem of separating research from instructional costs (as well as estimating teaching costs by level of degree course), in situations of joint production of these outputs. The usually adopted alternative is to examine fees in relation to total recurrent costs (which includes research and service expenditures); Table 3.1 provides information of this type for public sector institutions.

Such information indicates the contribution of one client (the student) to total institutional costs: it thus tells us something about the adequacy of funds for higher education institutions. However, if interpreted as cost recovery ratios, such data can be both misleading and dangerous. They are misleading because they relate student fee payments to a sum that includes expenditures (such as on research) from which the student derives no direct benefit (or at least, no more than does the rest of the population). They can be dangerous because they may be misinterpreted as implying a far lower level of cost recovery from students, for teaching services rendered, than is in fact the case.

Is it possible to work with such ratios of tuition fees in relation to total recurrent costs, and to apply a general correction factor to the denominator to take account of non teaching (mainly research) costs? In many industrialized countries, it is broadly assumed that between 40 and 50 percent of university expenditures go towards non-instructional costs. Applying this assumption to the data provided in Table 3.1 would suggest a doubling of the cost recovery ratios shown, as a measure of fees in relation to instructional costs. However, such a general correction may be inappropriate, particularly in developing countries, because of large variations in institutional activities. While most developing country universities conduct little research, others tend to give more emphasis to research and community service. In Indonesia, for example, less than two percent of expenditures are for research; similarly, virtually no university in Africa spends more than five percent of its budget on research (Saint 1992). In these cases, the ratios shown in Table 3.1 can be used, unadjusted, as a measure of student cost recovery. On the other hand, Scheifelbein (1990) estimates that tuition represents as much as 60 percent of instructional costs in Chile, because of the high proportion of spending devoted to research and service in the universities (i.e. about 55 percent of the total budget); in this case, the appropriate student cost ratio would be (at least) double the ratio shown for Chile in the table.

With these caveats in mind, we turn to Figure 3.1 which summarizes, on the basis of region, the data provided in Table 3.1. Tuition is insignificant in Sub-Saharan Africa and the Middle East (about one percent of unit costs). In Latin America, tuition is around five per cent, while in Asia tuition averages nine percent of total unit costs. In the industrialized countries sampled, tuition averaged 10 percent.

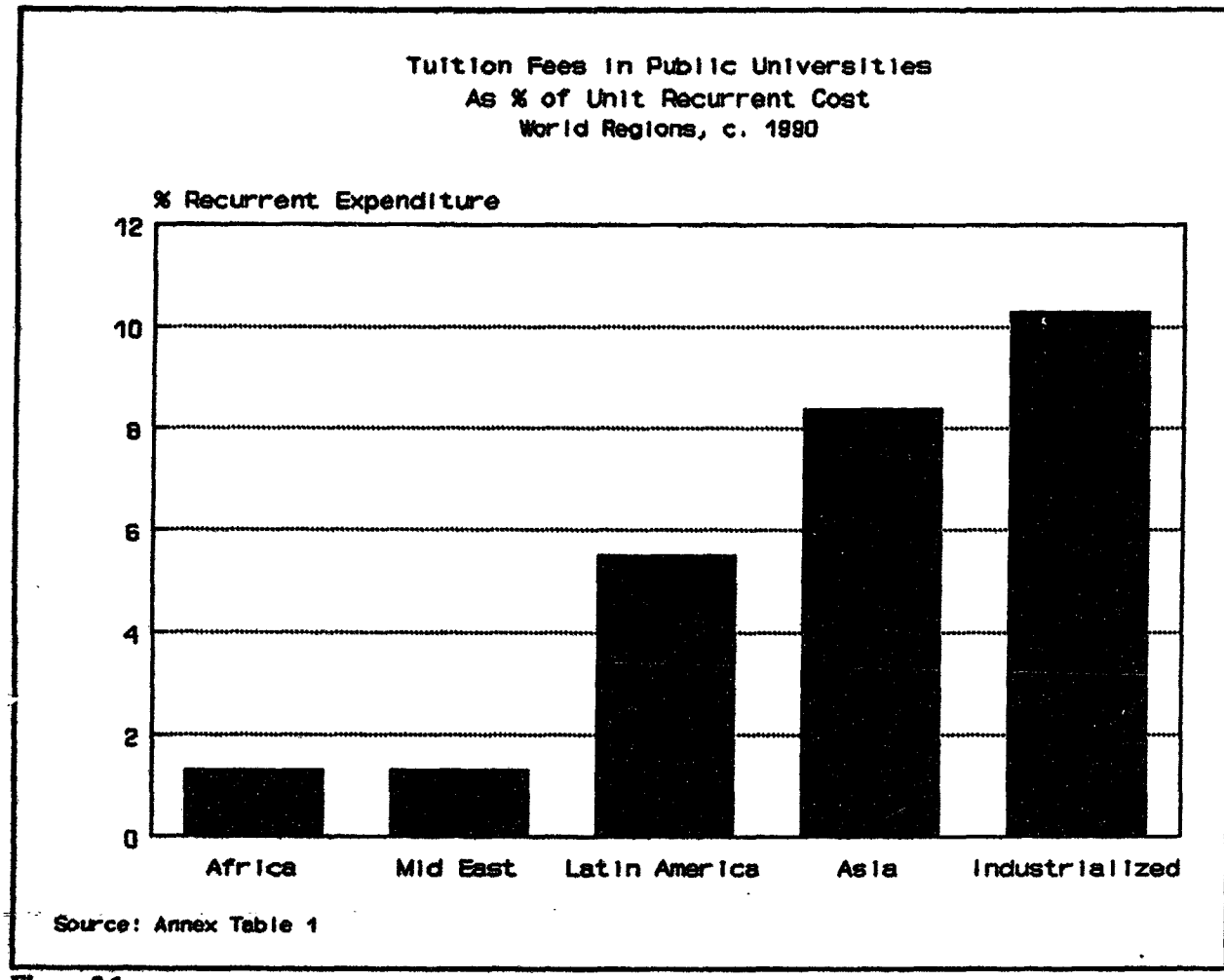

Figure 3.1

Student Maintenance Expenditures

The costs to a student attending university go well beyond tuition fees. Maintenance costs associated with higher education include meals, housing, clothes, transportation to and from universities and textbooks. When students have to pay costs of living, these expenditures constitute the bulk of cash payments. Table 3.2 lists direct private costs (expenditures borne by the student or his family) for nine public higher education systems. In each case tuition fees constitute only a small proportion of total private expenditures and considerably less than housing and meals costs.

In this sample, total financial requirements for a student range from US$ 772 in Indonesia to $6,000 for Grandes Ecoles in France. The private costs at public institutions in industrialized countries typically range between $3,000 and $5,000 per year (Johnstone

1986). How heavy a burden do these expenditures represent? We examine this in a general way by comparing these private expenditures with per capita GNP in these countries.

Table 3.2. Direct Private Expenditures for Higher Education Selected Countries

Expenditure	Kenya	Indonesia	Honduras*	Colombia	Costa Rica	UK	France**	Ontario	US***
Tuition and Other Fees	$200	$76	$17	$82	$164	$0	na	$1,186	$1,894
Rent and Food	$1,071	$373	$2,850	$2,210	$1,778	$2,295	na	$2,927	$3,039
Transport	na	$113	na	na	na		na	$502	$442
Other (Books and Supplies	$393	$211	na	$102	na	$582	na	$447	$1,488
Total	$1,664	$772	$2,867	$2,394	$1,942	$3,070	$6,048	$5,061	$6,671
GNP/Capita (1988)	$370	$440	$850	$1,180	$1,780	$12,610	$16,090	$16,860	$19,840
Total Cost as % GNP per capita	450%	175%	337%	20	110%	24%	38%	30%	34%

Sources: Stager 1989; World Bank Survey 1986; Eisemon 1991a; Posada 1986; Johnstone 1986; Department of Education and Science (UK) 1988; Carlson 1992.

Notes:
- * Honduras figures are a maximum expenditure.
- ** France is total cost for Grandes Ecoles which is significantly more expensive than undergraduate universities.
- *** US figures for residents at public four year universities.

For countries, as in the table, where students pay part of the costs of attending higher education, the financing burden falling on the student (as indicated by the ratio of private expenditures in relation to GNP per capita) is very much higher in developing than in industrialized countries. While students in the United States, Canada, France or UK confront private costs equal to about one-third of per capita income, in Indonesia and Colombia the need is about twice per capita GNP. In Honduras it is over three times and in Kenya more than four times per capita GNP. From the viewpoint of a student in a developing country, the relative cost of living is much higher than it is in an industrialized country. The key problem for a student becomes how to raise the money to meet what can be substantial total costs. Forgoing income, therefore, becomes a more serious problem, and thus one of the most important determinants of access.

Carlson (1992) confirms the importance of non-tuition costs. He compares non-tuition student expenses with unit costs for higher education for 11 Latin American

countries. Only in Brazil are non-tuition expenses lower (46 percent) than unit costs in public institutions.[11] In Guatemala, non-tuition expenditures represent 415 percent of unit costs. The median figure for Latin America was 133 percent. The implications of such findings are that even if tuition fees were increased to 50 percent of unit costs, the largest financial obstacle to attending higher education would still be other costs.

Why are these expenses so high, and why are they proportionately higher in developing countries? In general, housing and food, basic living necessities, constitute a much larger percentage of income in developing countries than in the industrialized world. Food prices tend to be relatively consistent world wide. In many university areas, housing can be in short supply, therefore driving up prices. In addition to living costs, study materials often require foreign exchange for their purchase. Access to the most recent materials will therefore require considerable expenditure for an individual.

Not all students, however, face the same costs. Many studei ıose parents or relatives live nearby universities can live at home, and reduce the nec ary cash outlays. Policies aimed at encouraging students to seek lower cost living situations would help reorient public investments into education rather than welfare services. In contrast, where students are accustomed to receiving living grants, they may be encouraged to live on a university campus, even if they had the option to live at home.

This pattern, where students have to find and pay for their own accommodations, is common in most East Asia and Latin America. Governments neither provide, nor finance living costs, except in a minority of instances. While these charges represent high costs for those students that must meet their own living expenses, many students in developing countries do not face such high costs because the government intervenes with strong support mechanisms. Broadly speaking, there are two patterns of government support for living expenses. The government may provide student support in-kind, with food and lodging given free, or at highly subsidized rates; alternatively, the government may provide cash grants for living expenses.

Government provision often leads to extremely inefficient practices, and absorbs high proportions of higher education budgets. This is typical of anglophone higher education systems in Africa and in China. In francophone Africa, some students receive highly subsidized housing and meals, while others do not. In Latin America, such practices are limited to partially subsidized restaurants. To illustrate the cost to the government of providing housing and meal services, Table 3.3 examines the fees and the costs of providing meal and housing services at several universities. Recovery can be quite minimal. In Senegal, lodging fees represent seven percent of housing costs, and the price of a meal is eight percent of its cost. This practice seems to be typical of francophone university systems. In many of the anglophone countries, fees for housing and meals are well below the costs

[11] Brazilian universities have unit costs as high as US$ 8,000.

of providing those services. In addition, even when the universities charge fees for these services, the majority of students receive government support to meet these costs.

Table 3.3. Accommodation and Catering Fees vs. Economic Costs Services Selected African Universities 1991

Institution	Fee as % of Estimates Economic Cost of Services	% of Students Receiving State Support for Housing And Meal Costs
University of Botswana	50	83
Ibadan University	29	3
Makerere University	57	95
Malawi	0	na
Copperbelt University	17	85
University of Dakar	7	na
Kenyatta	77	100
Zimbabwe	68	95

Source: Blair 1991; Senegal from World Bank Data.
n.a. (not available)

When public universities provide lodging and meals to students at public expense the financial consequences can be severe. In anglophone Africa, university access is often determined not by teaching capacity, university financial resources, or labor market demands, but on the basis of housing slots. Because of financial shortages, many universities have been unable to invest in new construction. In order to expand, crowding occurs.

Besides crowding, services are often poor because there are no incentives for efficiency. In francophone Africa, most universities have an internal "cite universitaire" where restaurants and housing are provided for students. Quality is often poor, despite high costs, almost $6 per meal in Senegal (higher than in the US). In the absence of competition for the provision of services, there is no accountability. The same results occur with student housing. In Senegal, students are charged about $9 per month in rent, although similar private facilities charge $125 per month. Subsidies spent on maintaining poor restaurants

and housing would function better in the hands of the students since they would be able to chose where to purchase their meals and housing.

Provision of housing also encourages people to live at government expense when they might have lived with their parents or relatives nearby. In Nairobi, Kenya, many students with family in the city were reported to live at the university. Newly implemented fees, however, should discourage this practice. In other institutions, deteriorating quality at university housing has caused students to live on-campus only as a last resort.

Rather than providing living support in-kind (free lodging), some countries provide students with the monetary equivalent of the services. This type of intervention requires students to pay for their living costs, either in university provided or private facilities, but almost universally grants support to pay for these. Several anglophone systems have moved in this direction (although they provide subsidized loans instead of grants). Due to financial pressures, many Anglophone African governments have shifted away from free room and board services, to partial or full cost recovery for maintenance (with students being offered subsidized loans). Such changes have recently been enacted in Ghana, Malawi, Kenya and Nigeria.

Overall, government commitments to funding student living expenses have represented a significant share of higher education budgets, often at the expense of institutional budgets. The problem tends to be most severe in the university systems with the most pressing financial needs. While living allowances only represent 6.5 percent of recurrent expenditure in Asia, and 13.7 percent in industrialized countries, student support represents around 20 percent of spending in the Middle East and Latin America (Table 3.4). In the mid 1980s, allowances in East Africa for non-tuition expenses, constituted 35.2 percent of the total expenditure and an alarming 65.6 percent in Western Africa. Allowances are as high as 62 percent of the average public sector salary in Burkina Faso. In-kind allowances, such as free housing or meals, can represent much more in many countries.

A more recent survey conducted in Africa reveals that, on average, scholarships account for 37 percent of higher education spending in Africa, but 47 percent in the lowest income countries (World Bank 1988). In recent years, these figures have declined somewhat.

Table 3.4 Share of Living Allowances to students in Recurrent Higher Education Budget c. 1980

Region	%
East Africa	35.2
West Africa	65.6
Asia	6.5
Latin America and Caribbean	17.4
Middle East and North Africa	19.1
OECD	13.7

Reproduced from Psacharopoulos, Tan, Jimenez 1986.

Fees and Private Costs

The private costs confronting a student consist of both direct (cash) and indirect (foregone income) expenditures. Direct expenditures mostly include tuition and other fees, lodging and meal expenses, transport costs, and purchase of books. The total economic cost of higher education for the individual would add in the foregone earnings (while subtracting the living expenditures the individual would have otherwise made).[12] It has been a relatively common notion that tuition costs are the primary determinant of access. It is important here to put tuition in the context of the total costs confronting an individual.

Table 3.5 lists the relationship between fees and two types of private costs: direct private expenditures and total private economic costs, for seven countries that charge fees, and for which data was available. Direct private expenditure is the sum of tuition and other fees, housing, meals, transport and books. Total economic costs is the direct private expenditure, plus foregone earnings, less the expenditures for housing and meals that would

[12] Technically, the net economic cost implies that one should include only the incremental living costs incurred by the student (i.e. those s/he would not have otherwise incurred). The incremental costs have been particularly difficult to estimate for living costs, since in some cases the individual would live at home, if working. Some students also live at home while studying, others chose to live in dormitories, preferring 'student culture'. Our practice in this work, where possible, has been to net out meal and housing costs, while maintaining transportation and student supplies.

have otherwise been incurred. The figures are averages for all institutions, and therefore do not illustrate the range of fees. In some instances, however, (Colombia and Kenya) separate data was available for both public and private institutions.

Table 3.5. Fees as Percent of Student Private Expenditure Selected Countries

Country	Fees as % of total direct private expenditure	Fees as % of total net economic cost
Ontario, Canada	22	14
Colombia		
Public	4	2
Private	19	14
India	18	11
US	25	15
China	9	na
Kenya		
Public	11	7
Private	42	30
Indonesia		
Public	10	na
Private	20	na

Sources: Stager 1989; Tilak 1985; Leslie and Brinkman 1987; World Bank Data.

In most public higher education systems, fees represent a relatively small (if not completely absent) portion of overall private costs to an individual. In other countries, fees constitute between four percent (Colombia) and 25 percent (US) of out of pocket expenditures. Fees, therefore, are an important, but not the most significant direct expenditure for higher education. In all these instances, living expenditures and foregone earnings are much more likely to influence decision making.

Even for those students attending private institutions, financed principally out of tuition income, fees do not represent a majority of expenditures. In Kenya's private institutions[13], fees represent about 42 percent of total out of pocket spending, compared with 11 percent at the public institutions. Fees are proportionately lower in Indonesia's and Colombia's private institutions, representing about 20 percent of private cost. The lower relative fee in these countries reflects a more diverse private sector consisting of high and low cost institutions.

When total economic costs are included, fees become an even smaller part of the total private cost of higher education. With the exception of Kenya's few private institutions, fees in our sample represent less than 15 percent of total economic costs in all the sampled countries.

Experience shows that access to higher education by lower income groups or minorities is not improved by lower tuition fees. The data available suggests that living and opportunity costs are a much stronger determinant in decision making. In addition, prior selection for social reasons and poor access to educational opportunities at the basic level effectively exclude many. In the next section, we explore in more detail the relationship between fees and access. In general, those who are already able to attend could pay much more. Those students on the margin, however, and those who are already excluded from the system will be more likely to be excluded because of additional fees.

Equity, Capacity to Pay and Impact on Vulnerable Groups

Who Gains Access to Higher Education?

After former colonial countries achieved independence this century, there was a rapid move towards democratized access to education systems. Most countries established free education at all levels. But free education, particularly at the highest levels, usually leads to a regressive distribution of income (Salmi 1981). Between the 1960's and the present, most developing countries invested heavily in higher education in order to promote industrial development and broaden access. Democratized access, however, fueled by public subsidies, has not significantly improved the participation of low income groups.

During the early 1980's, several studies in developing countries examined which income groups benefited most from subsidies for higher education. Table 3.6 summarizes the findings of four such studies. In each case, those belonging to the highest income groups were overwhelmingly the beneficiaries of highly subsidized or free higher education. In Indonesia, for instance, before cost recovery was implemented in the early 1980's, the top

[13] Kenya's private universities are a small group of primarily religious institutions, for which most students must find some sponsorship, usually from communities or religious groups in order to attend.

30 percent income group benefited from 83 percent of higher education subsidies, while the bottom 40 percent received only 7 percent.

More recent evidence on the socio-economic status of students comes from Honduras, where the National Autonomous University of Honduras (UNAH) guarantees admissions to all students who complete secondary education. UNAH charges a token tuition fee of 90 Lempiras (US$ 17) each year, designed to serve the university's goal of providing access to low income students. To support this goal, the government of Honduras spends between three and six percent of its national budget on its open access university An automatic admission policy, however, has not promoted access among low income groups, principally because most low income individuals (particularly in rural areas) lack access to quality basic education. An internal survey revealed that in 1990 more than 66 percent of the public university's students came from families that had annual incomes of over US$ 2,500, while only six percent of students came from families with incomes below US$ 1,130.

Table 3.6. Share of Higher Education Subsidies Received by Different Income Groups (Percent)

	Income Groups		
Country	Lower	Middle	Upper
Chile	15	24	61
Colombia	6	35	60
Indonesia	7	10	83
Malaysia	10	38	51

Source: Psacharopoulos, et. al. 1986.

Note: The income groups are divided as follows (lower, middle, upper): Chile 30%, 30%, 40%; Colombia and Malaysia 40%, 40%, 20%; Indonesia 40%, 30%, 30%.

Other indicators confirm biased access in Honduras. Some 50 percent of the students have a principal financial supporter (i.e. parent) who has completed secondary school or attended some university level education; 22 percent have parents who attended university; 45 percent of students come from families with assets worth more than 40,000 Lempiras (US$ 7,550). Furthermore, 59 percent of all students entered the university from non-subsidized private secondary schools.

A telling sign that access has less to with tuition fees, and much more with prior selection and costs of living, is the place of residence of students. The university is located in the capital city of Tegucigalpa (although there is one small site in the other major city, San Pedro Sula). While only 13 percent of the population lives in the capital city, a 1990 survey revealed that 68 percent of students reside with their parents (and another 14 percent live with other relatives). In other words, although tuition is minimal, the majority of individuals who live outside the capital do not have access to the educational facilities, either because of failures earlier on in the education system, or because of the high cost of living. (The distinction between the wealth and place of residence should not be overly stressed since the urban population is considerably wealthier than the rural population.)

Recent data from the Philippines confirms this tendency towards skewed participation (Table 3.7). At the publicly funded university of the Philippines, the average salary of students' fathers was two and a half times that of the general population; 58 percent of students come from families that owned cars, and 77 percent of student's fathers were professionals. While the socio-economic status of students at private institutions was somewhat lower than public universities, they were still considerably above the population as a whole.

Table 3.7. SES Indicators, Manila Institutes of Higher Education, 1987.

	Father's mean month salary*	% Fathers finished college	% own car	% Fathers Professional or admin.	% fathers clerical, sales, service	% fathers in production
Public						
Univ. of Philippines	4,038	58	61	77	10	3
Other Public	2,378	18	9	22	36	20
Private						
Catholic	3,956	45	37	48	23	10
Protestant	3,925	35	22	35	20	16
Sec. Non Profit	1,594	17	12	17	35	21
For-Profit	2,924	31	23	34	28	13
AVERAGE	3,086	33	24	36	28	14

Source: Survey of Manila IHL's 1987.

* For comparison, the median monthly family income in the Philippines in 1987 was P 1,667. The median family income in Manila was substantially higher, but still not as high as father's mean salary in the public or private sector.

Most European governments offer free higher education as a way to expand access to working class individuals. After rapidly expanding capacity since the 1960s, without charge to students, many governments have re-examined the effectiveness of free tuition to achieve more equitable access. Several studies have looked for the occurrence of change in the social composition of student bodies over time. These studies (in Sweden, Germany and the UK) have found, consistently, that participation rates among working class individuals have not increased, and that subsidies, even for living expenses, are largely targeted to middle class students.

The Impact of Fee Rises

In considering the equity impact of fee rises, three groups are relevant: those who attend university without much financial difficulty, those who are barely able to finance their studies, and those talented individuals who are kept out of the system for financial and non-financial reasons. As we have seen, it is the first group that constitutes the largest part of higher education enrollments. While cost recovery would increase equity in a negative sense (removing subsidies for the less needy), it clearly would not promote access for talented students of scarce resources.

Increased cost recovery will, on the margin, discourage some individuals who would otherwise have attended. As noted, however, most higher education systems significantly favor the relatively well-off. Access tends to be skewed towards higher income groups, where children attend better primary and secondary schools and families can afford to have their children out of work for longer periods, and who can hire private tutors to help applicants perform well on entrance exams. Thus, while access is promoted through policies of low tuition, a large group of talented individuals often lacks de facto access to educational opportunities, while large subsidies accrue to groups that are well-off. Increases in cost recovery will make it harder for the less well off groups to have access, and for this reason, cost recovery should be combined with funding for student support and other means to attract disadvantaged students.

The question examined here, however, is to what extent tuition increases will discourage access. The likely response can be measured using the price elasticity of demand to determine how the overall demand for education changes as the price of education changes. Several empirical studies have examined elasticities in industrialized countries, particularly in the US. They have found fairly consistently that the demand for higher education is inelastic with regard to tuition. That is, moderate price increases will not discourage many people from attending and will increase the revenue for higher education. This tendency is not surprising. Most individuals are already making large expenditures on higher education, and fee rises would not change overall expenditures dramatically. The most thorough analysis of the subject has been conducted by Leslie and Brinkman (1987). They have found that the typical elasticity coefficient for the US is -0.62, which means that

a ten percent rise in fees would lead to a smaller enrollment decline of 6.2 percent, which is sizeable but still inelastic.

Price elasticities, however, do not offer a complete perspective of the equity impact of tuition rises. Since the elasticity is an aggregate figure, it does not explain what happens at the margin to poor people. While overall enrollments are not much affected by tuition rises, the already under-represented groups will be more seriously affected. Therefore, while tuition rises may help the system as a whole, it is important to consider how groups at the margin of the system might be affected.

A second problem with price elasticities is that they typically measure only responses in relation to the tuition fee cost, which we have already shown to be a fraction, at most, of higher education costs. The enrollment response to a small increase in the total private cost of higher education would be considerably greater than elasticity based on tuition costs alone. In Ontario, the price elasticity based on total education cost has been estimated at -1.46: a 1 percent rise of total cost would result in a far greater, 1.5 percent, enrollment decline (Stager 1989).

Box 3.1. Thailand: Equity and the Elasticity of Demand for Higher Education

The sharp divergence in Thailand between the socio-economic background of higher education students and the population at large reflects the poor equity of the system. The children of farmers and working class families as a proportion of the total university population are only 16 percent and 12 percent, respectively, of their relative position in the population as a whole. Clearly, something is keeping them out of the higher education system.

Chutikul (1986) discusses three levels decision-making between secondary school graduation and entering university. First there is the decision to pursue further education: this is strongly influenced by the total private costs of higher education. Second, there is the decision to sit the exam for the public (selective) universities: while this is not affected by family income, it is strongly related to secondary school performance. Third, there is the decision on which institution to attend. Chutikul measures the price elasticity of demand among students choosing between institutions and finds it to be extremely low, between -.03 and -.17. A ten percent rise in tuition would lead to less than a two percent change in enrollment.

The critical decision is whether or not to attend higher education. Here total private costs (not just tuition costs) barr access for many students, as do such factors as access to primary and secondary education. Eliminating tuition would not, in itself, bring those outside the universities into the system. Additional actions through support programs (loans, scholarships) are necessary.

A study of demand for higher education in Thailand (Chutikul 1986) demonstrated that the elasticity of demand among those already in the system is quite low (those already attending are willing to pay more); however, for those outside the system, the central demand issue relates to the decision whether or not to attend higher education; for this increases in tuition fees is not the major factor (Box 3.1).

How would different socio-economic groups respond to price changes for higher education? A thorough empirical study has yet to be conducted in developing countries, although there is data to help confirm some basic points. First, the World Bank has conducted household surveys on the willingness to pay for educational goods. A study of willingness to pay for secondary school in Peru (Gertler and Glewer 1989) confirmed that (i) overall, demand for education is inelastic with regard to price; (ii) that the poor are much more sensitive to price changes than are the rich; (iii) that demand is much more elastic at higher than lower prices. Typically, the poorest 25 percent of the population was about three times as sensitive to price changes as were the richest 25 percent.

A rigorous study on these lines has not been conducted for higher education. However, using data from Colombia, it is possible to construct estimates of how demand for higher education varies with different socio-economic groups. On the basis of public and private university tuition differentials, and enrollments in each sector according to father's education, it is possible to estimate the likely impact of fee increases for higher education among six different socio-economic groups[14].

Figure 3.2 illustrates estimated demand curves for different student groups, according to father's education. It uses father's education as a proxy for social status, and the decision to attend (more costly) private education as a measure of demand at higher prices. The curves are derived first by using estimates the impact of a one percent rise in tuition on demand for education. Since this translates to approximately a $1 rise (tuition levels in public universities average $80), in none of the groups is demand really affected. The second measurement estimates demand changes for a one percent rise in out of pocket expenses, equivalent to a $20 rise in cost. Differences between income groups begins to emerge. Higher level groups are relatively unaffected by this rise, while the lower income groups are. The difference becomes even more magnified with a one percent rise in total economic costs, including foregone earnings. Such a tuition increase of $35 would not deter anyone from high income groups, but among the lowest grouping here, seven percent would

[14] In Colombia, higher education enrollments are split between public and private sectors. In 1980 public institutions charged low fees (averaging about $80) while private universities charged $550 on average. The public sector institutions have roughly consistent quality, but the private sector varies with elite and lower cost institutions. While wealthy students may opt for elite private education, most students prefer to sit entrance exams for the public institutions. Despite the under-representation of poorer students in the overall pool of applicants to higher education, of those who apply, roughly equal percentages are accepted among all SES groups. If students fail to gain entry, they may enter a private institution.

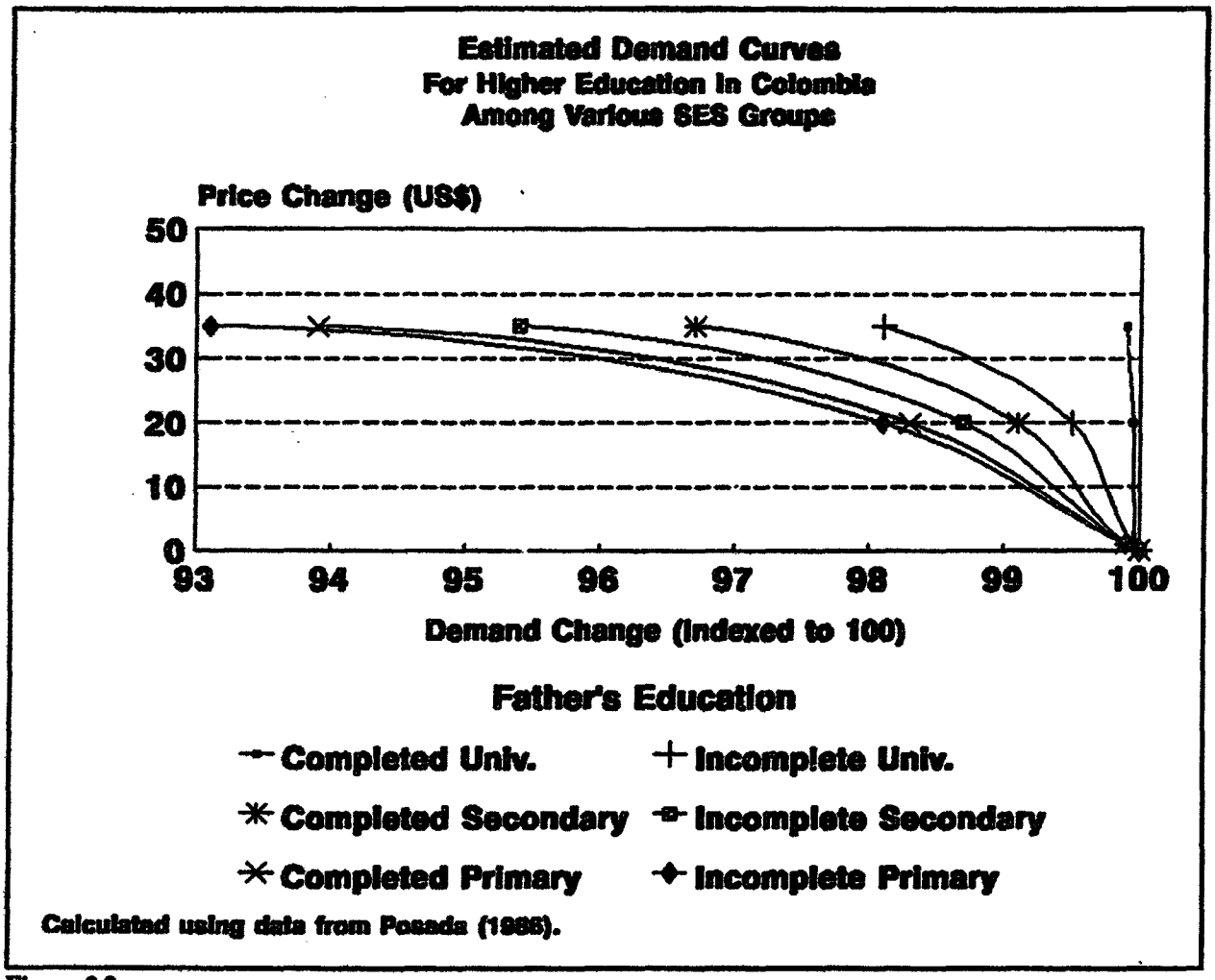

Figure 3.2.

opt out. While the lower groups are more sensitive to price changes, overall even the lowest group's response is inelastic with regard to changes in total private costs.

Admittedly, this is a crude calculation with many factors that are oversimplified. Nevertheless, for illustrative purposes, it does indicate the extent of the differential impact that fee changes can have on different social groups and therefore points to the limitations of using one aggregate figure for demand elasticity.

When examining these numbers, one must also be careful to recognize that the distribution of these groups in the higher education system is not equal. Higher social groups have a much greater representation than the lower groups. So while for the majority of higher education students the elasticity of demand for higher education may be very low, it is the lower groups are likely bear the brunt of fees rises.

Finally, piecemeal evidence from Chile indicates that as long as scholarships and loans are present, steep tuition rises do not lead to changing distributions of enrollment. The radical reform of Chile's higher education system initiated in 1980 included the introduction of sizable tuition fees at public institutions which were formerly free of charge. Data collected by Brunner and Briones (1992) show virtually no change in the socio-economic status of students in the universities after the introduction of tuition fees that averaged 60 percent of instructional costs, mainly because 80 percent of lower income students had access to loans and scholarships.

Capacity to Pay

Little other than anecdotal information is available on willingness to pay for university education, in systems where fee paying is absent or set at token levels. A recent study examines the issue of capacity to pay ("affordability") in depth among higher education students and their families in a sample of Latin American countries (Carlson 1992). A useful (although somewhat imperfect) methodology for establishing realistic fee levels is provided. Looking at current household disposable income and expected earnings of graduates, Carlson is able to gauge the potential for cost recovery from parents and students, respectively. The issue is to identify the amount of resources that non-poor households could be expected to contribute from their current resources, and that students could borrow against their enhanced future earnings. Assuming for average households that 10 percent of current income, and 10 percent of a graduate's future income, are reasonable contributions, he estimates that students (and their parents) in combination could contribute 28 percent of the total direct financial costs (excluding foregone earnings) of higher education. For the poorest 30 percent, however, higher education is less affordable; they could contribute only some 15 percent of average unit costs.

Carlson also estimates for each country the percentage of individuals that could afford different levels of tuition increases. He computes these figures in two ways: for a student body with similar income characteristics to the population as a whole (equal representation) and for the actual student population (biased towards upper income groups). He concludes that, on average for the nine countries, a ten percent rise in tuition would render 25 percent of households unable to afford higher education. Only 50 percent of the population as a whole would be able to afford tuition expenditures equal to 25 percent of unit cost. More important, however, when the calculation is repeated for the actual student body, 70 percent of the students are be able to afford fees of 25 percent of unit costs.

There are, however, some weaknesses with this methodology stemming from the assumptions used. The use of 10 percent of household income to measure affordability, is based on reasonable assumptions rather than on objective measurement of willingness to pay. In addition, the definition of household affordability implicitly assumes that only one household member attends university at any one time. The analysis fails to consider that some households may have more than one student; a family with three children in university

may be unable to contribute 30 percent of income, as implies in the analysis. This point of criticism is strengthened in relation to poorer households, on which policies to increase access (and no doubt bringing more than one child to higher education) are focussed.

Yet the analysis is valuable in pointing to an order of magnitude for setting fees. Carlson's conclusion is that fees could reasonably be raised to between 25 and 35 percent of unit costs (which would be affordable by about 40 percent of Latin American households). Such fee rises would have to be accompanied by loan programs covering about 60 percent of students, and scholarships for about 20 percent of students.

Overall, and based on the various perspectives for analyzing fees outlined above, we conclude that fees set at around 25 percent of unit costs are reasonable and affordable. This conclusion may be justified in several ways. First, this is where several countries are already setting fees without any indication of negative equity impacts. Second, empirical data suggests both that the majority of students are from backgrounds that could pay these fees, and that if they did so, they would be unlikely to be deterred from attending. Third, given present levels of household disposable income, such fees are affordable by the majority of students, and their families. But it is clear that marginal groups would suffer, indicating the need to combine fees with carefully targeted support.

Policies to Mobilize Private Resources

In many instances, higher education reform will require increased cost sharing with students. But one still must know how high to set fees, and whether they should be uniformly charged or if they should be differentiated to provide signals about different types of courses within an institution. In general, institutions should have more control over tuition policy. Institutions with control over tuition policy are more able to align their financial resources with the teaching and research demands imposed on them. Shortfalls in government subsidies can be made up with tuition income to ensure that quality does not suffer. Relative institutional autonomy over tuition levels has enabled North American universities to withstand drastic budget cuts during periods of austerity. The potential downside of allowing institutions autonomy over fee levels is that, in the absence of competition, they are well positioned to exploit students by charging excessive fees. This in fact happens, particularly when labor markets are highly distorted, and diplomas (and not education) are guarantees for higher salaries and career advancement. Tuition fee regulation has sought to prevent this undesirable result, but have often done so at the expense of institutional quality. Thus the policy maker needs to consider carefully within what regulatory framework institutional autonomy over fee levels should be placed. In instances of greater labor market distortions, fee regulation may be more warranted.

Public Institutions

While Most policy advocates agree that cost recovery for higher education is an increasingly important, few have been able to say what percentage of costs should be recovered. We have argued that 25 percent of unit costs seems reasonable. But there are other costs to contend with. To begin with, fees for university provided food and lodging should be near the cost of providing those services. Unless these costs are recovered, housing will continue to be overcrowded, physical facilities will deteriorate, meal quality will be low, and resources will be wasted since the costs of providing these services will far exceed what the private sector would charges. Rather than channeling subsidies to institutions for the provision of these services, it would be much more productive to provide selected students with the funds, and allow them to choose where to spend it.

The limited evidence reviewed in this chapter suggests that at least in Latin America, fees of approximately 25 percent recurrent costs could be afforded by the majority of higher education students. Such calculations, however, need to be adjusted for several important factor: first, the variance in unit costs (some universities spend $500 per student, others $8,000); second, the different economic conditions prevailing in a country. Generally speaking, in the poorest countries, meeting living expenditures can be relatively more costly than in middle income countries. Third, affordability depends on the number of the number of children in the same family that might be in university at the same time.

Private Institutions

Mobilizing private resources for a higher education system as a whole can be accomplished through the promotion of private institutions.[15] In many Asian and Latin American countries, quality public institutions were preserved by relying on private sector development to respond to rapidly rising social demand for education. (In contrast, elite, high cost private institutions have emerged in a few countries in response to falling quality in public institutions). By promoting private institutions, countries such as Indonesia, Korea, Chile and Brazil have been able to accommodate growing demand without increasing public expenditures, or sacrificing quality.

Despite the important role that private education plays in many countries, governments often treat these institutions with a large degree of skepticism. Many governments implicitly or explicitly impose restrictions on private sector development. Governments implicitly restrict private institutions by providing free education. The absence of fees in public institutions makes it difficult for private institutions to compete. Explicit

[15] A private institution here is defined as an institution that receives no direct public subsidy. Private institutions, however, may receive indirect public subsidies via government sponsored student loan or scholarship programs, tax credits, access to cheaper capital, etc.

restrictions include legal prohibitions, or regulatory requirements that make it extremely difficult to start up an institution.

In contrast, some countries have explicitly sought to promote private education. Assistance has taken various forms including concessional credit for start-up capital (Korea, Indonesia), donating buildings and other equipment (Vietnam) and limiting regulatory requirements necessary to open a new institution. (Chile, Box 3.2). Finally, some countries such as the United States, indirectly subsidize private institutions through student support (loans, scholarships).

Fee Regulation in Private Institutions

Table 3.8 compares the fees charged in public and private institutions in six countries, and computes a ratio of private to public fees. In some instances, private institutions charging higher tuition can be elitist institutions catering only to wealthier students. In Thailand, for example, the private sector tends to provide access for wealthier individuals who did not gain entry to public institutions. Nevertheless, in many instances, private higher education financed through tuition income is the dominant supply of educational opportunities. Along with average tuition fees, Table 3.8 lists the percentage of students enrolled in the private sector to illustrate those countries in which most students pay substantial tuition (Brazil, Korea, Japan and Colombia).

Many private institutions in developing countries, however, are not free to set tuition fees. Governments typically regulate tuition and require institutions to submit requests for any fee increases. Once price regulation becomes bureaucratized, such controls often do not allow institutions to raise fees in line with inflation or changes in the cost of their inputs and can lead to a rapid erosion of tuition as a source of income. Governments argue that these regulations prevent price gauging, preserve access, and prevent institutions from catering only to the richest segments of population.

Box 3.2. Chile: Doubling Capacity without Public Funding

Beginning in 1980, the Chilean military government embarked on a radical reform of its higher education system. Basic features of the higher education system were drastically altered, most notably that in order to rapidly expand access, market oriented strategies were applied to the system. An important feature was the increased mobilization of private resources through cost recovery in public (formerly free) institutions and the rapid promotion of private institutions.

Deliberate policy interventions enabled the government to double access to higher education, while enrollments at the traditional public universities remained constant. The system expanded without additional public funds, and the majority of new enrollments are in different tiers of institutions: the so-called professional institutes and the short-cycle, vocationally oriented Technical Training Centers. Whereas in 1980, all students enrolled in free public universities, by 1990 over half of all students were enrolled in institutions that receive no public funding. The founding of new private institutions was encouraged through a permissive licensing system. The only requirement for the establishment of a private university was the inclusion of at least three (since reduced to one) professional courses (of a total of twelve) leading to professional certificates. In addition, institutional fees are not regulated and the moves towards greater cost recovery in publicly funded institutions allows the private sector to compete.

Legislation calls for a transitional accreditation period of five to ten years for the new universities and professional institutes. During this period, each institution establishes a link with a traditional university which approves teaching plans, and provides committees to supervise the final examination of students. After this period, institutions will become fully autonomous. As a result, 276 new institutions were officially recognized between 1980 and 1990.

The process has had four major effects. First, the Chilean higher education system has become dominantly private at the non-university level and now has a dual public-private nature at the university level. Post-secondary, non-university education has taken the form of a (private) market system with a wide variety of study opportunities. Second, establishments are far more regionally dispersed, thus enlarging access opportunities over the whole country. Third, the supply of higher education is now dominated by a large number of small sized private institutions. Fourth, the supply of new entrance opportunities actually is over-extended with respect to enrollment demand at the non-university level. Concerns, however, have arisen over the generally low quality of many institutions, the "over-supply" of capacity. More importantly, since the stock of qualified academics has not nearly kept pace with the expansion, there has been a "thin spreading" of academics who are offered multiple jobs, and are often unable to concentrate on their primary assignments.

Table 3.8. Public vs. Private Tuition Fees in Selected Countries US$

Country	Public Sector	Private Sector	Private/ Public Ratio	% Students in Private Sector	Year
Korea	$525	$1,360	2.6	66	1990
Thailand	$125	$700	5.6	8	1989
Colombia	$82	$538	6.6	62	1982
Brazil	$0	$1,250	--	63	1990
Kenya *	$200	$2,800	14.0	5	1991
Japan	$880	$2,900	3.3	78	1985

* Kenya recently announced new fees at the public universities.
Sources: World Bank data; Tan and Mingat 1989; OECD 1990.

In general, price controls have a negative impact on the overall supply and quality of goods. That is, when the government artificially constrains the price that private institutions can charge (both by keeping it uniform and low in relation to the economic costs of providing educational services), it is likely to lead to an underprovision of places relative to demand for higher education. In addition, the uniformity of prices implies that institutions are be unable to provide differential quality in relation to consumer demand. Most institutions will be forced to provide low cost, low quality education: higher cost and quality options will be precluded.

However, market imperfections in the provision of higher education may qualify these conclusions. There is may be imperfect information concerning institutions, monopolistic tendencies in certain regions of a country and especially in smaller and poorer countries and labor markets that reward diplomas rather than skills. Here, the removal of price controls may lead to the exploitation of students: high fees unmatched by commensurate course quality. When a higher education institution is more monopolistic in character, the rationale for regulation may be much clearer. However, it may be possible to regulate institutions via quality control standards (strong accreditation) rather than through tuition controls.

Price controls do not always achieve the desired results. In fact, institutions commonly react to tuition controls in ways that are contrary to the original intention of introducing them. One important consequence of tuition controls has been a limit on education supply, which implies that fewer people overall will gain access. Less wealthy individuals are more likely to be excluded. Second, and perhaps more importantly, tuition

controls often lead to up-front (special) admissions fees. Since at low prices there is excess demand for places, institutions are able to require high initial fees. These fees fall under various names -- registration fees, application fees, capitation fees, etc. and they are often substantially higher than annual tuition fees. Such up-front fees allow institutions to circumvent legal restrictions on tuition. In Indonesia private universities will charge up front fees as high as US$ 3,000 (Box 3.3). By collecting fees up-front, in one large installment, more people will be excluded than if students could divide the payment over a four year period. Similar practices are found in the Philippines and India.

Box 3.3. Up-Front Admissions Fees at Indonesia's Private Universities

Indonesia's private universities are subject to government tuition controls. Despite these controls, many charge extremely high admissions fees. In 1985, the Parahyangan Catholic University, required new students to pay an admissions fee of ($100-150) and a "development fee" roughly equal to $340, on top of their tuition fees. Although some students at this institution receive a fee waiver, at other institutions, they do not. At the Atma Jaya University in Jakarta, students have to pay an entrance fee of about $2,000. Very few students receive a waiver. Some admissions fees are as high as $3,000, in a country whose per capita GNP was only $570 in 1990.

Source: Woodhall 1986.

In sum, student finance of higher education may be increased in two ways. First, it can be mobilized for the higher education system as a whole by encouraging private institutions. Second, greater cost recovery in public institutions should be introduced -a necessary condition to resolve fundamental financial problems in these institutions. For the great majority of students, there exists a significant capacity to share in the costs of education. But there are groups on the margin and who are already excluded that need to be assisted if higher fees are instituted. Many restrictions on fee levels have unintended consequences: up-front entry fees, deteriorating services for housing and meals, and fewer places for students overall.

Two important areas need to be addressed in order to move forward: first, programs to minimize the impact of increased cost recovery on vulnerable groups; second, addressing the political constraints that have made such policies difficult to implement. The next two sections address these issues in turn.

Financial Aid Programs

If greater cost recovery is to be implemented, it will need to be supplemented by support programs for lower income students. This section reviews sources of finance to meet private costs, and discusses policy options to ensure that financial aid can be targeted to those in need, and generally be more effective. For the time being, we avoid the issue of loans and delayed payments which will be discussed in detail in the next chapter.

Sources of Financial Support

Given the private costs confronting an individual when choosing to attend higher education, how are these costs met? Johnstone (1986) distinguishes four sources of funds: parents, students, governments (taxpayers) and philanthropy. While the relative importance of each of these categories varies from country to country, costs must be met in some combination of these funds. This section will focus on the relative importance of each of these categories, and mechanisms for determining the role for each.

Parental Contributions. In most instances where contributions to higher education are required, parents and family members finance most of the cost of study. Many advocates of increased cost recovery for higher education have stressed the role of student loans to finance education, and thus push the burden away from government onto students. As McMahon (1988) notes, simply shifting burden onto students ignores the parents who are the realistic source of funding to meet needs associated with increased cost recovery. Parental contributions can come in the form of direct expenditures from savings, reduced consumption, or by providing in-kind support through lodging and meals.

Attitudes towards what is expected of parents vary. At one extreme lie the Scandinavian countries where parents are not expected to contribute at all. Private costs are met through some combination of student and government funding. At the other extreme has been a tradition in East Asia, particularly in Korea, where high private costs require the raising of large sums of money without much assistance from the state. Usually, contributions are collected from extended family members (both immediate and more distant relatives) to fund a student.

Parental contribution policy raises a difficult dilemma. On the one hand, requiring students to be dependent on their parents raises problems when parents refuse to pay. Recently in several European countries, many parents have failed to meet their expected contribution, leaving students without access to funding for their education. On the other hand, when students are treated as independents (i.e. parents are not expected to contribute) the likelihood of granting aid to those not truly in need significantly increases. A study in the US, for instance, found that there was an unnecessary drain of financial aid resources to those students who qualified for "independent" status (Hansen, Reeves and

Stampen 1988). That is, students may be considered needy although their parents might be quite wealthy.

In developing countries, the consideration of students as independents has enabled many non-deserving students to receive financial aid, and has undermined significantly the success of targeted support. Treating students as independents has been a principle vehicle to enable virtually any student to benefit from theoretically targeted aid.

Students. The second major source of funds comes from the student. Students can contribute through accumulated resources (savings), current earned resources -- i.e. summer earnings, or work while studying, or with future resources, i.e. their expected higher earnings after they graduate. Much attention has been placed on this last source of finance, i.e. borrowing against future earnings. Nevertheless, there are many technical obstacles to be overcome to ensure that loans are not simply government support in disguise and that they do not discriminate against poorer students. We discuss these issues in the next chapter.

Work-study programs, whereby needy students are given part-time employment (either for the university or for local employment) to provide funds to support costs, can provide and important tool for allocating support. The key advantage of work study is that it is self-targeting. That is, if a student is not truly in need, it is far less likely that he/she will exploit a work study program than he would one of outright grants. While work-study has been common in the US, a similar program has recently been adopted in the Philippines as a means to provide income for students. A proposal for work study to help finance needy students in Uganda to meet living costs has been put forward. The government would intervene by providing part time jobs for students, either in the University (performing administrative work) or in the local community. Work study could allow universities to save on their administrative budgets. We again take up the subject of work-study in Chapter 7 as a form of payment in-kind for education.

Government Contribution. In almost every country, governments have designed student support strategies to assist students to finance private costs. At one extreme, Japan provides a subsidized loan for only about 20 percent of students (80 percent of which attend private institutions). At the other extreme in francophone Africa, almost all students receive outright grants: typically 80 percent of students receive full scholarships. In addition to outright grants, students typically receive welfare subsidies, such as health care, through their universities which can amount to over ten percent of the operating budget. In some instances, the student bourse provides money in excess of what is needed to live, as allowances are given for spending money.

Box 3.4. China: Moving Towards More Selective Student Support Policies

Between 1955 and 1990, the Chinese government has changed repeatedly the system of student support, moving from selected living scholarships, to blanket scholarships, back towards more restricted scholarships and loans. It should be noted, however, that the Chinese higher education system only covers about one to two percent of the age cohort. Some important changes are as follows:

1955. Selective grants awarded based on need. Free tuition and accommodation at all universities. Grants to support food, living, books and supplies.

1977. All students in Normal colleges or universities, and other colleges received grants and 73 percent of students in other higher education institutions also received a living subsidy.

1983-1987. Food allowances and living allowances available based on need. Students specializing in navigation, dancing opera, wind musical instruments, ocean fishing some categories of mechanical engineering and armed police were to be given an extra sum of 40 percent for special food supply (regardless of need). Also peoples' scholarships were given to promote moral and intellectual development.

1987-: Government subsidy to consist of (i) scholarship, (ii) grant and (iii) loan. Scholarships are awarded for academic merit and moral behavior to about five percent of students. Grants are awarded to those specializing in teacher training, agriculture, forestry, physical education and to national minorities, for a total of 30 percent of students. Loans could be applied for by remaining 65 percent. Loans are of three grades: 300 Yuan (US$58), 250 Y, and 200 Y. In selected institutions, about 30 percent of students receive subsidized loans administered by universities.

Source: Woodhall 1991.

In Latin America and Asia, students are selectively assisted in meeting their private costs through combinations of loans and grants. Support is usually limited to between 10 and 25 percent of the student population. The tendency is to award support on the basis of merit, rather than need, although some programs, notably ICETEX in Colombia, have successfully supported needy students. Chile's decentralized financial aid system, whereby the universities control the allocation of support, has also proven relatively more successful (Box 3.5).

Box 3.5. Targeted Student Support

In 1989, the University of the Philippines combined sharp tuition increases with increased financial assistance to needy students. The "Socialized Tuition and Financial Assistance Program" (STFAP) has both increased overall institutional revenues and support for needy and academically qualified students. The University grants three types of financial assistance. The first level of support are tuition discounts which are awarded solely on the basis of need. The second type of support is maintenance grants which are given for both need and academic merit. The third form of support are selective opportunities for work-study.

To assess financial need, the University has had to move beyond income tax returns, which often understate true ability to pay. Around 40 percent of the 15,000 students who apply for financial aid receive less assistance than they would have if means testing were based on income tax returns alone. STFAP applicants must complete a twelve-page questionnaire which are encoded for computer processing. The questionnaire asks about family assets, parental occupation and education levels, and location of residence. The questionnaire in itself does not stop dishonest applicants, but home visits and harsh disciplinary actions are believed to make applicants answer questions more truthfully. Home visits verify the accuracy of most reports. Several students have been expelled from the university for giving false information, and the net gains to the university are approximately 15 percent of total expenditures.

The financial reforms of Chile's higher education sector have led to substantially increased tuition fees combined with expanded system of student support to be managed by universities. Initially, universities were to manage only student loan funds to students that they selected on both academic and need based criteria. In 1990, dissatisfaction with the pure system of loans has prompted a shift to a system which combines loans and grants.

The Catholic University of Santiago (a private university receiving substantial public subsidies) assesses need, ability and field of study in determining the aid package for each student. Ability to pay is assessed using income and asset information as well as required information on parental occupations and education levels. After determining the amount of support the student needs, the form of support is based on the field of study chosen by the student. Students in fields that will lead to high earnings upon graduation receive loans, while academically qualified students in fields with lower expected salaries receive grants.

Philanthropy. In a few countries, where government intervention is not significant, and where tax laws favor donations, private philanthropy (foundations) represent a fourth source of funds. In Japan, for example, where government support is limited to a subsidized

student loan program, about 800 private foundations provide an additional seven percent of all student support in the form of outright grants.

Similar support systems are in place in a few developing countries. In Thailand, private donors gave scholarships for 6,427 students totaling 1.1 million US$ (average size $171) covering seven percent of students in selected public institutions. In Kenya, local communities sponsor individuals through the Harambee system: community members contribute funds for specific individuals with the expectation that they are entitled to future favors from graduates. In Venezuela, private companies sometimes sponsor individuals, either through managed scholarship or loan programs, or through bonded scholarships that require students to work for the company when they graduate.

Financial Aid Policy

Targeting a more limited program of financial support to needy students has proven difficult in many instances. Information, particularly on family income, can be unreliable and thus an individual's capacity to pay is not always clear. Past problems with targeting, however, do not mean that such programs are beyond the means of most countries. The key to a successful program is government determination to implement and enforce the targeting of support.

Effective targeting will require two basic steps: first, moving beyond income and tax statements to evaluate need; and second, enforcing rules for the allocation support, by imposing sanctions against students and parents who cheat or make false statements. Nevertheless, in many African countries it may be virtually impossible to determine need, as family resources are mobilized across much broader kinship and tribal networks. An alternative option in these instances might be self-targeting work study programs.

Need should be determined on the basis of verifiable family data (McMahon 1988). Income reporting may be inaccurate in many countries. However, information on individuals' occupation and education level can be compared to reported income from labor market surveys, to detect under-reporting of income. In addition, requiring individuals to report their assets and type of housing, which can easily be verified through spot checks, can also give important indications regarding ability to pay. For these reasons, asset information and educational and employment background of parents should play a much more important role in allocating financial support than simple income statements. Improving criteria and rules for targeting funds will not be sufficient, however. Credible penalties, such as expulsion of those who misrepresent their need must be implemented.

As developing countries increase the private costs of higher education, the question they confront is how to assist students selectively in meeting these costs. Literature on utilizing fairly complex systems of support in developing countries is extremely scarce. McMahon (1988) discusses how governments can assess the expected parental contributions,

given the limitations of income assessment in developing countries, and therefore allow some combination of student contribution and government support to make up the additional funding needs.

A few governments have devolved decision making on financial aid to universities. Universities are often better placed to evaluate students. Devolving decision making also circumvents the problem of lack of incentives within government to carefully select recipients. Institutions with a fixed budget for allocation to their students will be more cautious than a government ministry with an open account. The effectiveness of allowing institutions to target funds is illustrated by reforms at the University of the Philippines (Box 3.5). Baum and Schwartz (1988) argue, however, that allowing universities to control the allocation of student financial aid is likely to constitute merit-based rather than need- based aid, as institutions compete for the best students. In fact, this tendency was strongly observed in Chile, where universities control allocation of financial aid. High achieving students were often rewarded with the largest aid packages and tuition discounts in order to entice them to enroll at the university (mostly because the government links university subsidies to these students). In many developing countries, however, universities do not as yet have the administrative capacity necessary to manage verification systems. Such verification systems may also be inappropriate for many African countries where resources are mobilized across extended families and tribal groups.

Another option for allocating support is for government ministries to offer scholarships to students in exchange for bonded employment. In this manner, institutions and students have clearer signals as to where employment opportunities are in the public sector, and public subsidies are rationalized according to public need. Such a practice is in place in Indonesia (Box 3.6) and is being discussed in Uganda. In exchange for receiving a scholarship, students must work in the supporting ministry for a specified number of years.

While many industrialized countries have developed clear strategies for assessing the needs of students to finance their students, such systematic approaches are scarce in developing countries. Scholarship and loan programs exist, but support is either allocated to all students, or fragmented assistance programs disburse funding on criteria other than need. Few developing countries have utilized clear notions of what parents can pay and what students should contribute, either through saved earnings, or from future income via loans. Some would argue that developing means tested student support systems is beyond the capacity of many developing countries. A few countries, such as China, the Philippines, Chile and Indonesia, that have moved towards an assessment of need, parental capacity to pay, prove that for the majority of countries, this is simply not true. In Africa and South Asia, targeting may be more difficult to administer. Nevertheless, what is often lacking is the will to enforce stricter criteria. Such enforcement will require harsh measures against those who try to cheat the system. Thus, spot checks to verify information and expulsion of cheaters will in many instances be a necessary part of reform.

Box 3.6. Financial Aid in Indonesia

In Indonesia, students have access to several sources of financial aid, principally on the basis of merit. Government scholarships fall into two main categories: grants towards tuition fees and living expenses, awarded on the basis of both achievement and need; and second, "bonded scholarships", offered by government departments as a form of job recruitment. The Ministry of Education, for example, offers scholarships to recruit teachers in areas of short supply. In addition to government scholarships, there are six public and five private foundations offering student funds. Finally, until 1988, some nominated students had access to a publicly run student loan fund.

These funds provide a sizeable source of student support to meet relatively high private costs. In a 1985 survey, 14 percent of public university and six percent of private university students received some form of scholarships. The survey also showed that the median scholarship size was approximately 70 percent of the estimated monthly expenditures for a public university student. A concern with the student support program is that it awards most of its support on the basis of merit, not need, and only in the latter part of a student's studies. A low income student would have had to find some other mechanism to finance studies in the early years. Relatively little support is offered to lower income groups.

Source: Woodhall 1986.

Political Constraints and Moving Forward

Although historical circumstances have changed, and the once strongly held belief that free tuition was necessary to preserve equitable access is now in disrepute, political obstacles remain. A central challenge of higher education reform will be to design strategies for governments to minimize political fallout from such changes.

More and more, decision makers see the economic rationale behind increasing tuition fees for those who can afford to pay, yet political obstacles prevent them from implementing such a change. Increasing cost recovery can lead to large scale student protests that run the risk of spilling over into protest against governments as a whole. The Kenyan experience of tuition increases in 1991 has proven costly politically, and has led to university shut downs for an extended period. For this reason, governments have been reluctant to move forward with increased cost recovery.

Anecdotal examples, such as the Philippines, Vietnam, Australia, Malawi and Singapore, strongly suggest that it is possible to implement tuition increases, so long as students and the general population are sensitized to the rationale behind them. In addition,

a credible program to support low income groups can help to minimize the political reaction.

One important measure to facilitate the extension of cost recovery is to permit universities to benefit from new income. Universities need to be granted autonomy to collect fees. In this manner, universities will have incentives to impose fees, and the nature of student protests will be shifted away from government to the higher education institutions. While protests are disruptive, they will force institutions to engage in a more positive discussion as to what students are entitled to receive in exchange for their payments. Therefore, university autonomy to benefit from cost recovery needs to imply accountability to those who are paying for their education.

In addressing tuition changes, it is always important to assess the demands of interest groups. In the Philippines, fees were successfully raised because the university made it clear that by so doing there would be more financial support available for needy students (Box 3.5). By offering significantly more funding to about one-third of the students, these beneficiaries from the reforms would not protest the changes, and the wealthier students would find it more difficult to justify their claims to preserve their low fee payments. The University officials successfully created a situation whereby it would only be the unwillingness of the wealthier students to contribute that would prevent there being more support for needier students.

Similarly, an important possibility for making fees political acceptable would be to begin with a mandatory contribution to a scholarship fund. Under such a scheme, all students would be required to contribute to a fund that would be used to finance scholarships for needier students.

A second option limits subsidies to a specified number of students and links fees to expansion. In Vietnam, higher education was previously offered to an elite group of individuals, in free public colleges and universities. In the wake of financial crisis in institutions, the government permitted institutions to take on additional students on a fee for service basis. That is, the government specified the number of students that it would pay for. Institutions with extra capacity and which could offer courses in demand have widely expanded fee paying courses. In many institutions fee paying students are in the majority. Fee paying, as a consequence, has become widely accepted (Box 3.7).

Box 3.7. Fees in the Socialist Republic of Vietnam?

Between 1975 and 1989, higher education in Vietnam consisted of a highly specialized group of public institutions that were fully dependent on the state for financial resources. These institutions were expected to supply highly trained individuals according to state plans, and graduates were automatically assigned jobs via a centralized system of labor allocation. The rapid economic transition towards a market economy which began in 1986 and the abandoning of centrally allocated labor in 1989 left higher education in an awkward position. On the one hand, the dissonance between the skill supply of graduates and the new demands by employers is being revealed through increased graduate unemployment. On the other hand, the full dependence on the government for financial resources at a time when stabilization and adjustment programs are necessary has resulted in a financial crisis for the inefficient network of higher education institutions. The Ministry of Education and Training has implemented significant and positive reforms to diversify institutions and the resource base of higher education, and to create a system that is more adaptive to a market environment.

In 1987 the government experimented with allowing a few fee-paying students at specified institutions, in addition to the non-fee-paying students. In 1990, the admission of fee-paying students was encouraged actively, and institutions were free to engage in revenue-generating activities, without fear of reductions in their public budget. In response to these changes, institutions currently receive more than 37 percent of their recurrent income from non-government sources. An estimated 23 percent of income is from student fees alone, the rest coming from donations and contract revenues. These revenue figures do not include the bulk of revenues from the sale of commercial services and short, vocational courses which have enabled poorly paid teachers to supplement their salaries.

The most important type of fee is for what are termed "irregular" students. Currently, the State Planning Committee allots student enrollment numbers to institutions, which must be filled in order to receive public budgets. Each institution administers its own examination to select the best students for these slots. Among the regular students, typically about 70-80 percent are scholarship recipients. Institutions are currently forbidden to charge fees to scholarship students. The remaining 20-30 percent of the students who are regular students can be required to pay tuition.

So long as they have the capacity, institutions, however, are free to admit additional students on a fee- for-service basis. Tuition fees currently range between 20,000 dong to 100,000 dong (2 to 10 US$) per month. Institutions can set their fees up to a limit of about 1 million dong per year, although few have set fees this high. Most institutions are prepared to raise fees in upcoming years. Fees vary by type of course and type of institution. The scientific and medical institutions charge the highest fees. Pedagogical institutions, because of the low demand for their courses, have been

Besides providing an important source of income, fees are proving to be an important indicator of demand and are encouraging institutions to adapt to a market environment. Institutions have quickly realized that the highest demand for education skills are in English language, computers science, law, and economics (business administration). The new fee system also indicates those courses and institutions in low demand. The most problematic institutions have been the junior teacher training colleges. Low paying career opportunities and the preference for urban employment have discouraged students from seeking to attend these institutions.

Many institutions which provide training in areas in high demand are able to enroll more fee-paying than regular students. Currently, between 40 and 50 percent of all students are fee paying, and in some institutions as much as 80 percent of full-time students. As a result, fee paying in exchange for more response to student demands, has been quickly accepted in Vietnam.

A third option to help ease political constraints is to replace outright subsidies with loans, particularly loans that are linked to the incomes of graduates (this strategy will be discussed in the next Chapter). In 1989, Australia's higher education system was confronted with a shortage of resources given the policy goal of expanding access to public institutions which had free tuition. In order to finance expansion, the government decided to impose tuition fees of 20 percent of unit costs. These new charges were combined with a subsidized student loan offered to all students regardless of their resources, to allow them to defer their payments of tuition. In addition, needy students continued to have access to grant money for living expenses. While students initially protested the new charges, the loan program was designed so that it required only a marginal payment from future incomes. When this was explained to students, their protests were contained. Similarly, the 1988 fee rises in Singapore were accompanied by subsidized loans worth about half the value of the new tuition fees.

A fourth, but related approach, to which we return in chapter 6, is to channel subsidies through students rather than directly to institutions, combined with granting institutions more autonomy over tuition policy. In 1987, the Malawi government implemented cost recovery by combining fees worth US$ 80 with grants of exactly the same value to all students. From the students' point of view, the changes were neutral. In the next year, the grant was removed, and replaced with a loan.

Regardless of the option taken, it is clear that working with students -- rather than against them -- is essential to diffuse tensions. In instances where students are accustomed to receiving everything from the government, a change in attitude will need to accompany policy change. Students could be made more fully aware of why they are paying, why it is

more equitable for them, rather than taxpayers, to pay, why the quality of their education, and services for housing and meals, should improve as a result of their contributions.

Higher fees, despite protests, will not deter the overwhelming majority of students from attending higher education; indeed, they are likely to act as an incentive to complete studies more quickly. There are, however, important groups that are on the decision - margin of remaining in university. In addition, there remains, in many countries, a large pool of talented individuals who are effectively barred access because of social factors that remove people earlier on in the education system, and because of the high private costs overall. These groups need more support. Tuition policies need to be combined with a more effective and targeted systems of student support.

Many of these strategies are well within the capacity of developing countries. Spot checks to visually verify need (i.e. to see whether parents own a house) are relatively straightforward, except perhaps in Africa and South Asia. So is comparing a parent's occupation with the estimated income of that profession using employment surveys. But governments and particularly institutions must want to do this; there must be rewards for efficiently allocating student support to only those who need it.

Chapter 4
Delayed Payment Strategies

In many instances, imposing cost recovery -- either for living expenses or for instructional costs -- has proven politically difficult, and has raised the problem of how to relieve the pressure on students who cannot afford to pay. To resolve this problem, much economic literature has advocated student loans to enable students to defer payment for the costs of attending higher education until they are earning incomes. We refer more broadly to **deferred payment** programs to include those policy instruments which secure payment from the future incomes of students, rather than their current resources. Extensive theoretical and comparative literature on student loans has been developed by Maureen Woodhall. A particular emphasis of her work has been on the potential role of loans in developing countries (Woodhall 1983, 1987a, 1987b, 1991). Johnstone (1986) has surveyed student support mechanisms in industrial countries. More theoretical discussions have been developed by Mingat, Tan and Hoque (1985), and Psacharopoulos and Woodhall (1985). In recent years, alternative formats for loans, particularly loans with income contingent repayments[16] have received considerable attention (Barnes and Barr 1988; Barr 1989; Woodhall 1989).

While most of this literature has been extremely optimistic about the efficiency of student loans, few studies have actually examined their financial impact, particularly in developing countries. In this chapter, therefore, we examine the financial impact of current and past programs on government and student budgets, highlight key obstacles, particularly with regard to payment formats and administering institutions. The discussion then turns to strategies for improvement. Overall, we conclude that while it is possible to improve small scale loan programs that have had, until now, only a marginal impact on reducing government expenditures, most student loan programs possess severe limitations in their present forms.

The plan of the chapter is as follows. The main characteristics of loan programs in fifty countries are discussed in the following section. In section three, the financial performance of 23 of these programs are examined in detail while in Section four we suggest policy reforms that would lead to improved financial performance. We then move on to discuss alternative cost

recovery mechanisms and some conclusions on the feasibility of introducing a loan program concludes the chapter.

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[16] Loans with income-contingent repayments have somewhat misleadingly been labeled "income-contingent loans" in the remainder of the paper, we use the more common term.

Existing Student Loan Programs

Student loan programs have been developed in various forms in over 50 countries throughout the world. Summary information on these programs is listed in Table 4.1, in terms of geographic coverage, type of repayment format, administering institution, purpose of loan support, average value of the loan and the proportion of students covered by the loans scheme. In general, developing country student loan programs have been used to assist with student living expenses and typically cover only a few percent of the student population.

The table identifies 20 programs in Latin America and the Caribbean, eight in Asia, four in the Middle East and Northern Africa, seven in Sub-Saharan Africa and 14 in industrialized countries. Noteworthy is the large number of loan programs in Latin America and the Caribbean: first implemented in Colombia in 1953 to assist graduate students to meet the costs of overseas study (Woodhall 1983), loan programs (referred to locally as student credit programs) are now in place in most countries in the region. In addition to those listed in the table, there is a loan scheme with limited coverage in Guatemala and the Caribbean Development Bank also operates a student loan program for eleven small countries (Carlson 1992). This contrasts with the paucity of programs in developing countries in other regions, especially in the Middle East and Africa, where indeed some programs have been abandoned in recent years.

With the exception of four schemes, all programs offer students credit in the form of a "mortgage" loan. In this traditional mortgage-type loan, repayment is made over a specified period, usually with fixed monthly payments; interest rates and the maximum length of repayment are used to calculate the fixed periodic payments. In contrast to this regime of equal nominal payments, most of the universities in Chile allow graduated nominal payments: borrowers from Chile's Catholic University, for example, pay equal real (rather than nominal) amounts, thus ensuring that the first payments are not excessively large in real terms in relation to others.

A third type of repayment mechanism is an income contingent loan, in which loans are repaid as a proportion of a graduate's income each year. Income contingent loans are expected to be more favorable to low-income students. The basic problem of borrowing for education, is that the outcome is risky, since the future value of a degree is not immediately apparent. The risk is greatest for students from poorer backgrounds: future job and earnings opportunities may be less favorable for the poor, and fixed future repayments commit the debtor to repay an open ended proportion of his income. In addition, the poor tend to be more risk averse than the well-to-do (Reuterberg and Svennson 1990; Barr 1990). Therefore mortgage loans may deter access among the very groups that loans are intended to reach.

Table 4.1. Existing Student Loan Programs

Country (Loan Organization)	Repayment Mechanism	Administering Institution	Purpose of Support	Average Loan Value	Year Begun	Students with Loans Percent	Students with Loans Data year
LATIN AMERICA AND CARIBBEAN							
Argentina (INCE)	Mortgage Loan	Autonomous Body	Living				
Barbados (SRLF)	Mortgage Loan	Autonomous Body	Tuition and Living	$11,000	1976	12%	1989
Bolivia (CIDEP)	Mortgage Loan		Living			1%	1987
Brazil (CEF)	Mortgage Loan	Commercial Banks	Tuition	$400	1974	10%	1987
Chile	Graduated	Universities	Tuition		1981	21%	1987
Colombia (ICETEX)	Mortgage Loan	Autonomous Body	Tuition and Living	$280	1953	9%	1987
Costa Rica (CONAPE)	Mortgage Loan	Commercial Banks	Tuition and Living		1977	6%	1987
Dominican Republic (FCE)	Mortgage Loan	Autonomous Body	Living				
Ecuador (IECE)	Mortgage Loan	Autonomous Body	Living			1%	1987
El Salvador (Educredito)	Mortgage Loan	Autonomous Body					
Honduras (Educredito)	Mortgage Loan	Autonomous Body	Tuition and Living	$2,700	1976	1%	1991
Jamaica (SLB)	Mortgage Loan	Autonomous Body	Tuition and Living	$405	1970	20%	1985
Mexico	Mortgage Loan	Commercial Banks					
Nicaragua (Educredito)	Mortgage Loan	Autonomous Body					
Panama (IFARHU)	Mortgage Loan	Autonomous Body			1966	6%	
Peru (INABEC)	Mortgage Loan	Autonomous Body					
Trinidad (SRLF)	Mortgage Loan	Autonomous Body	Tuition and Living		1972		
Venezuela (Educredito)	Mortgage Loan	Other	Tuition and Living	$400	1967	1%	1991
(FGMA)	Mortgage Loan	Universities	Tuition and Living	$2,200	1975	1%	1991
(BANAP)	Mortgage Loan	Commercial Banks	Tuition and Living	$700		1%	1991
ASIA							
China	Mortgage Loan	Universities	Tuition and Living		1987	30%	1989
India	Mortgage Loan	Other	Tuition and Living	$85	1963	1%	1989
Indonesia *	Mortgage Loan	Universities and Commercial Banks	Tuition and Living	$550	1982	3%	1986
Korea	Mortgage Loan	Commercial Banks	Tuition and Living		1975		
Malaysia	Mortgage Loan	Commercial Banks	Living	$1,300	1985		
Philippines	Mortgage Loan		Tuition		1976	1%	
Pakistan	Mortgage Loan	Commercial Banks	Tuition and Living		1974		
Sri Lanka	Mortgage Loan	Commercial Banks			1964		
MIDDLE EAST, NORTH AFRICA							
Egypt	Mortgage Loan	Autonomous Body				5%	1980
		Commercial Banks				2%	1980
Israel*	Mortgage Loan	Commercial Banks	Tuition and Living			12%	1983
Jordan	Mortgage Loan						
Morocco	Mortgage Loan	Commercial Banks	Tuition			<1%	1990
SUB-SAHARAN AFRICA							
Ghana	Income Contingent	Government Dept.	Living	$200	1989	68%	1990
Kenya	Mortgage Loan	Commercial Bank	Living	$845	1973	100%	1990
Nigeria*	Mortgage Loan	Autonomous Body	Tuition				
Rwanda							
Burundi*							
Malawi	Mortgage Loan		Living	$80	1988	50%	1989
Tanzania*	Mortgage Loan		Living				
INDUSTRIAL COUNTRIES							
Australia	Income Contingent	Government Dept.	Tuition	$1,750	1989	81%	1990
Canada (Quebec)	Mortgage Loan	Commercial Banks	Tuition and Living	$2,800	1963	59%	1990
Denmark	Mortgage Loan	Commercial Banks	Living	$3,700	1975		1985
Finland	Mortgage Loan		Living	$2,200	1986		1987
France	Mortgage Loan	Government Dept.	Living			1%	
Germany	Mortgage Loan		Living	$1,500	1974	30%	1987
Hong Kong	Mortgage Loan	Government Dept.	Tuition and Living	$1,050	1969	26%	1989
Netherlands	Mortgage Loan		Living	$200			1989
Norway	Mortgage Loan	Autonomous Body	Living	$4,000		80%	1986
Japan	Mortgage Loan	Autonomous Body	Tuition and Living	$2,500		19%	1987
Singapore	Mortgage Loan	Government Dept. Commercial Banks	Tuition and Living			39%	1990
Sweden	Income Contingent	Autonomous Body	Living	$5,828			
United Kingdom	Mortgage Loan	Autonomous Body	Living	$745	1990	28%	1991
USA	Mortgage Loan	Commercial Banks	Tuition and Living	$2,176	1964	28%	1987

*Programs in Indonesia, Israel, Nigeria, Tanzania and Burundi have been abandoned.
Blanks imply information was not available.

Income contingent loans constitute a mechanism for achieving a balance between effective recovery of costs and minimum risk to the borrower. Under such a loan, the size of repayment is linked to the graduate's income. Income contingency thus limits debt burden in a given period, and also targets more subsidies to lower wage earners. Since high earners have to pay their loans more quickly, they benefit less from any subsidy: low earners are able to repay more slowly, and therefore receive greater subsidies. One problem with income contingent repayments is that they may exert a disincentive effect on extra earnings; this problem does not apply to mortgage-type fixed loan payments. Currently, there are three income contingent loans programs - in Sweden, Australia and Ghana. For the most part, credit programs are administered through public institutions. Even where the private sector is responsible for lending (as in the US) the government acts as a guarantor on loans. Public intervention stems from a failure on the part of private markets to supply credit for unsecured human capital loans.[17] Public interventions have taken four major forms.

In most countries, public intervention has led to the creation of autonomous public lending bodies. These institutions have often been labeled "revolving funds" which, once capitalized, are expected to finance themselves through repayments from earlier loans. Yet, as will be argued, this is rarely the case, since loans are generally heavily subsidized and result in losses. The advantage of this type of lending institution is that it allows stronger control over targeting policies. Such autonomous bodies exist throughout Latin America and Europe, as well as in Hong Kong, Egypt and Nigeria. In Latin America, many manage overseas scholarship and loan programs (such as the FGMA in Venezuela and Educredito in Honduras). Institutional strength, however, varies tremendously.

A second common administrative arrangement is the use of commercial banks. Participating banks have been both publicly and privately owned. Some manage programs entirely, with or without government guarantees, while others act simply as collection agents. The administrative efficiency of these institutions tends to be better than the autonomous bodies. Private Banks have managed programs both with and without government support. In the US, private banks disburse and collect money from students, while the government guarantees and subsidizes the loans. There are three major motivations for relying on the private sector: first, the government does not have to make initial capital outlays; second, the government hopes to harness the efficiencies of the private sector and reduce the costs of a loan program; third, the government does not have to set up a potentially costly administrative apparatus to handle the program. Government intervention in these instances is usually in the form of a partial or full guarantee on loans.

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[17] Government intervention is also necessitated from a demand perspective. Student demand for credit is likely to be constrained because of uncertainties among poorer students as to the value of a degree in relation to proposed debt. This requires the government to act to minimize risk both for borrowers as well as creditors.

In some countries, private banks have begun student loan programs without any government guarantees or subsidies. Such programs, as in Morocco, typically support private institutions that offer training in fields that lead to high salaried employment. A program exists in Indonesia to help finance high tuition fees for elite business programs. These banks tend to loan money to secure borrowers (not poorer students) and for students studying in fields that guarantee high private returns to the investment (medicine, finance, etc.). As a consequence, they indirectly provide incentives (i.e. market signals) for universities to expand programs in fields of relevance to the labor market.

A final administrative approach utilizes existing government structures for collection. To address some of the administrative problems involved with income contingent collection, two countries (Ghana and Australia) utilize the government revenue collection systems to recover loans. In Ghana, the collection is managed by the Social Security department; in Australia, through the national income tax. Transactions are made directly to and from the budgets of different government bodies, without creating new administrative structures. While there may be little conceptual difference between a loan repaid through the taxation system or to a bank, there may be a considerable difference in the effectiveness in recovering funds and in administrative costs. In addition, if government structures are used, then the government usually needs to make the initial capital outlays for the program.

The mechanics of collecting contributions in Ghana and Australia are quite different. In Ghana, students have been able to borrow money from the government to pay newly imposed fees for living expenses; repayment is made through the existing social security tax on all wage earning employees, by deferring the accumulation of retirement benefits. Social security payments have a particular advantage because in many systems individuals have an incentive to pay this tax, since they derive benefits in proportion to what they pay (Box 4.1). Australia, in contrast, has implemented a system whereby students can automatically forego their tuition fees in the form of a loan; repayment is through a graduated surplus income tax, with outstanding debt assessed at a zero percent real interest rate, and tax rates of two, three and four percent, depending on an individual's income.

A noteworthy feature of Table 4.1 is the large number of loans programs that offer support for students' living expenses. Of the forty loans programs for which information is available, 33 offered maintenance support (for lodgings, food etc); of these, nearly half supported living expenses solely (European countries, Kenya, Ghana), the rest in combination with support for tuition expenses (US, Colombia, Hong Kong, Korea, Japan). The programs supporting combined tuition and living expenses often attempt to promote student choice between public and private institutions. A student can use support to pay tuition at more expensive private schools or for living costs by attending a public university (as in Colombia and the US). The purpose the loan program depends on the structure and policies within the university system. In many countries student living allowances absorb a very high proportion of the higher education budget; in Africa, for example, where public

university education is typically free, generous student support often accounts for more than half of higher education budgets. In theory, loan programs aimed at living expenses can free up budgets to finance educational inputs; there remains enormous scope for further moves in this direction. As a consequence, many African governments with larger student support budgets, have either recently implemented new loan programs, or are contemplating new ones. Ghana and Malawi have just introduced loans to reduce government expenditures on living expenses.

Box 4.1. Ghana: Using Social Security for Repayment.

In 1989, the Ghanaian government began to charge university students for housing and meals. At the same time, it offered students an optional loan worth about $200 to help meet these costs. The most innovative aspect of the loan is the collection mechanism, through the social security system. Graduates repay their loans through their standard social security deduction which goes to the education budget rather than to their own benefit account. Students, therefore, repay their loans not through an increased social security tax rate, but rather by deferring contributing to their own retirement accounts until the loan is repaid. Once a graduate finds employment, the standard five percent payroll deduction plus the employer's 12 percent contribution goes to the Ministry of Education rather than the retirement accounts.

The program is not without problems. A first concern is a large interest subsidy on the loan. More puzzling however is whether the student actually makes any contribution. The scheme may not actually collect any additional revenues for the government; rather, the social security system may be subsidizing university education. The problem is that many workers accumulate maximum retirement benefits some years before retirement, and continue to contribute to the social security system. Thus, even if students wait four years before starting to accumulate their retirement benefits, the normal work life may be such that these students anyhow would have worked an extra four or five years beyond the period that full retirement benefits had been accumulated. In the final analysis, the government may have to find extra funding for the social security system.

In only five countries are loans still used to fund tuition fees only (Brazil, Chile, the Philippines, Morocco, and Australia). Indeed, tuition loans have often been essential to the development of fee charging private sectors. In Colombia, Brazil, and Morocco, loans to assist students in private institutions have permitted their expansion, and thus increased the overall access to higher education with lower budgetary demands on the government.

Australia combined new tuition fees with an option to pay the whole amount as a loan through the tax system. In Chile, large tuition increases were combined with student support programs managed by universities.

To understand the financial impact of loan programs it is important to examine the amount that students are receiving, and the number of students receiving loans. While average annual loan values in industrialized countries typically range between $1,000 and $5,000 per year, loans have been much smaller in developing countries. With the exception of countries that use loans to finance overseas study, programs normally lend under $500 per student. Those programs lending large amounts on average (Venezuela, Honduras and Barbados) have extensive overseas programs. Barbados is exceptionally high since the country does not have its own university, and students rely almost exclusively on foreign training.

A relatively higher proportion of students receive loans in industrialized countries (between 20 percent and 80 percent) than in developing countries, where coverage is almost always less than 10 percent of the student population. Exceptions are found in Kenya and Ghana, where all public university students receive loans for living expenses. High coverage usually indicates a situation where loans replaced outright grants or the free provision of housing and food. As a rule of thumb, the higher the coverage, the lower is the average loan amount. When institutions cover less than one percent of the student population, they are able to lend larger amounts; when they expand to 10 percent, the average size dwindles. The limitation on loan organizations in developing countries stems from their overwhelming dependence on the government for their budgets: when student repayments are relatively insignificant, total support in a given year is determined by government allocations.

In general, loan programs have not been used to support cost recovery for higher education. They have served as support mechanisms for the maintenance of students, at somewhat lower costs than outright grants. The next section will evaluate the extent to which different programs have operated at lower costs than a regime of grants. In addition, we shall illustrate that to date, loan programs have had only marginal impacts on higher education finance, supporting a few students or providing relatively little support on highly subsidized terms. Before developing countries can fashion larger scale programs to enable students to meet the costs of higher tuition fees, important lessons from existing programs need to be learned. These issues are discussed in the next two sections.

The Financial Impact

The major purpose of a loan scheme is to enable students to share the financial burdens for tuition and/or maintenance expenses with the government through payments from their future earned incomes. The financial efficacy of any loan scheme will depend centrally on the "loan recovery ratio" - the extent to which the loan is repaid in full. One

can consider the relationship between what governments lend out to students and what is returned in repayments as an indicator of the loan's efficiency. An inefficient program, where the government recovers little of what it lends implies that the government continues to bear the cost burden of higher education and/or student maintenance expenses.

A second issue raised in this section regards what costs are being recovered. Even if loan recovery were complete, with loan expenditures fully repaid, the vast majority of loan programs would only reduce government burdens for maintenance expenses, and not tackle the problem of diversifying the resource base of higher education institutions. Most public higher education institutions do not require students to pay tuition fees that cover a significant portion of educational costs. Therefore, the institutional "cost recovery ratio" (average loan repayment in relation to unit costs) will be low. Institutional cost recovery cannot be substantial unless tuition fees are high and loans are used to support students paying tuition.

Loan Recovery Ratio

The efficiency of student loans, and their relationship to institutional cost recovery are examined in the present section. 23 separate deferred cost recovery programs (from 20 different countries) are analyzed in detail to evaluate their financial impact, in terms of both loan recovery and the cost recovery ratio. Both types of existing loan programs have been evaluated -- mortgage loans, and income contingent loans[18]. While these latter programs have been implemented recently in only three countries and it is thus too early to assess their full impact, it is possible to predict their revenue generating potential by projecting future earnings for university graduates. Loan recovery will depend on three major issues: the amount of hidden interest subsidies on loans; repayment losses due to default; and administration costs. Discussion of these three issues relates to Table 4.2.

Interest Subsidies (Hidden Grants). Student loans are subsidized if they charge an interest rate that is less than normal market rates for borrowing; this subsidy can be considered a "hidden grant" to students.[19] To calculate the size of the hidden grant portion of the loan, we examine the loan account of the individual borrower, assuming regular repayments are made in conformity with the formal conditions of the loan agreement. Thus we examine the amount and timing of repayment in relation to the loan disbursed to the student.

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[18] In order to evaluate programs, the authors have developed simulation models for mortgage-type loans (included tilted payment schemes), income-contingent loans and graduate taxes. These allow flexible inputs for repayment streams and costs, and can project budgetary requirements.

[19] More precisely, even if the government were to provide loans at "normal" market interest rates (i.e. rates on consumer loans, such as housing), the government is still providing a subsidy because loans for education investment have a higher inherent risk.

Table 4.2. Hidden Subsidies and Government Losses on Selected Student Loan Programs

Country	Nominal Interest rate	Real Interest rate	Maximum or Projected Repayment Period	Hidden Grant to students per cent of loan	Government loss with default	Government loss with default and administr-	Year	Estimates
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
MORTGAGE LOANS								
Colombia I	11.0% a	-10.6%	8	73%	76% c	87%	1978	Administrative 2%
Colombia II	24.0%	3.0% b	5	29%	38% c	47%	1985	Administrative 2%
Sweden I	4.3%	-3.0%	20	61%	62%	70%	1988	Administrative 1%
Indonesia	6.0%	-2.3% b	10	57%	61%	71%	1985	Default 10%, Adm 2%
USA (GSL)	8.0% a	3.8% b	10	29%	41%	53%	1986	Administrative 2%
Hong Kong	0.0%	-6.3% b	5	43%	43%	47%	1985	Administrative 2%
UK	6.0%	0.0%	7	26%	30%	41%	1989	Default 5%, Adm 1%
Norway	11.5% a	5.6%	20	33%	33%	48%	1986	Administrative 1%
Denmark	8.0% a	1.6%	10	52%	56%	62%	1986	Administrative 1%
Finland	6.5% a	-0.6%	10	45%	46%	52%	1986	Default 2%, Adm 1%
Brazil I	15.0%	-35.0% b	5	91%	94%	98%	1983	Default 30%, Adm 2%
Brazil II	318.0%	-14.9%	8	62%	65%	71%	1989	Default 10%, Adm 2%
Jamaica I	6.0%	-10.7%	9	74%	84% c	92%	1987	Administrative 2%
Jamaica II	12.0%	-5.6%	9	56%	62% c	70%	1988	Default 20%, Adm 2%
Barbados	8.0%	4.1%	12	13%	18%	33%	1988	Default 5%, Adm 2%
Kenya	2.0%	-6.9%	10	70%	94% c	103%	1989	Administrative 2%
Quebec	10.0% a	5.2%	10	31%	31%	37%	1989	Administrative 1%
Chile	varies	1.0% b	10	48%	69% c	82%	1989	Administrative 2%
Japan	0.0%	-1.4%	20	50%	51%	60%	1987	Administrative 1%
Venezuela (FGMA)	4.0%	-23%	20	93%	98%	108%	1991	Administrative 3%
Honduras	12.0%	3%	8	51%	53%	73%	1991	Administrative 5%
INCOME CONTINGENT LOANS								
Australia	varies	0.0%	17	48%	52%	57%	1990	Evasion 3%, adm 0.5%
Sweden II	varies	1.0%	10	28%	30%	33%	1990	Evasion 3%, adm 0.5%

General notes: Appendix 1 contains a methodological note outlining the method used for the subsidy calculations. A real opportunity cost of capital is used according to the government rate of borrowing or World Bank estimates. Loans are assumed to be paid in equal installments over a four year period, adjusted in size each year to keep up with inflation. Given the availability of relevant data, Swedish income contingent calculation is based on Australia's age earning profile information;

(1) Countries with I and II refer to situations where the loan program underwent reform.

(2) Nominal interest rate refers only to the rate during repayment. 'a' refer to loans that use a different rate during the disbursement and recovery. 'b' denotes those programs with interest rates which are indexed.

(3) Real interest rates use Purchasing Power Parity formula, where inflation is based on the average of the 1980-1988 period as reported in the World Development Report, except in instances noted where a 5 year average of inflation was calculated from the data date.

(4) The repayment length is the maximum prescribed in the loan, except for the two income contingent loans where it is the repayment length that is implied by the average income profile of a graduate. This does not include grace periods.

(5) The hidden grant percentage is calculated as a discounted cash flow of the student's account, and therefore excludes default and administrative costs.

(6) The government loss due to default subtracts the % of default from each year of the repayment stream. 'c' denotes where these figures have been estimated.
For Colombia, Jamaica, Chile and Kenya the figure used is loans in arrears.

(7) The loss with default and administrative costs subtracts an annual administrative cost related to outstanding debt each year.

(8) Year is date from which loan information was collected, and from which inflation calculations were made.

The factors that influence the size of the subsidy are the real interest rate charged and the length of repayment: these are shown in Table 4.2. Columns two and three, respectively, list the nominal interest rate charged in the data year and the real interest rate (nominal rates adjusted for average inflation). Column four lists the length of repayment[20] for loans (excluding grace periods); for income contingent loans, this is the length of repayment that is implied using an average income profile for university graduates. Column five presents the hidden subsidy to the student as a percentage of the original loan: this figure compares the net present value of the student's repayment account to the present value of the loan disbursement.[21] We note that all of the loan programs in the sample are subsidized, some very highly so, ranging from 13 percent subsidy in Barbados to 93 percent in Venezuela. Broadly similar results were obtained in a concurrent study of loan programs in Latin America and the Caribbean. For programs common to the two studies (Carlson 1992), Carlson estimated a "subsidization rate", based on the difference between the student loan interest rate and commercial lending rates of 33 percent for Colombia and 54 percent for Honduras, compared with our estimated hidden grant of 29 percent and 51 percent respectively for these two countries. High inflation rates in Latin American countries in the 1980's increased the gap between nominal and real interest rates and help to account for the high levels of subsidization in those countries; any easing of inflation would result in an improved loan recovery ratio. In half of the programs examined, subsidy exceeds 50 percent of the loan, indicating that less than half of the real loan value would be recovered if all students repaid on time. Even when real interest rates are positive - as in Barbados and Sweden - the loans are still subsidized because the interest charged is below market rates.

Default and Evasion. The loan subsidy measures the percentage loss to the government from each loan that is repaid according to the established loan conditions; however, it fails to reveal the overall loss to the government from the loan program. Lending agencies receive back less than is indicated by the hidden student subsidy because not all students meet their repayment obligations and the administration of the program is not costless. The experience with default has been mixed. In some instances, default and evasion can constitute a more severe problem than subsidies. For example, non-repayment was as high as 81 percent in Kenya. Thus, even with theoretically tight repayment terms, little revenue comes back. In other instances, default is less of a problem (Sweden, Hong Kong, Israel). While default rates are lower among developed countries, particularly when they are small and have populations which are easy to track, it has yet to be demonstrated that default can be minimized effectively in large developing countries, without extensive administrative costs. When default losses are factored into the return to the government, measured losses from the loan program are enhanced (Table 2, Column six). In the original

[20] In some instances, repayment length is a function of borrowing length. The analysis assumes four years of borrowing.

[21] The methodology used for measuring the hidden subsidy as well as the other financial impact calculations presented subsequently, is set out in Appendix 1.

Brazilian scheme, Venezuela and Kenya, losses increased to over 90 percent of the value of the loan.

Box 4.2 Equity and Risk Aversion

The equity considerations of student loans are no less important than financial efficiency. While loans can be an important tool to assist people meet their educational costs, poorer individuals are less likely to borrow than middle class students. The problem of "risk aversion" has been confirmed by empirical studies. Sweden's former mortgage-type loan was not found to promote access among lower income groups (Reuterberg and Svennson 1991). Other studies confirm this finding in industrial countries.

Borrowing to finance higher education is unlike borrowing to purchase a house because, when people borrow to finance a degree they are not completely certain what they are purchasing (especially if their parents did not attend higher education); there is a risk of failing the course; and not all degrees lead to high private returns. That is, while mean incomes may show a high rate of return, in reality, incomes can vary considerably. In addition, while private returns are likely to be high for wealthier students, they are less likely to be high for poorer students who lack family connections (Barr 1990).

To minimize the risk to low income students, most governments subsidize loans. But large subsidies undermine the purpose of having the loan in the first place. Governments can minimize more effectively the problem of risk aversion by limiting the repayment burden in any given year: by linking payments to income, imposing payment ceilings, or providing exemptions if income falls. Such measures can minimize the risk to low income students and encourage them to borrow to finance their studies.

Administrative Costs. To establish the true cost of a deferred cost recovery program, administrative costs, too, must be taken into account. These costs generally fall into initial processing costs, overall maintenance costs and collection costs. In developing countries, tracking mobile students can be extremely difficult, making administrative costs higher. The small average size of loans makes them proportionately more costly. No detailed comparative study of costs of loan programs has been conducted, and data are mostly limited to those from developing countries. The most efficiently run operations -- in Sweden, Hong Kong and Canada -- report costs ranging between one half and one percent of outstanding debt each year. (Woodhall 1983, Woodhall 1990b, Quebec Student Financial

Assistance Program 1990)[22]. In Latin America, the overall cost of managing a loan has been put at between 12-23 percent of the value of the loan (Woodhall 1983). Annual reports from Latin American loan organizations confirm these estimates, and suggest that the institutions investing in recovery are spending even more, as high as 30 percent in Honduras. World Bank data from Venezuela suggests that the overall administrative cost for the largest loan program varies between 13 and 16 percent of the loan value. In calculating the net return of loan programs, when costs are unknown, we assume an annual cost of only two percent of outstanding debt each year; when discounted, this implies an overall cost of approximately 10 percent of total loan value, and thus is likely to understate the full cost of a loan program.

Programs that rely on commercial banks or taxation departments have been less costly to administer. In Brazil, operating costs for the commercial banks are approximately 10 percent of the total loan value (World Bank data). Administrative costs for taxation collection may be even less expensive, due to large economies of scale.

Overall losses on loan programs, taking account of administration costs, in addition to interest subsidies and non-repayment, are shown in Column seven of Table 4.2; given the low assumed value of administration costs, these results should be regarded as conservative estimates of what the true net loss to government is likely to be. The most efficient programs are in Sweden and Quebec, which both recover well over 60 percent of the loan's value (i.e. losses of 33 and 37 percent respectively), while the programs in Venezuela and Kenya actually cost more than would outright grants to students[23]. Broadly similar, though somewhat more favorable results are presented in Carlson's study of loan recovery in selected loan schemes for Latin America. Taking account of loan repayments, default and administrative costs, he estimated overall loan recovery of 34 percent for Brazil, 52 percent for Colombia, 30 percent for Jamaica, 27 percent for Honduras and 52 percent for Chile (Carlson 1992). Comparable results in Table 4.3, column 7 are: 29 percent, 53 percent, 30 percent, 28 percent, and 18 percent, respectively.

Loans in Relation to University Costs

One of the central theoretical and practical rationales for loan programs is to diversify (broaden) sources of funding for higher education. As noted, however, most loans are used not for institutional funds, but to limit government burden for student maintenance. Chart 1 examines the experience in seven countries where a loan scheme is coupled with fees in public universities to help cushion the impact of cost recovery.

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[22] In evaluating the administrative costs of programs, we have used the measure of cost in relation to outstanding debt because it was the most available format.

[23] This would depend, of course, on the costs of administering student grants.

To illustrate the dampening effect of most student loan programs on cost recovery, Chart 4.1 compares the unit instructional costs for higher education in seven countries with student contribution via direct fees and the present value equivalent of payments via student loans.[24] In these seven countries, with some of the highest public sector cost recovery in the world, governments recover only between two percent (Colombia) and 14 percent (Quebec) of instructional costs from loan recipients.

The problem is perhaps most severe in Chile where tuition fees in formerly public institutions are the highest in the world, approximately 60 percent of unit instructional costs (Schiefelbein 1990). Because of the losses on the loans, mostly due to non-payment, however, the net cost recovery from students who repay via loans is only 11 percent.

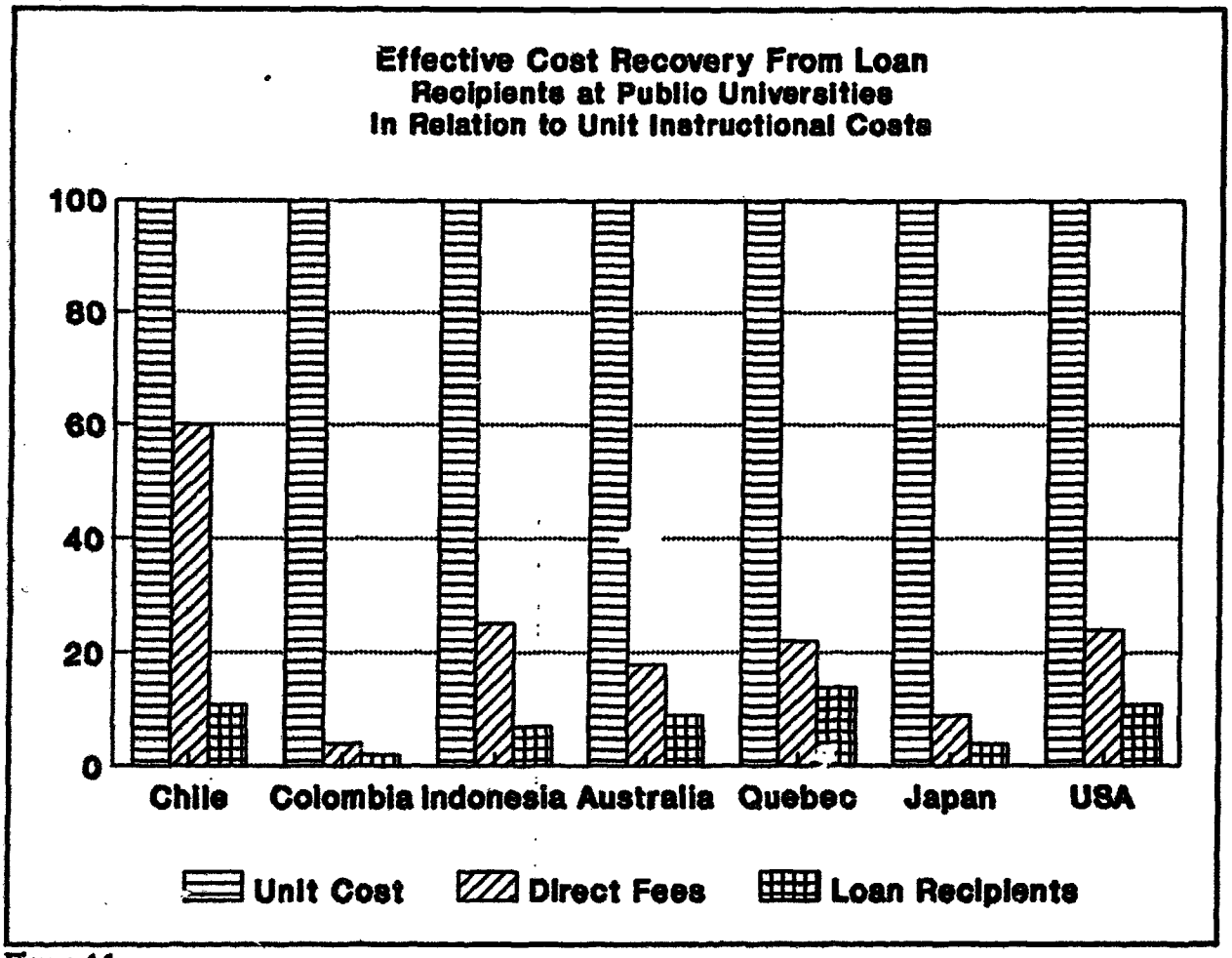

Figure 4.1

[24] The graph assumes that students receive a loan equivalent in size to tuition fees.

In Australia[25], if the student decides to repay in the form of an income contingent loan, the government recovers, on average, about 43 percent of the loan value[26]. The effective cost recovery therefore represents only nine percent of unit costs. Overall, effective cost recovery is extremely low. This is so for two reasons. First, fee levels generally do not represent significant portions of the costs of higher education. The low initial cost recovery is compounded by loan programs which require further government expenditure just to recover costs in a deferred form. If loans are to be used to foster cost recovery, significant fee levels must be established. To date, therefore, loans have been operating only at the margins of cost recovery.

Improving Performance

While this principle for student loans is well established, we have seen that past experience with loan programs has been disappointing, particularly from the viewpoint of financial efficiency. Yet, it should not be concluded from disappointing results of past experience that loans programs should be abandoned. On the contrary, we argue that reform and improvement in several key elements of program design can lead to well functioning loan programs. In this section, we outline three major issues that require attention for programs to work well: effective targeting, reducing subsidies while limiting debt burdens, and minimizing evasion.

Targeting Loan Support

Many student loan programs are open to all students, regardless of need or ability. In Africa, loan programs in Ghana and Kenya allow all students to borrow money for their maintenance expenses in public institutions. Recently implemented schemes in the United Kingdom and in Australia also provide students with access to credit, regardless of income. But open access can be expensive to governments, particularly if support is subsidized.

A successful support program needs to be targeted effectively, to those who are deemed most deserving of support. Without effective targeting, growing student numbers in the future, as well as less-than-full loan recovery, will result in increasing, and unsustainable, pressures on limited loan funds. Given that loan funds are subsidized and

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[25] There is a 15 percent discount if the student pays fees directly. The Australian scheme allows this discount in recognition of the hidden subsidy on the loan. However, as calculated for average income earners, this discount is well below the loan subsidy. Israel allowed students eligible for loans the option of a 35 percent tuition discount if they turned down the loan: this calculation was based on the actual subsidy in the loan (Woodhall 1983).

[26] Since these calculations were done, the Australian government has increased percentage of income students must repay each year, and thus reducing the subsidy element.

most likely will continue to be so (though we argue for much lower subsidy levels), targeting will facilitate the task of limiting the extent of loans subsidization. Other reasons, in addition, may underline the need for deliberate loan targeting. The finding (Table 4.1) that in many countries the percentage of students receiving loans is not high, indicates that rationing mechanisms are at work. But with open access, these will not have been established deliberately by government; self-selection into the loan scheme amongst well-to-do students, together with a disinclination of risk-adverse poorer students to enroll, may have introduced implicit rationing criteria that may not be in conformity with overall policy objectives. Targeting on the basis of means testing is discussed at length in Chapter 3. Here we stress an additional concern, namely to target loans to students that are likely to complete their courses.

Access to loans may be limited to those students whose family or personal income falls below a threshold value. Means tests may take a variety of forms. In the US, support is available to students below the income threshold. Alternatively, loan amounts can vary according to the difference between an individual's available resources and the costs of a given course of study, as in Canada, Barbados, Brazil and Sweden. The calculation of need can be adjusted for the number of family dependents; or parental income can be completely ignored and the student's assets and income assessed independently as in Sweden, the Netherlands and Norway. In these countries, students over 19 years of age are treated as financially independent of their family. Thus, almost all students are eligible for support. This stipulation, it is believed, has been significant in ensuring access for women. But this same requirement in many developing countries has enabled students from wealthier families to benefit enormously from student support, simply because students at age 19 are unlikely to have their own sources of income.

Access to support can be based on student performance, either at secondary school or university. Ability restrictions give students a strong performance incentive, while also rewarding those who are most likely to benefit from higher education. Restricting eligibility in this way can help to avoid providing subsidies to students that are most likely to repeat or drop out. In Indonesia, students were only eligible for loans as they approached graduation, after they had proven their academic ability. It may also be useful to define publicly the academic standards that must be achieved to attain access to loan funds. In Venezuela and Honduras, a student failing to receive minimum grades, will lose access to loan support and must begin repayment of loans immediately. In Colombia, access to loans is determined partially by results on the national secondary school examination. There is concern, however, that the use of ability criteria could result in the selection of wealthier students with access to better educational facilities.

The failure to limit funds to qualified students can lead to higher default, as experienced in the United States (Box 4.3). Relatively high default rates on student loans stem from the lack of ability criteria in allocating support. Under the program's initial terms, all post-secondary students at accredited institutions satisfying need criteria have access to subsidized loan funds from private commercial banks. The government acts as the

loan guarantor and pays a subsidy to the banks. Guaranteeing widespread access has undoubtedly helped disadvantaged students, but the lack of quality standards has led to an increasingly costly program. Default is highest in proprietary and two-year institutions (33 percent) compared with only seven percent among students attending four year institutions.

Box 4.3. United States: Quality Restrictions and Efficiency

The Stafford Loan Program (formerly the Guaranteed Student Loan Program) has been the principal government mechanism for promoting access to higher education. Under the program's initial terms, all post-secondary students at accredited institutions satisfying need criteria would have access to subsidized loan funds from private commercial banks. Loan funds could be used at public or private institutions, including vocationally oriented proprietary institutions. The government would act as the loan guarantor and pay a direct subsidy to the administrating agent on the loans.

Guaranteeing widespread access has helped disadvantaged students, but the lack of quality standards (either among institutions or students) has led to an increasingly costly program. During the 1980's, approximately 17 percent of borrowing students failed to repay their debts. Default stems from the high risk involved with guaranteeing access to all low income students, since the government makes little effort to control the quality of the students receiving support. The subsidized loans have been available to students at institutions, even if they accepted students without a secondary school diploma. Therefore, the subsidy in the loan has encouraged less qualified students to enter poor quality schools. Default is by far the highest in proprietary and two-year institutions. In 1989, the rate was 33 percent among students at proprietary schools while only seven percent among students attending four year institutions.

Reform of the program requires the government to reconcile increasing quality standards with the need to preserve access for the neediest students. To resolve this problem, quality control focuses on institutions rather than placing restrictions on student achievement level. Institutions that accept students without a secondary school degree or its equivalent will no longer be eligible for loan funds. While this will not correct all the problems, it will certainly reduce the rate of default and encourage institutions to raise their entrance standards.

The period for which student support is available can affect student flows, and thus the efficiency of the education system. In many higher education systems, repetition is fostered by open ended availability of support. Limiting loans to the prescribed length of a course can improve student performance, and also conserve funds. A potentially negative consequence of this type of restriction is that it can penalize students who work and study at the same time, and are therefore likely to take longer to complete their courses. An

interesting innovation to address this problem has been implemented recently in Denmark: the "clip card" approach allows students to draw upon a fixed total loan on a month by month basis as they choose. That is, although aid is limited to the equivalent of four years, students can spread the aid over the expected period of study as they choose. This flexibility is intended both to improve incentives to finish on time, and to mitigate problems for students that need to take longer to complete their studies.

Reducing Subsidies While Limiting Debt Burdens

The manner in which interest charges are assessed is central to the balance between efficient cash flows and equitable debt burdens. The lower the interest rate, the larger the subsidy on loans. But higher interest rates increase debt burden and the likelihood of default. In designing repayment plans that limit the subsidy element in the loan, it is extremely important to examine the likely range of incomes that graduates will be earning. A successful loan program will not simply raise interest rates, but will redesign the repayment format so that graduates will be in a position to pay.

One approach to setting interest rates is to tie them to an indicator of inflation or commercial lending rates. By doing so, the level of subsidy remains fairly constant, and it is easier to project the financial implications of a loan program. After the poor experience of charging fixed nominal interest rates, some countries such as the United Kingdom and Australia, now adjust outstanding debt for inflation. Alternatively, in Sweden, interest rates move with the government lending rate while in Barbados interest rates are adjusted according to the interest on government bond issues. Controlling the level of subsidy on a loan implies increasing interest charges both during the period of study and the repayment period.

One of the major problems with traditional mortgage loans is that, even when subsidized, they impose heavy repayment burdens in the first years after graduation. Typically, a graduate's earnings are low immediately after graduation and rise quickly. Inflation implies that the real value of equal nominal payments decreases over time. Students therefore have the largest debt burdens when they are earning relatively little. In Venezuela, where interest rates for student loans are well below the rate of inflation, the real value of the first monthly payment is more than 250 times the real value of the last payment. Although the loan is heavily subsidized, the student might default because the initial payment represents an unmanageable proportion of income.

Unless payment terms are restructured, non-subsidized student loans are likely to require unpayable payment burdens, particularly in the first years of repayment. This problem will be particularly acute in inflationary environments. To circumvent this problem, graduated (small initial, and larger later payments) or income-contingent payment plans could be considered.

The 1989 reforms in Sweden's student support system have increased the financial efficiency of student loans, while easing the required payment burden (Box 4.4). The reforms followed two basic strategies: increasing the availability of support funds for poorer students by converting the hidden subsidy in the old loan program into open grants; and minimizing the risk of borrowing by linking repayments to income. In effect, by redesigning repayments to match a graduate's income, the interest rate on loans could be raised without increasing debt burden.

Box 4.4. Sweden: Using Financial Efficiency to Improve Equity

The reforms in Sweden's student support system, implemented in 1989, sought to increase participation rates in higher education among low income groups, while increasing the financial efficiency of the program. The reforms followed two basic strategies: (i) increasing the availability of support funds for poorer students by converting the hidden subsidy in the old loan program into open grants; and (ii) minimizing the risk of borrowing by linking repayments to income.

The original student support program, begun in 1964, assisted virtually all students. A grant/loan allowance was calculated at 140 percent of the government's social security subsistence level. The program was widely regarded as one of the most successful student support schemes, particularly because of its low administrative cost (one percent), and low default rate (one percent).

In the 1980's, the program was criticized for poor financial performance and more importantly for its failure to raise the higher education participation rate of students from working class backgrounds. To redress these problems, the new loan/grant mix essentially allows more money to be channeled to student support by cutting back on hidden grants (Morris 1990). The new support package has raised both the total support and the percentage which is awarded as an outright grant. The rest is given as a loan to be repaid on an income contingent basis of four percent of income. The same deferment clauses are still in effect. But the loan carries with it an interest charge that is half the government lending rate. This yields a positive real interest rate of about one percent, and has therefore reduced the hidden subsidy to about 20 percent. Thus, with the savings from eliminating the hidden grant, outright grants have been expanded. This should be important in assisting low income students in attending higher education, as their effective risk is now minimized, and the overall availability of credit and open support has been increased.

While income-contingent payments are desirable from an efficiency and equity standpoint, they are not always feasible (because of the absence of accurate income reporting). An alternative is to design scheduled repayments so that they approximate the growing trend in expected incomes. This implies tilting repayment schedules so initial

payments are smaller than later ones. Such graduated repayment plans could effectively minimize burdens on students after they graduate while eliminating subsidies.

Minimizing Evasion

The other major problem that has plagued the finances of student loan programs has been the failure of many students to repay their debt. Default can be divided into two problems: students who cannot pay, and students who evade payment. Properly defined repayment plans will help students that do not earn large salaries after graduating. In addition, the following steps have been shown to improve performance.

Choosing an appropriate collection institution is central to effective recovery. While autonomous bodies and universities may possess comparative advantages in selecting students and targeting support, it is less clear that they have the capacity to collect repayments. Banks and tax systems often have the necessary infrastructure that they lack. The former can operate efficiently at collecting money so long as policy does not undermine their incentives to do so. In Venezuela, while exact figures are not available, the student loan program operated by the national savings bank (BANAP) does not suffer from problems of default, while the public collection agencies have much greater problems. Besides relying on banks, some institutions utilize third party collection agencies. Recovery in Honduras has been dramatically raised by using private agencies to locate students and collect money. Non-payment, as a consequence, has fallen below five percent (Box 4.5). ICETEX, in Colombia, passes on additional charges for such services to the student and students now are reluctant to default on their loans.

Another desirable option, where feasible, is to use social security (or national insurance) payroll deduction. Individuals often have an incentive to pay this tax, since they benefit in proportion to what they pay. In Ghana, a new student loan program collects payments through the social security system (Box 4.1). Graduates repay their loans through their standard social security deduction which goes to the education budget rather than to their own benefit account. Students, therefore, repay their loans not through an increased social security tax rate, but rather by deferring contributions to their own retirement accounts until the loan is repaid.

Strong institutions are not enough. Clear incentives to collect need to be established. Full guarantees, or reliance on government for a loan organization's budget undermines most incentives to follow up on delinquent students. The autonomous loan bodies in Latin America often prefer to rely on public funds to provide new loans rather than stepping up efforts to secure repayments. In Honduras, moves to privatize the loan institution, Educredito, have led to needed investments in the recovery apparatus, and have successfully reduced default from 90 percent to under 10 percent. As noted, experience with private and public banking systems has been such that sometimes it may be cheaper for a bank to collect from the government rather than the debtor. In the US and Indonesia, loans were

guaranteed to nearly 100 percent of their value. However, recent steps in the US have sought to minimize the extent of the government guarantee and discount its value -- enough so that the institution has the incentive to collect. In general, full guarantees should be avoided. Commercial banks should share in the risk of the program.

Box 4.5. Honduras: Reducing Default Can Be Costly and Deter Low Income Students

The Honduran loan program, Educredito, has provided approximately 300 students per year with loans to study both within Honduras and abroad. In its twenty year history, the program has encountered severe problems with default. In 1990, the government moved to privatize Educredito. As a consequence, Educredito has taken steps to eliminate these losses. In its earliest years, when the program was small, students were followed closely to ensure repayment. However, as the program grew, both in numbers and loan amounts, many students succeeded in avoiding paying their debts. Overall, the non-payment rate was about 90 percent of the loan portfolio. Due to concerted efforts in the last three years, Educredito is recovering loans from almost all students, and of the latest cohorts only about two percent fail to pay. This success has not been costless, and could have important, although undocumented, equity implications.

To boost recovery, the loan program now requires either two guarantors or collateral on every student loan. In the event of non-payment, Educredito reserves the right to confiscate property or seize assets of the guarantor. Before taking such radical action, the loan organization uses private agencies to locate students that are not paying nor responding to contact. If after locating students and demanding payment the debtor still refuses to pay, Educredito utilizes a private agency for collection. The costs of these operations are high. In 1990, nearly 30 percent of the operating budget went to administrative costs, and a substantial portion of these paid for private agencies.

In the future these costs should fall as attitudes change towards non-payment. A more worrying problem, however, has been that the steps taken to ensure payment, particularly the requirement of guarantors and/or collateral, have deterred low income students from applying for credit. These students have great difficulty in securing guarantors given Educredito's determination to secure repayment. This problem has yet to be resolved.

Income contingent deferrals are an essential minimum step to avoid situations where students who cannot pay are unnecessarily classified as in default. The lowest loan default rates have been in Sweden, Hong Kong and Quebec, in which loans have low income contingent deferment clause. In these loans, when a graduate's income falls below a threshold level, students are exempted from payment -- while still accruing interest charges.

The new student loan program in the United Kingdom also has an income deferral clause. In all of these programs, students must submit proof that their incomes indeed have fallen below the threshold level before deferral is granted. Similarly, a cap can be placed on repayments so that they do not exceed a specified percentage of income.

A controversial, but widespread policy to ensure repayment is requiring a wage earning guarantor who agrees to pay the loan if the student does or can not. This type of arrangement has been implemented in most of Latin America, although the actual definition of guarantor varies from a moral counselor to financial collateral. In Ghana, each borrowing student must have two guarantors, who are wage earners (and thus trackable by the government). The result of such an effective guarantee should be that default will be negligible. Requiring a guarantor, however, can have negative consequences that defeat the purpose of a credit scheme. It might very well be the case that precisely those people who most need support will be the least able to provide guarantors.

Increasingly, loan schemes authorize employers to deduct wages from the salaries of debtors in arrears. In some instances this may be difficult if legal restrictions prohibit deducting salaries for loan repayments. This strategy also requires the lending agent to know where the debtor is. The approach, has been implemented in Jamaica, Honduras and Colombia and seems to be effective. In addition, students can be required to contribute an up-front insurance fee on their loan. Currently, insurance for disability or death is required in Brazil, but it may be possible to extend the idea further to a general default insurance fund as is being discussed in France. Further measures include barring access to further credit among defaulters. When borrowers in Brazil realized that they were ineligible for car loans as a result of failure to repay student loans, they quickly began repaying.

Finally, it may be helpful to maintain contact with students at periodic intervals while they are borrowing to remind them of their loan obligation. The French government has proposed a student loan program that would require students to make small payments each year even while they are borrowing; if the student fails to make any payment, the loan will be cut off.

Policy makers should insure that a loan program is for the most part self financing, otherwise there is little advantage to having a loan instead of outright grants. Three basic strategies can significantly improve the performance of current loan programs. To utilize resources efficiently, a deferred cost recovery program must be properly targeted to students who need and can benefit from support. Second, hidden subsidies can be reduced by charging positive real interest rates, but this will have to be combined with repayment plans that make sense in relation to graduate incomes. Third, a strong strategy to deal with default must be in place, beginning with the removal of institutional disincentives to collect.

Alternative Scenarios

Our discussion in the preceding section suggested a range of reforms, based on "best-practice" measures currently in place, to improve the financial performance of existing loans schemes. The range of deferred payment options, however, extends beyond the formal loan schemes discussed thus far. A more radical strategy than the reform of the traditional loan scheme would be to implement alternative (or additional) forms of deferred cost recovery, a consideration particularly relevant to countries that are weighing the merits of introducing for the first time some form of delayed cost recovery. In this section we discuss the efficacy and advantages and disadvantages of two such schemes: equity finance (the "graduate tax") and employer taxes. A third option, which shares the idea of deferred payments, is to require payment in kind, through service to society. This option will be discussed at length in Chapter 7.

Graduate Tax

The idea behind a graduate tax is straightforward. In subsidizing higher education, the state assumes a share in financing the creation of human capital. This produces a future stream of benefits that accrue mainly to the graduates in the form of enhanced earnings. By participating in the finance of higher education, the government essentially acquires an equity share in the human capital created and is thus entitled to a dividend from the ensuing income benefits. In the case of a graduate tax this dividend can take the form of a percentage tax (say, one to three percent) on graduates' income over their working lives. The term graduate tax is somewhat misleading since it includes also individuals who attend higher education but fail to graduate. The tax is a form of user charge, and therefore could accumulate for each year that the student attends university. Percentage tax rates could also be made to vary with income level, while graduates with low income (low incomes being defined perhaps in relation to median incomes) would be exempt from the tax. Thus the government assumes the risks of human capital investment (depending on the size of the subsidy), which are spread over the student cohort; high-earning graduates will prove to have been good risks, while those with low incomes or high unemployment, poor ones.

First suggested by Milton Friedman, the equity finance approach has been urged frequently by other education economists and policy advocates[27] It has not as yet been implemented anywhere, although there was an interesting, but unsuccessful, attempt to introduce an equity finance scheme at Yale University in the early 1970's (Box 4.6). The feasibility of a graduate tax for the UK is discussed in Glennerster et. al. (1968).

A graduate tax of the type discussed here in many ways resembles the income-contingent loan scheme recently introduced in Australia (which has been labeled as a

[27] Friedman 1962, Blaug 1973, Barnes and Barr 1989.

graduate tax). However, the two schemes are quite different. While in the Australian scheme, income related loan repayments are made through the income tax system, this is done for administrative convenience only. In principle, repayments could be effected through other collection institutions, though there are clear advantages in using the taxation system for collection.

Box 4.6. Equity Finance at Yale

In 1972, Yale University attempted to implement a novel equity finance scheme. The University offered students the option of deferring a fixed portion of their annual tuition payments in exchange for payments of 0.4 per cent of their annual income, for each $1000 deferred. Graduates who opted for this program were to repay as a cohort, not as individuals. Payments would terminate when the cohort's repayment was complete. Thus some individuals would repay less than tuition deferral, others more; there was an exemption for individuals whose payments had reached 1.5 times their original debt.

However, the program failed to attract a sufficient number of students and was abandoned after the first year. A central problem was that existing student loan programs offered more generous (i.e. highly subsidized) terms (Hope and Miller 1988). Indeed, the failure of such a program might be expected in the presence of a student loan scheme. A potentially high wage earner would shun such equity finance arrangements. He would always pay less under a loan scheme (whether subsidized or not) than in an equity finance program: in the latter case, his total payments would exceed the average, whereas in the former total repayments are equal for all participants. The absence of potentially high wage earners from the equity finance scheme would necessarily raise payments for those who remained. This, in turn, would discourage their participation in a scheme that had become financially less attractive.

The major differences between the two schemes are outlined in Table 4.3, which also offers comparable information for the traditional mortgage loan scheme. The motivation behind both loan and equity finance schemes is, ultimately, cost recovery, with the beneficiaries of higher education forgoing part of the return on education that they would otherwise capture. However, they are conceptually distinct. In the case of loans, there is a creditor-borrower relationship between the government and graduate, which terminates when the original loan has been repaid, as defined in the loan agreement. In the case of the graduate tax, the government's involvement takes the form of an equity holding, entitling the government to a share in the benefits of higher education, in the form of a percentage of the graduate's income over his working life. Thus, payments made by graduates are defined as loan repayments in the case of loans, but are to be seen as dividend payments accruing to the government in the case of a graduate tax.

Table 4.3

Student Loans Verses Graduate Taxes: Contrasts and Similarities

Mortgage Loan	Income Contingent Loan	Graduate Tax
Government Provides Student Loans to Pay Fees or Living Costs	Government Provides Student Loans to Pay Fees or Living Costs	Government Acquires Share in Human Capital Equity
Government Recovery of Costs	Government Recovery of Costs	Government Share in Benefits
Loan Pays Fees (Tuition or Living)	Loan Pays Fees (Tuition or Living)	Tax Applies to Subsidized Education
Payments Accrue to Loan Fund	Payments Accrue to Loan Fund	Taxes Accrue to the Treasury
Level of Annual Payments Fixed	Level of Payment Contingent on Annual Income	Level of Tax Payments Contingent on Annual Income
Annual Payments a Declining Proportion of Income	Annual Payments a Fixed Proportion of Income	Tax Payments a Fixed Proportion of Income
Fixed Term Payment Obligation	Payment Obligation Until Loan Repaid	Tax Obligation While in Employment
No Labor Market Disincentives	Labor Market Disincentive Effect	Labor Market Disincentive Effect
Loan Disbursement Institutions	Loan Disbursement Institutions	No Disbursement
Need to Maintain Individual Accounts	Need to Maintain Individual Accounts	No Individual Accounts

Another important distinction regards the likely budgetary arrangements of a loan or a tax. The revenues generated on account of the loan schemes, either through direct fee payments, or the fee payments made with loan money, accrue to the education budget. Cost recovery is implemented to expand overall resources. Graduate taxes, however, would be applicable only to graduates that had benefitted from subsidized higher education institutions, and are not related to fee charges. A graduate tax is a mechanism for the government as a whole to recover its expenditure to the higher education sector, and the revenues would be part of general treasury accounts. There is no prima facie for earmarking graduate tax payments to higher education.

How effective are graduate taxes as a cost recovery device? In order to illustrate the impact of a graduate tax, the Australian loan program has been simulated as a graduate tax in which students contribute two percent of their income per year[28], and compared with a traditional loan repayment and an income contingent loan scheme with repayments set also at two percent of income. The comparisons are on the basis of repayments only, and do not include likely losses to non-payment and administrative costs. We assume that a graduate tax is collected for thirty years, rather than over the whole working life: this compares with income contingent loan repayments of 17 years (Table 4.2) and a mortgage loan over 15 years.

The present values of the two formats of loan repayments indicate that the mortgage loan has a higher return, stemming principally from a shorter repayment period and higher initial payments. The lower present value on repayments may be offset by lower rates of default on income contingent loans. Nevertheless, the returns on the graduate tax are significantly greater than either of the two loan formats (Table 4.4). Whereas an income contingent loan scheme achieves only nine percent cost recovery (Chart 4.1), a graduate tax would result in roughly full recovery of the equivalent loan for 20 percent of teaching costs, though this may not accrue to higher education. Within twenty years (assuming student cohort growth of three percent a year), a two percent tax would generate about 15 percent of the total university costs in Australia[29].

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[28] Technically a graduate tax should be charged only on the income enhanced by human capital investment in university education (i.e. on income earned over that received on average by those with university entry qualifications). For administrative efficiency a lower average rate, levied on all income is assumed, rather than a higher marginal rate only on the graduate earnings differential.

[29] Details of these calculations are available on request.

Table 4.4

Present Value of Payments for Alternative Deferred Cost Recovery Programs[30] (Australian Data)

15 Year Mortgage Loan	Current Income Contingent Loan	Two percent Graduate Tax
$A 4,270	$A 3,696	$A 5,138

The chief justification for the equity finance approach is that it generates more revenue than a loan scheme. Since there is no formal connection with costs of education, tax payments can continue long after a loan would have been paid off; moreover, taxes are levied on higher salaries, given the upward movement of graduate salaries with age. Yet this gives rise to the criticism of graduate taxes, particularly in comparison to mortgage loans, that they are "front-loaded": the government has to pay out money immediately, but receives much of the return only in the more distant future when the stock of tax paying graduates accumulates. This argument may be overstated since in principle, the government may borrow against these outlays - just as it would if it ran a student loan program and all calculations have discounted reserves to their present value.

In practice, however, there may be some obstacles to a graduate tax (which apply also to loan schemes with repayment effected through the tax system). Constitutional or legal barriers to creating a graduate tax may be present; unlike education fees unlinked to earnings, it will have some negative effects on work incentives, those these are likely to be small, the tax may not be administratively feasible in some developing countries where collection mechanisms are weak; and it may be difficult to track down the self-employed. Where tax systems are weak, administrative capacity to identify graduates may be absent.

Despite these obstacles, in many instances there could be practical advantages to a tax as opposed to a loan. First, a graduate tax obviates the need for the government to discuss the sensitive issue of payment of interest. Charging near market rates of interest (central to ensuring that loans do not lose too much money) can be politically difficult. A graduate tax allows the government to avoid this controversy because payments extend sufficiently so that present value returns are greater than would have been a loan with market interest rates. A second advantage may lie with the simplicity of calculating who

[30] Assumptions: All calculations use a discount rate of 5 percent. Loans are disbursed A$ 2,500 over three years and charge and interest rate equal to inflation; the borrower a two year grace period before any of the payments start.

must pay. Rather than determining who has completed payments, the tax simply assumes that all graduates must pay.

Box 4.7. Argentina's Proposed Graduate Income Tax

In 1986, in the wake of severe fiscal shortages, the government of Argentina drafted a proposal for a graduate income tax on higher education. The draft contained three essential elements. First, a three percent tax on all income from professionals after the third year of graduation, to be deposited in a special account for each university. Second, a one percent tax on all transactions for professional services involving university graduates, to be paid by the contractor of the service. Third, parents of the students would also be required to pay and additional one percent of their income, beginning at the same time as student payments.

The total income from the three components was expected to equal 15 percent of the entire higher education budget. Only half of this revenue was to accrue to the universities, the rest would return to general treasury funds. The tax never received parliamentary approval.

Source: Gertel 1991.

In terms of generating extra resources for higher education, there may be some dangers associated with true graduate taxes. With an income contingent loan, it is clear that the treasury acts as a loan collection agency and that legitimately the proceeds should return to the higher education sector (or at least to the loan fund). Graduate taxes however result from the earlier acquisition by the government of an equity share in the graduates' human capital: although the proceeds of a graduate tax could be earmarked for higher education, there is no overwhelming justification for doing so and it is unlikely that the treasury would accede to this readily.

Finally, it is arguable that income contingent loans and graduate taxes may be more complementary than competing. Equity finance may be appropriate to recover costs from students in subsidized (mainly public) institutions only, while a loan program seems more justified for students attending fee-paying (mainly private) institutions. That is, loans may be seen as a tool to help students to meet existing fee payments, while a graduate tax serves as a means of implementing cost recovery, obviating the need to introduce fees.

Employer taxes

Taxation of firms, the users of educated manpower, is an alternative that has begun to receive attention; it is suggested that in certain country settings, notably skill-shortage

states in Sub-Saharan Africa, a payroll tax on the employment of graduates would result not only in the generation of revenues that offset the costs of higher education[31], but would also lead to a more economical use of graduates in the labor market (Colclough 1989)[32]. Graduate payroll taxation is unlikely to be feasible in situations of excess supplies of graduate manpower and high graduate unemployment, because of the disincentive effects on the employment of graduates; it is more appropriate in economies suffering from general shortages of higher educated workers or of particular high level skills. In this case, taxes on employers related to the use of graduates in short supply can be regarded as a scarcity tax, which would not only result in revenues, but also encourage parsimony in the use of graduate manpower by firms.

Employers tend to pass the cost of general payroll taxes onto the employees in the form of lower wages[33]; a sharing of the incidence of payroll taxation between the employer and workers is to be expected (the proportions depending on the elasticities of supply and demand of labor). Thus Colclough sees additional merit in a payroll tax on graduates in lowering graduate salaries, thereby reducing their scarcity rents and the unnecessarily high private rates of return they derive from higher education. However, even with backward shifting of payroll taxes, it is not clear that firms will pass the costs of a tax on graduate employment onto the graduates alone. It is possible that firms will be tempted to shift such a tax onto workers in general (again depending on the elasticities of supply and demand for different categories and levels of skilled workers). If this were so, a tax on graduate payrolls would be inequitable, in effectively requiring workers of all skill levels to contribute to the costs of the education of the highly educated.

Not all suggested variants of the payroll tax idea seem feasible, however. Tilak and Varghese (1991) unrealistically call for full cost recovery of higher education, coupled with a regime of differential tax rates, related to costs of major disciplines (engineering verses arts for example). An alternative scheme is suggested in a recent comprehensive review of financing options for post-secondary education (Eicher and Chevailler 1992) relates to a payroll tax covering all workers (not just graduates) to be earmarked for education, on the lines of the French apprenticeship tax. There seems to be little theoretical justification for

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[31] Using data for Botswana, Colclough (1989) shows payroll taxation levied on graduate earnings would be effective in terms of cost recovery, and compares well with an alternative income contingent loan scenario. While some of the assumptions employed in the simulations do not appear to be realistic, a reworking of the results by the authors using alternative assumptions give results that are even more favorable for payroll taxation. These results are available on request.

[32] See also Tilak and Varghese (1991); although referring to this as a "graduate tax", they essentially advance a similar idea.

[33] Forward shifting onto the consumer is also possible. The classic study of payroll tax shifting is by Brittain (1972) and relates to the US. See Whalley and Ziderman (1991) and Middleton, Ziderman and Adams (forthcoming) for further references and for an application of payroll taxation to the finance of training in developing countries.

such a tax (unless it could be shown that there are external benefits such that all workers benefit from graduates) and, given tax shifting, the equity implications are unlikely to be acceptable.

In some countries, firms contribute to the cost recovery through the repayment of student loans. In Ghana, we have noted, employers of graduates who have taken student loans, contribute 12 percent of wages to the national social security fund, which is redirected to the education budget until the student loan is repaid. Although this is, formally, a payroll tax on graduate employment, the Ghanaian scheme may exact no real contribution from the employer; these payments might have been made to the pension fund even in the absence of the loan (Box 4.1). In China, a de facto policy of employer loan repayment exists. Students who receive loans often have them repaid by their employer; the compression of wage differentials existing in the Chinese labor market necessitates (and perhaps justifies) such employer contributions.

The opportunities for increasing student contributions to the costs of higher education are many. Student loans have received much attention both in the literature and in practice. While they have not always worked well, we have argued that suitably reformed, they can constitute a productive, though limited, mechanism for cost recovery. In certain countries, however, other mechanisms may be more appropriate. Indeed, the policy maker is presented with a wide menu of policy choices, though some creativity may be required in their application to particular local settings. Some of these have been outlined in the present section.

Moving Forward

While this chapter has primarily focussed on the financial implications of loan programs, equity considerations are of considerable importance. Despite the lack of empirical work on the equity impact of loans on access in developing countries, it is clear that increases in cost recovery will, on the margin, discourage some individuals who would otherwise have attended. This may be seen as a negative equity impact. As noted earlier, however, most developing country higher education systems are not very equitable to begin with. Access tends to be skewed towards higher income groups, where children attend better primary and secondary schools and families can afford to have their children out of work for longer periods. Thus, a large group of talented individuals often lacks de facto access to educational opportunities, while large subsidies accrue to groups that are well-off. Increases in cost recovery will make it harder for these groups to have access, but it will also allow the government to invest in better access to primary and secondary education and provide grants to the least well off. The central equity concern of a deferred payment program should be how to design it so that any tendency to deter access is minimized.

Loan programs can be expensive enterprises which do not easily satisfy the needs for cost recovery. Without careful consideration, it is unwise to start a loan or tax scheme. With that said, the following list of issues can serve as a guide in considering whether a deferred payment scheme should be implemented. A checklist of policy options is contained in Appendix 2, which summarizes the major issues discussed in the body of this chapter.

First, a deferred payment program requires the participation of a **credible collection institution with incentives to collect**, which in most instances requires the direct participation of commercial banks, a taxation department or a social security agency. Assessing the likely default on a loan program implies looking at the current evasion rate among graduates on taxes, the proportion of self-employed graduates, and the current rate of graduate unemployment. If default or evasion is likely to be greater than say 25 percent, it would be inadvisable to implement a program of refundable support; in such cases, a carefully targeted grants program is likely to be more cost-effective.

Second, with loans, there must be a willingness to charge interest rates equal to or above **inflation** in order to minimize subsidies. With tax or income contingent collection, the rate assessed must be sufficient to ensure significant cash flows. Careful financial calculations must be conducted, which account for the likely impact of inflation -- particularly on the size of annual disbursements -- and growth of the higher education system. From this information, one can assess whether the program will generate significant income for the higher education system.

Third, the relationship between necessary repayments and the likely income of graduates must be examined to ensure that repayment burdens never pose an **excessive burden** on graduates. Excessive burdens only result in higher default. Average income profiles of graduates are not sufficient to understand likely problems. The income range according to profession and sector will be equally important in program design.

Fourth, developing a means of **targeting** support to needier and more academically deserving students will be crucial to a program's efficiency. The larger the expected participation rate, the greater is the need for tight repayment terms and strict enforcement of collection. In developing countries, good targeting means that an institution with access to information beyond income tax information. Institutions closer to students, such as universities, are often able to make the best judgements regarding need.

Fifth, loan losses can only be justified if there are **potential social gains** that would not be reflected in a graduate's income. Subsidies can promote, indirectly, private institutional development and/or manpower direction (graduates as teachers, rural development workers, private sector entrepreneurs), by forgiving loans. If these are desirable options, one can consider whether a student loan program is an efficient way of transferring subsidies to these areas.

Chapter 5
The Potential for Revenue Diversification

The past two chapters have examined the scope for increased cost recovery via fees or delayed payments such as loans as means to mobilize private resources for higher education. The potential for such broadening of resources from students is great in many countries and will be fundamental to reform. But there are limits to the extent that cost recovery will resolve budgetary pressures. As such, there has been a growing interest in other sources of non-government funding for higher education. This short chapter will examine the potential role of various income generation strategies: the sale of services to industry (both private and state owned); generation of endowments; commercial management of research and university assets. The potential for supply of services to the productive sectors of the economy will be compared with the demand for services.

Revenue Diversification vs. Cost Recovery

In considering the potential financing role of the private sector, it is necessary to distinguish between two related concepts -- diversification of revenue sources and increased cost recovery; these are not synonymous. By cost recovery, we refer to the generation of revenues through charging tuition fees (or through the introduction of student loans for tuition -- a form of delayed cost recovery) for traditional teaching activities, notably for first and advanced university degrees. Revenue diversification is a broader concept and relates to any form of additional revenue generation; it includes cost recovery of traditionally supplied services, but also encompasses all forms of income generation from newer, non-traditional activities. These include the provision of ad-hoc short vocationally oriented courses, applied contract research for industry, consulting services and the utilization of assets.

This chapter argues that revenue diversification other than tuition can be most significant in terms of supplementing staff salary. It can also generate a valuable, though quite limited, source of additional resources in some universities. However, these linkages will not resolve fundamental financial problems. Overemphasis on revenue diversification may in fact be harmful if it deflects attention away from resolving more pressing problems caused by rapid expansion of undergraduate enrollments without adequate financial resources. If pushed too far, revenue diversification may fundamentally alter the character of a university which is primarily engaged in instruction and research. Nevertheless, the maximum financial contribution from the sale of services to industry in industrialized countries is 10 percent of total revenue (OECD 1990); it is difficult to imagine a higher percentage flowing to developing country universities. New activities imply new costs, therefore universities will not necessarily be making an internal "profit" with which to cross-subsidize undergraduate instruction, the principal source of expenditures in many universities.

Despite the cautionary statements about the limits of financial benefits from revenue diversification, such contacts with the productive sectors of the economy should be encouraged. To foster exchange of skills and information between firms and universities, governments must allow institutions to keep funds that they generate (i.e. not subtract private income from government allocations), and within universities, departments and/or faculty members should be rewarded in some way for engaging in revenue generating activities. Currently, many governments implicitly inhibit contacts because they penalize universities for raising private funds.

The role for the government is to provide an environment for universities in which productive exchange of activities between universities and industry can occur. The first step must be to give universities the incentive to engage in activities, primarily by allowing them to keep the resources they generate. The remainder of this chapter is divided as follows. The next section will review potential sources for generating income at universities, and the overall scope in relation to university activities. A final section will explore what policies are necessary in order to encourage universities to become more commercially oriented, while the private sector becomes more interested in establishing linkages with universities.

The Scope for Revenue Diversification

Could university-industry[34] linkages result in substantial revenues (as a percentage of total university budgets) or would these represent, at best, only marginal additions to university income? While data are limited in this area, there are indicators which point to the likely potential. We discuss this potential in terms of service contracts with industry, commercialization of research, endowment contributions, and revenue generation from physical assets.

Contracts with Industry

Service related revenue can be broken into two basic categories: revenue from applied research for industry (including consultancies) and revenue for ad-hoc courses for training a firm's employees. Specially tailor-made courses provided to firms and other enterprises may constitute a useful source of revenues if universities can successfully identify a market for such courses. There would be a need, however, to safeguard against the danger that universities may provide such revenue generating courses at the expense of traditional degree courses by diverting resources, particularly entrepreneurial energies and academic staff time, to these activities. If such courses could be organized as activities that

[34] Industry, in this chapter is used in a general sense that refers to productive enterprises that are either privately or state-owned.

were additional to regular teaching and research, they could provide a source of supplementary income to university staff as well as additional revenues to universities and market relevant skills for the economy.

A few universities in the developing world provide such services. Private universities, which are more dependant on their ability to raise funds through market oriented activities, have tended to be much more successful in these endeavors. In Venezuela, for example, several private management schools offer short and medium term courses for mid-career individuals wishing to upgrade skills. The Institute for Graduate Studies in Administration (IESA) was founded in 1965 as a private, non-profit academic center to provide teaching and research in areas of management and administration. Its main objective is to contribute to improving management skills in Venezuela, both in private and public institutions.

Throughout its history, IESA has offered both full length degree course programs, as well as short term training for management in industry and in the public sector. Its specialization in the area of management, and its reputation for excellence have allowed it to market effectively its training programs. In 1990, the Center for Human Resource Development (CDHR) was created within IESA to conduct research, provide teaching and training activities, establish information services on human resources, and disseminate information related to management. The center was created without direct state support; instead funding came from enterprises and agencies interested in the provision of training and human resource development, particularly, the Venezuelan Petroleum Company, British Petroleum and the Fudacion Gran Mariscal de Ayacucho.

In Vietnam, the transition to a market economy offers universities a large potential for offering short term courses for a fee to upgrade skills. Virtually all universities and colleges offer programs in English language, and most have night courses in computers and informatics.

A potentially promising source of revenues from enterprises is the supply of applied contract research. Such activities are not necessarily restricted to applied science and technology, but could include business services (such as industrialized and consumer market research) and economic studies for government and private industry. These so-called basic linkages (Kells 1989) are certainly feasible for developing country universities and should be encouraged because of the "mutual benefits" of contact, particularly to encourage institutional differentiation and adaptation to local conditions.

A few countries have made efforts to supplement revenues through these services, but have done so under separate management structures (non-profit organizations separate from the university). In Brazil, for example, many public universities have established foundations employing staff members who can offer consultancies and training courses. Similarly, the Korean Advanced Institute for Science and Technology (KAIST) provides such services under separate management from the university. There are two principle reasons for setting up separate management structures: first, to shield such income from government

budgeting practices that deduct revenues earned from public resource allocations. The second reason is the lack of management capacity (or an environment conducive to commercial activities) within the university.

The University of Jordan's Center for Consultations, Technical Services and Studies, established in 1982, provides another interesting example of how universities could generate revenue through service. The primary activity of the center is to provide short-term teaching courses and consultancies. The center has grown considerably over the last ten years and now provides a valuable source of income both to supplement staff salaries and to generate internal profit for the university. In 1990, the center trained almost 3,500 fee-paying students (40 percent in private industry) in addition to 743 consultations. These services generated supplements to staff salaries as well as an internal university profit (above the additions to staff salaries) of approximately US$ 120,000. There is some concern, however, that the services being provided are not related to the overall mission of the university (Eisemon 1991).

Despite the potential for income from the sale of services, few developing countries generate much income from these activities. Even in Korea, where one might expect larger scope for such activities because government subsidies for higher education are below those of other countries, industrial service revenues are a non-significant portion of the total: virtually zero in public universities, and only six percent in private institutions (Bae 1988). Other countries show a similar absence of revenue from services.

In instances where staff members are allowed accept outside contracts and benefit from them, they are usually willing to do so. When this is not permitted, staff members frequently members take second or even third teaching jobs. From the university's standpoint, consultancies may be a mixed blessing. There are two principal university costs associated with staff consultancies. First overhead costs, when staff members use facilities (telephone, computer equipment, laboratory equipment) The second cost is the opportunity cost on staff time. This opportunity cost, however, may not be very high on the margin, since university professors usually teach roughly 10 hours per week, and not all, indeed very few, developing country faculty members conduct research. It may be more likely that the opportunity costs are lower when staff members are allowed to conduct activities within the university framework, and profit from them, rather then doing so somewhat surreptitiously through moonlighting.

In many countries, even when universities provide service through training or applied research, the university often fails to charge for the economic cost of providing these services. Even if the university were to make a profit on services, it is unlikely to be significant in relation to the total expenditures at a university (Blair 1991). Thus, while revenues are "generated", from a financial point of view, the university might be in a worse position than had it not engaged in such activities.

Commercialization of Research

Consulting services and applied research contracts are unlikely to generate large internal profits for universities (net of costs). Large revenues could only come from commercial exploitation of research, i.e. the sale and marketing of new technologies. But is the commercial exploitation of research a feasible option for developing country universities?

Kells (1989) argues against profit making ventures with business for most universities. He distinguishes between two types of university-industry linkages: basic and advanced links. Basic links are small scale services, contract agreements, training, employment links, etc. These links do not generate very much income for universities, but usually are regarded as a source of "mutual benefit" from the exposure.

Advanced linkages include building up industry, major financial commitments through product design, and technology transfer. Such alliances are not feasible for the vast majority of industrialized country universities, and are high cost (and high risk) investments that require a high level of technical talent, financial resources for investment, managerial expertise and continuity of resources. Most developing country universities lack these requisites. It is not surprising that very few universities have produced profitable results. Indeed few developing country universities even attempt such strategies. One exception has been government venture capital investment in Korea in the commercial exploitation of research.

Endowments and Voluntary Contributions

In richer countries, industry has contributed significant funds to universities in the form of grants. Essentially gifts to universities, these contributions have taken many forms, including endowments of professorial chairs, scholarship funds for needy students and research funding for issues of national importance and social concern. Such philanthropy, however, is frequently a response to the carrot of reduced tax payments on such donations. Tax incentives are in place in some developing countries too. In Chile, for example, private companies can receive tax exemption on 50 percent of the value of donations to universities.

In India tax concessions on university contributions are more generous, perhaps the strongest in the developing world: 150 percent of contributions by individuals and firms are tax deductible. They have promoted a significant increase in donations, particularly the endowment of professorial chairs. While Tilak (1989) uses data from 1980 to suggest that recurrent income from endowments generates only 0.6 percent of total expenditures for higher education, he understates what actually occurs for two reasons. First, many universities try to conceal their endowment incomes so they are not penalized in the public budgeting process. Second, donations have often been utilized to provide initial capital to found institutions.

Public and private donors, particularly in developing countries, often contribute land, or potentially productive assets rather than cash. Land grants were used to found many US institutions in the 19th century, but private and public donations of productive land assets have been noted in Africa as well.

In order to understand the potential for voluntary contributions, one must consider why industry would contribute to university finance. The paramount reason is an interest in the quality of graduates, the source of a firm's future higher level employees. Such interest needs, however, to be bolstered by tax incentives. Two limits are imposed on this donation. First, a firm must believe that it is not wasting its money. Second, a "free rider" problem may lead an enterprise to ask why it should contribute to the quality of graduates overall, when it is not certain that it will capture those graduates? It may, in fact, subsidize its competitors.

This free rider problem explains why a common form of donation is in the form of individual scholarships (funds for students rather than directly supporting institutions). Firms (or government ministries) often offer bonded scholarships, where the recipient is obligated to work at the firm after graduation. In Venezuela, Chile, Thailand and Indonesia, private industry has intervened to provide scholarship and/or subsidized loan funds for talented students, usually near the end of their studies, when it makes more sense both for firms and students to recruit. In some instances, access to funds carries with it an implicit or explicit requirement to work for the firm after graduation. In other instances, there are no formal strings attached.

In the United States, where endowments have a long tradition and are probably the strongest in the industrialized world, the income generated from them in 1986 only represented 0.5 percent of revenue in public institutions and 5.2 percent in private institutions (U.S. Department of Education Statistics). The elite private universities in the US, however, are a notable exception. Some generate as much as 25 to 30 percent of their incomes from endowment funds.

While the tradition of industrial donations to universities has not been strong in Africa (there are a few exceptions such as Kenyan businessmen who have cooperated to set up private institutions), they have been somewhat stronger in Asia and Latin America, particularly for the development of private institutions. In Asia, support is usually given to foundation to provide scholarships for students. These foundations have been notable in Japan, Indonesia, Thailand and the Philippines. Tax incentives necessary to stimulate donations, however, imply hidden government subsidies which can be significant, thus dampening the impact of true revenue diversification.

In recent years, a few African universities have begun to pursue donations. The most successful have established separately managed foundations to solicit contributions. The University of Nigeria at Nsukka has probably been the most successful, raising US$ 166,970

in 1990 and US$ 356,777 in 1989 (2.3 percent and 6.3 percent of total recurrent budgets in each year respectively).

Generating Revenues from Assets

Universities often receive assets in non-cash forms, such as land. Land can generate significant revenues by leasing to agricultural firms, or utilizing urban centers for development. It is important to note that the universities that have successfully adopted this approach have either leased out assets to private enterprises, or established independent firms to manage assets. They have not tried to do so themselves. Chulalongkhorn University in Thailand, for example, has a private management company operate a shopping mall on some of its property.

Besides property, another common form of assets are under-utilized staff or facilities. In the wake of severe budget cuts, the University of Salford in England redeployed approximately one-third of its staff to work in a for-profit consultancy firm attached to the university. Staff were essentially fired and reemployed, but now they generate sufficient revenue to cover their salary and overhead costs, while also providing useful linkages between the university and local enterprises. The result has been a tremendous stimulus to regional development alongside profitable utilization of resources at the university (Ashworth 1989). In Vietnam, entrepreneurial enterprises are able to exploit university facilities without disrupting university life because of the apparent excess of teaching staff. Before encouraging revenue diversification in higher education, student teacher ratios were below six to one. Faculty with extra time (since teaching loads are ten hours per week) are able to supplement their salaries (currently 10 US$ per month) according to their ability to work in revenue generating centers affiliated with universities.

In Africa, Blair (1992) notes that many universities could generate revenues by renting out conference facilities, but similarly cautions that such activities imply costs for universities. Only three universities in Blair's sample of fifteen rented conference facilities: Ibadan, Nsukka and Wits. In 1991, Nsukka University was able to generate about US$ 15,000 in profit from its conference facilities. While certainly valuable, this sum will not make any significant contribution to solving the university's financial problems.

In contrast to a few universities that have exploited their assets for revenues, in most other instances, universities have under-utilized physical and human resources. Salmi (1991), for instance, notes a large potential for utilization of land assets at the University of St. Louis in Senegal. Leasing out these unutilized facilities would earn universities important revenue that would be virtually costless. Estimates on the potential at Makerere University in Uganda suggest that landed assets could generate about four to five percent of annual expenditures (Box 5.1).

Box 5.1. Potential for Revenue Generation at Makerere University

Makerere University in Uganda, once a flagship African higher education institution, has suffered severely during the past two decades because of a shortage of financial resources. Since government funding will not be increasing, one option being explored is to generate revenue from land assets owned by the university.

Donations to the university (mostly from the government) of valuable urban and rural land assets have gone unutilized, and require expenditures simply to maintain them. The assets include a five square mile property with 100 grade cattle; a 98 hectare farm; and a 180 hectare farm. In addition, there are two valuable urban plots – a six hectare property, which is 60 percent developed with commercial properties, but from which the university is not collecting rents; and a five hectare property with residential housing, mostly for university staff, also not generating rents.

While the capacity for farming the landed assets, or constructing urban developments does not currently lie with the university, there is no reason why the university could not establish an enterprise to lease out its holdings and generate considerable rents. Compared with the current situation where the government spends simply to maintain facilities, rents could generate an annual income of at least USh 236 million. This income would represent four percent of total expenditures at the university.

The Overall Potential

Reliable data concerning university revenue generation in developing countries is not available, primarily for the reason that most universities do not generate significant revenue from private contracts. Table 5.1 reviews the experience of total revenue generation in nine OECD countries. In the United Kingdom and the United States, data is available for two separate categories of institutions. Revenue generation from services ranges between 11 percent in private institutions in the US, to two percent of revenues in Norway. The median for the sample are the US public universities which generate on average five and a half percent of the revenues from contracts and services. In Vietnam, where revenue generation through these activities has been aggressively pursued, the universities only receive roughly eight percent of their revenues from these sources.[35]

[35] Staff, however, are reportedly able to triple their official salaries through such activities.

Table 5.1. Total University Income from Private Sector

Country	% Revenue from Industry, Commerce and Donations	Data Year
Denmark	2.6	1985
Finland	3.9	1987
France	5.8	1984
Germany	6.5	1986
Japan	3.4	1985
Netherlands	8.0	1987
Norway	2.0	1987
United Kingdom*		
(Universities)	2.7	1986-87
(Polytechnics)	0.9	1986-87
United States		
(All Institutions)	7.6	1984-85
(Private)	11.4	1984-85
(Public)	5.5	1984-85
Vietnam	8.3**	1991

Source: OECD 1990; World Bank Data.
* The UK figures have increased significantly over the past five years as a consequence of encouraging revenue diversification.
** Vietnam data relies on a survey of 28 institutions by one of the authors.

It is a reasonable assumption that the experience in industrialized countries, particularly where university-industry alliances have been fostered, is an upper limit for potential in developing countries. Revenues generated through contracts and courses for industry will not be likely to generate more than ten percent of revenue for universities.

The most in detailed study of the potential that such income represents in developing countries was conducted by Blair (1991) for African universities. He argues that perhaps the largest potential lies with hiring out of conference facilities and soliciting donations. Even so, the ability to generate profits will not represent a large percentage of university

expenditures. In general, the rising portions of externally generated income in African universities are sometimes overstated. Their rise in relative importance is not always due to a rise in income, but a fall in government contributions. His study confirms that while revenue generation is moderately helpful to universities, it cannot be regarded as a means to resolve fundamental financial problems.

Costs of Revenue Diversification

While most universities can generate limited revenues through services and contracts, these new activities imply additional costs. When universities conduct experiments for industry, they use materials and manpower in the process. They also utilize the overhead of buildings, telephones and computers, and time is taken away from other activities. In some instances, it is quite likely that the financial costs of revenue diversification may outweigh the financial benefits. Data from the US can be illustrative.

Table 5.2 compares the revenues and expenditures from services in US public and private universities. While private universities are able to realize a small profit on auxiliary enterprises (one percent of total revenue) and on hospital services, public universities break even on these services. In other words, although US universities are acknowledged to have a diverse revenue base, on average, they do not make a large profit from diverse activities to subsidize their other activities (teaching and basic research). The failure to generate overall university profits however ignores the important role that such activities play in enabling staff to supplement salaries, and laboratories to purchase equipment which can be used for other activities.

Table 5.2. Revenues and Expenditures for University Sales and Services, US (as Percentage of Total Expenditures, 1986-87)

Activity	Revenue	Expenditure	Net Profit
Public Universities			
Auxiliary Enterprises	10.5	10.5	-0.1
Hospitals	8.7	8.7	0.0
Private Universities			
Auxiliary Enterprises	11.2	10.2	1.0
Hospitals	8.8	8.6	0.3

Source: US Department of Education Statistics.

Overall, revenue generation offers a limited potential for many developing country universities to supplement revenues. The greatest potential probably rests with unused or underutilized assets (land, staff, facilities). The potential is limited, however, because new activities imply additional costs, and an overemphasis on service provision may divert attention from the fundamental tasks of a university. Given that the management capacity of many universities often precludes direct involvement in commercial activities, it may be wise to establish separate entities (with professional management capacity) more devoted to service activities. Indeed, it is noteworthy that virtually all of the examples cited here are managed by entities separate from universities. Such separation allows universities to focus on its more central tasks, while allowing both for staff to supplement salaries and for the university to generate more revenue from its assets. Nevertheless, most universities will need to establish clear budgeting procedures and norms for allocating resources internally before engaging in such revenue generating activities.

Conditions for Promoting Increased Private Funding for Higher Education

This chapter has argued that it is not feasible to expect that revenue diversification through university-industry alliances will resolve fundamental financial problems in developing country universities. Nevertheless, encouraging universities to engage in revenue generating activities will accomplish the following: (i) it will help integrate universities into its local social and economic environment; (ii) it provides a crucial means to enable academic staff to supplement their salaries, in exchange for being productive; (iii) it provides a limited, though important source of discretionary revenues for universities. Where university resources are under-utilized, the greatest potentials to supplement revenues exist. This section addresses the broad reforms needed in order to encourage universities to generate these revenues on their own.

Funding Mechanisms

The first action must be to ensure that institutions are not penalized for generating income from external sources. The principal reason that many universities fail to generate significant non-governmental revenues is that policy conditions both within and outside the university are not conducive to such activities. Are incentives in place to encourage universities, and particularly departments within universities to actively seek out such revenues? Unless universities are allowed to keep the revenues generated, there will be no incentive to generate them. In the name of institutional equity, however, many governments deduct revenues earned from private contracts from government allocations. But attempts to preserve horizontal equity among institutions, (i.e. equal funding) have only stifled initiatives to seek external funds and conduct activities related to the demands of the productive sectors. Government policy should not inhibit university industry relations; it should encourage it.

In fact, in many instances, it has been surprisingly easy to change university behavior. In Vietnam and China, the governments told universities that they should engage in revenue generating contracts, and that they could keep any profits. The result has been significant reorientations and development of commercial links.

Besides removing negative incentives, governments may wish to consider positive incentives that reward institutions that engage in contracts with industry. Both the Australian and Israeli governments offer universities matching grants for private contracts. These incentives are part of a deliberate effort to encourage revenue diversification on the one hand, and foster institutional differentiation, such that universities are more adapted to their local environment as a consequence of contact with industry. These strategies, however, only affect the supply of services.

Stimulating Demand for University Output

The demand for R&D can be stimulated through tax credits, as can philanthropic donations to universities which can stimulate the formation of private institutions. Once industry invests in training and research, it can decide whether it should develop internal capacity or to purchase services from universities. Such credits and subsidies, however, have important fiscal considerations.

Box 5.2. Jordan: Industry Vouchers for Research and Development

The government of Jordan recently approved a publicly funded voucher scheme to increase the demand for research and technical services provided by public and private universities. The expectation is that the voucher program will support both firms that utilize these services, and provide a competitive funding mechanism to encourage increased relevance in universities with regard to industrial development.

The rationale behind such a voucher approach is that on the one hand, most firms are too small to invest in research, and many have failed to consider the potential benefits of such activities. On the other hand, many universities are inexperienced in marketing their expertise to potential beneficiaries.

The proposed voucher scheme will subsidize the cost of purchasing scientific, technological and managerial services, specifically: product testing for quality control, engineering studies, technical feasibility studies, computing services, technology investment studies, patent searches, marketing studies, management consulting, contract research, short term professional training. The value of vouchers will vary with the size of the firm. Large firms, which already receive tax credits for R&D investments, will be excluded from the program.

Source: Eisemon 1991.

To further stimulate demand for university services, one could consider the recently approved "R&D voucher" scheme in Jordan (Box 5.2), whereby small and medium sized firms will receive subsidies redeemable only for the purchase of services from higher education institutions. Another important step, however, is to generally improve the climate for industry investment in research and development. It may make more sense to build up R&D capacity within industry rather than a large public infrastructure. In either case, the potential for increasing industry investment in overall R&D activities is high in many developing countries.

Managerial Capacity and Internal Incentives

A third condition for generating revenues regards the administrative capacity within universities to manage such ventures. Many universities in both the industrialized and developing world are administratively weak. Expecting them to manage the commercial leasing of properties, or the management of a shopping mall would almost certainly be beyond their capacity. In addition, it is out of the scope of their mission and activities. Leasing properties to a commercial firm that has a comparative advantage in managing assets, or marketing the skills of a university would therefore make considerable sense, rather than trying to reorient the overall mission of the university.

In order for universities to tap the potential, however, they will need to adopt a more entrepreneurial attitude as well as basic managerial capacity. It will be fundamental for them to understand costs within universities, so that pricing for services internally and externally can be facilitated. Developing this capacity is often achieved by providing incentives for staff members. Just as government needs to allow universities to keep the resources generated, universities must allow staff members and departments to keep the bulk of the resources they generate. In fact, universities that have successfully engaged in contract activities develop revenue or profit sharing formulas that distribute income among staff, faculty and the university as a whole.

Conclusions

In general, government subsidies should be oriented towards building research capacity that is capable of supporting industry. Most financial problems in universities are the result of rapid expansion of undergraduate education without cost recovery, and without expansion of government budgets. Generating revenues from services and assets will help, but will not correct the source of the problem.

While revenue diversification through increased contacts with productive enterprises is desirable, it would be unwise to regard it as a means to relieve the financial pressures created by rapid expansion of undergraduate enrollments without a similar expansion of

public funding. Stimulating investment to create a strong research infrastructure, capable of supporting industrial development would be a more profitable investment of public funding.

To the extent that revenue diversification also entails diversifying the activities and outputs of the university system, the process must lead to a role for the universities that is less focussed on traditional teaching and research; if revenue diversification is pressed too far, on too broad a front, important issues may arise concerning this changing role of universities. That is, revenue diversification through the provision of services may fundamentally change the character of the university and its traditional activities. Too much emphasis may lead to a fundamentally different type of institution, that focuses primarily on revenue generating services rather than instruction. If a "university" is to be preserved, revenue diversification should be seen as a source of supplementary income and complementary activities. The way to address fundamental financial problems at a university are to address those problems, not to change the character of the institution.

Chapter 6
Funding Mechanisms and Government Transfers

In the previous three chapters we have examined mechanisms for diversifying and augmenting revenues for higher education, given the declining ability for governments to pay for higher education. However, in Chapter 2, we argued that the financial problems confronting institutions are not only a lack of resources, but also stem from underlying restrictions imposed by the state. Reform would have to begin by allowing institutions to reconcile enrollments with resources, as well as allowing them to deploy their resources in ways that correspond to the demands of society. This does not imply that the state will no longer play an important financial role in higher education. It will almost certainly remain the dominant source of funds in most countries. But reform will require that the state step back and grant institutions more financial autonomy, while at the same time ensuring that institutions are publicly accountable. This chapter examines the mechanisms through which governments allocate resources to higher education, particularly in developing countries, in order to establish effective means to transfer these subsidies to institutions.

The mechanisms through which governments transfer funds for core activities to higher education institutions have an important effect on the way in which these funds are used. Too often government concern is with the political acceptability of allocation or with the horizontal equity amongst higher education institutions and the regions and populations they serve. But such funding allocations fail to provide incentives for institutions to operate efficiently and indeed, may create a general climate that is not conducive to efficiency. An examination of how effectively such mechanisms operate and the constraints limiting improvements in these allocation systems constitute the focus of the present discussion. While there is now a vast literature on the case for generating additional resources for higher education and on methods for doing so in practice, only few studies have examined the workings of allocation mechanisms and these have tended to skirt over the issue of how the particular allocation mechanism criteria used may affect university efficiency.

The limited literature has focused mainly on the allocations mechanisms in industrialized countries; the United Kingdom and the Netherlands, particularly, have generated a series of such studies, because both countries have made allocation mechanisms a central part of higher education reform over the last decade[36/]. A larger literature has addressed the budgeting process in North American public university systems. In the developing world, literature has been more scarce. The most detailed studies have been conducted in India (Mridula 1985, Sharma and Sanyal 1990), while a number of studies have examined the extensive reforms in Chile (Brunner 1990, Castenada 1986). A recent study compared financing of higher education in twelve OECD member countries, with particular emphasis on allocation mechanisms (OECD 1990); this timely report was helpful in the

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36/ See Barnes and Barr 1988; Shattock and Rigby 1983; and Hansen and Van Vught 1989.

preparation of this discussion. However, no detailed comparative studies seem to have been carried out with a developing country focus[37].

A few developing countries have experimented with interesting financial reforms of their higher education systems. It will be important to note, however, that there is often a divergence between the way in which resources are supposed to be allocated and the ways in which they are actually transferred. Despite a few instances of reform, most institutions operate under stringent regulations imposed by governments with regard to enrollments, access to diverse sources of finance and internal allocations. Governments may justify these interventions as a means to ensure institutional accountability, but their efforts often lead to unintended consequences. The discussion, therefore seeks alternative strategies that will allow governments to grant more autonomy to higher education institutions while also preserving the justifiable need for accountability over government funds.

The funding relation between institutions and government is dealt with in two ways. On the one hand, we address the criteria for funding; i.e. the formulas or other means utilized to determine institutional budgets, and the incentives these formulas create for institutional behavior. On the other hand, we address the relations between state and institutions that form the environment within which formulas operate. The state and universities can be intimately bound, or they may be separated by intermediary institutions, or by a policy environment which makes them autonomous. Many governments have sought to redress problems by refining formulas. Such an approach may not be appropriate for many developing countries. We shall stress the paramount issue is the need to establish a sound framework within which the formula or allocation mechanism can function.

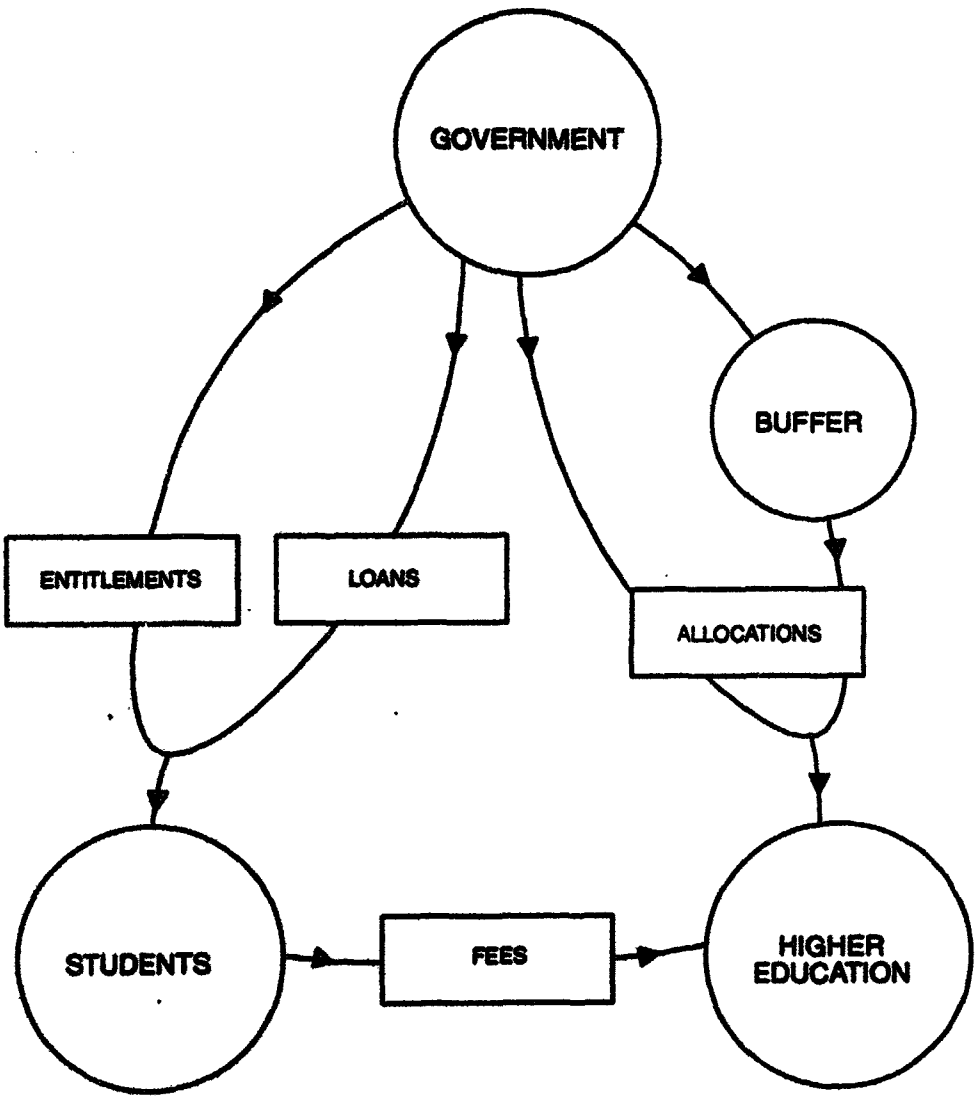
Subsidizing Institutions or Students?

Almost universally, government support of universities is effected by the direct transfer of funds from government to university institutions, or through an intermediary grants institution. A major thrust of this chapter is an examination of the efficacy of these transfer mechanisms now in place in different countries. Against the background of constraints operative in different country settings, we attempt to reach conclusions on the adequacy of presently used transfer mechanisms and possible options for improvement and reform.

37/ A brief, but insightful, discussion of funding mechanisms for anglophone Africa is contained in Coombe (1991).

Chart 6.1

POTENTIAL PATHWAYS FOR TRANSFER OF GOVERNMENT RESOURCES



In earlier chapters we have argued the advantages of a market oriented, student demand driven system (with extensive cost-recovery). However, this may not be practicable, especially where labor markets are highly distorted. Nevertheless, in principle, it might be possible to achieve many of the benefits of a such a student-responsive system, without moving strongly away from state subsidies and towards significant cost recovery. Subsidies could be maintained at given (or other suitable) levels, but channelled through the students, in terms of higher education "entitlements" or subsidized loans, thus facilitating student choice, stimulating competition amongst universities and making universities more responsive to the needs of the labor market. While subsidies through direct government transfer mechanisms (or through buffer organizations) will no doubt remain the dominant approach, it is both appropriate and instructive to broaden the discussion, to consider other methods of subsidy that could constitute an alternative to present general practice. These alternative approaches have long been debated in the literature, but only more recently are beginning to attract attention in some systems undergoing reform, notably Chile. Such a discussion, in extending the menu of choice, will facilitate our task of laying out the range of financing options, even though some may not be immediately practical.

In principle, subsidization could take one (or both) of two main routes (given the level of public subsidy of the university system that society deems appropriate): subsidy payments could be made directly to the universities themselves, as is current practice, or via the students.[38] The alternative funding paths are shown in the accompanying chart. While we show these paths as alternatives, this is to expedite the discussion; in practice, they are more likely to be used jointly as complementary approaches. The right-hand side of the chart illustrates direct allocations; subsidies are made directly from the government to the universities (or a buffer institution may be in place to effect the allocations). Higher education is made available free or at fairly nominal prices. However, the subsidy could be made via the students themselves, as shown on the left-hand side of the chart; students would pay tuition fees charged by university institutions, either wholly (or in part) through state vouchers of entitlement to university education or by subsidized student loans)[39].

The level of subsidy might be the same under these alternative institutional channels for allocation. Indeed, from a purely accounting point of view, there may be little difference whether funds are transferred directly to institutions or via a mechanism that we are calling student based funding. Despite these similarities, we argue that there is an important distinction to be made that lies in the overall context in which students and institutions

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[38] We leave aside the issue of the subsidy of student living expenses which, while accounting for a substantial portion of higher education budgets, are not expenditures on higher education, as such. The important issues related to expenditures on student living expenses are discussed in depth in chapter 3. Government funding for student support does not directly bear on the incentives under which university institutions operate.

[39] Vouchers, which were proposed for primary education (Friedman 1962), more recently have come to be seen as an appropriate policy tool for higher education; a recent discussion, with applications to the United Kingdom, is given in Barnes and Barr, 1988.

make their decisions. When there is an environment that offers choice to students, and when the government funds that choice, and when institutions are free to compete on the basis of quality and fee level, we refer to this as a regime of student based funding. Direct funding mechanisms operate in an environment that is more constricted, where institutions have less ability to differentiate themselves to students (particularly with regard to tuition fees), and where students have more limited choice. The distinction between the two is not so much the actual criteria for funding, but the environment in which funding decisions are made; both the rationale and the results are very different as we shall argue in a later section.

Direct Allocation Mechanisms

Funding mechanisms currently in use vary widely across countries. What is the rationale that has underscored these mechanisms? The allocation of core funding from government to universities is in practice based on one of three general criteria (or a combination of these). On the basis of "payment by results" reasoning, a funding allocation system would focus on the **output** of the higher education system, rewarding institutions according to their performance in producing graduates and post graduates (and research). Such an approach is particularly relevant to inefficient higher education systems; it would help counter high student dropout and repetition, that in turn may be fuelled by poor selection criteria and over generous programs of student maintenance support. There are only a very few instances of funding mechanisms that have adopted such an approach, and these are restricted to developed countries, although Brazil is currently in the midst of changing its funding mechanism in this direction. Output funding must try to ensure that the quantity of output is not being achieved at the expense of the quality of student achievement.

In contrast to the performance approach, funding can be allocated to universities according to the cost of higher education - the **input** method. The most popular method employs formulas, usually based on multiplying enrollments by parameters of unit cost (the "unit resource"). Such a system may fail to offer correct incentives to universities to act efficiently (to avoid lowering entry standards and repeats, for example), unless it is carefully designed. However, government imposed automatic admission policies may require some form of input based funding; as we have seen in Chapter 2, however, increased admissions without parallel budgetary allocations have been used by governments to impose unit cost reductions on the higher education system (not necessarily without negative effects on quality).

Most governments, however, transfer funds using mechanisms that do not employ criteria related to the internal workings of the universities. We group together those transfer mechanisms which do not utilize internally objective criteria as "negotiated funding". Individual allocations are usually based on those of the previous year, perhaps augmented by across-the-board incremental increases (thus militating against change in the system) or,

more frequently, according to the power position or negotiating skills of the institutional actors. Negotiation enables the government to maintain a high degree of political control over the university system as a whole as well as over individual institutions.

A review of experience in some 36 countries shows that in most cases, by far, allocation is made on a negotiated basis, and the majority of these are developing countries (Table 6.1). In contrast, a smaller number of countries allocate funding according to inputs; these are mainly, but not exclusively, industrialized countries, though the approach is used also in some developing countries in Asia and Africa. Relatively few countries employ performance-based criteria. We shall develop the argument more fully in the next section, that negotiated systems of allocation, rooted as they are in the status quo, are unlikely to facilitate greater efficiency or dynamism in university systems (nor, indeed, to satisfy the needs of equity), in the existing milieu of budgetary stringency. Yet the pattern displayed in the table is not coincidental. Funding mechanisms will reflect the broader level of institutional development in the countries within which they function. Where political elbow or interest group pressures play a significant role in the process of the allocation of general government budgets, university funding is likely to be subject to these as well. However, not all negotiated funding operates in such an institutional milieu, and reform towards input or output based systems should be encouraged. But in practice there may be constraints on a move to more effective systems. Cost and performance funding of universities require fairly elaborate administrative procedures, data availability and reporting. These simply may not be available in many country settings.

The three forms of direct funding to institutions will be evaluated separately from three perspectives: the extent to which they have promoted or inhibited the stability, the efficiency and the responsiveness of institutions. Overall, we conclude that these goals are not being met. To summarize the fundamental issues raised in Chapter 2: (i) Funding has been unstable in relation to the activities expected of universities. Expansion has not been accompanied by increased public funding, and many institutions which are overwhelmingly dependent on government finance have witnessed fluctuations in their annual funding, making planning and continuity nigh impossible. (ii) While often underfunded, many universities have been inefficient in terms of resource utilization, staffing patterns as well as student flows. There are many reasons for this, but in many instances, neither institutions nor students have clear incentives to use scarce resources efficiently. (iii) Publicly funded institutions often have limited autonomy and remain unresponsive to labor market or student demands. Institutional diversification -- in terms of activities, areas of specialization and quality -- has been impeded, and few countries have established clear plans to allow institutions to differentiate and find areas of specialization. A final section of this chapter will develop principles which could guide reform so as to begin to resolve some of the funding problems in place, and allow public resources to be used more productively.

Table 6.1

Systems for Allocating Resources for Higher Education (Selected Countries)

Direct Allocations to Institutions		Indirect Allocations	
Negotiated **	Input Based	Output Based	Via Students
Algeria	Canada	Denmark	Chile
Argentina	China	Finland	
Brazil	England *	Israel *	
Ghana	France	Netherlands	
Greece	Hungary		
Guinea	Indonesia		
Honduras	Japan *		
India *	Nigeria *		
Italy	Norway		
Jordan *	South Africa *		
Kenya *	Sweden		
Morocco	Vietnam		
Nepal			
Niger			
Pakistan *			
Peru			
Philippines			
Sudan *			
Tanzania			
Venezuela			
Yemen			
↓			
↓			
↓			

* Indicates countries that utilize a buffer funding organization.
** List can be extended considerably.

Negotiated Budgets

The majority of governments in the developing world do not transfer funds to universities using criteria that are related to the internal workings of those institutions. We broadly refer to these instances where transfers are not related to objective institutional criteria as "negotiated" allocations procedures. Within this category of funding, decision making does not depend on specific institutional characteristics (such as the number of students enrolled), but much more so on political relationships between actors.

As Table 6.1 showed, negotiated funding is pervasive in the developing world, and indeed still occurs in several wealthier countries, such as Greece and Italy. The reason for political based funding stems more generally from the manner in which governments as a whole make funding decisions. Negotiated budgeting, is often the result of political relations that are dominant in the culture and that developed in countries after their independence from colonial administrations. In many instances, even if countries were to circumvent this tradition, weak institutional capacity and the lack of sufficient information with regard to institutional activity would limit the ability to move towards a different funding system (Kells 1991).

Funding Environment

In Chapter 2, we examined in detail the financial constraints under which institutions operate. Most developing country higher education institutions have little power to control enrollments, their sources of finance or how they deploy their resources. Table 6.2 reorganizes information provided in an earlier table Chapter 2 to illustrate the relation between government restrictions over institutions and the mechanisms for allocating resources to institutions. This table is aimed to support our argument that reform in many instances should begin with the broad policy environment and the mechanisms for transferring public resources to institutions. The table compares the extent of government control in 26 higher education systems with the funding mechanism in place.

Several important patterns emerge from the Table. First, and perhaps most important, developing country higher education systems tend to be more severely restricted than those of industrial countries. Second, the most highly restricted systems tend also to have negotiated budgeting. Government control is strongest through negotiated budgets, a practice which magnifies government control over institutions. Third, lower financial dependency correlates with lower control over enrollments and internal allocation of resources (although the converse is less true); therefore, financial diversification may be an important measure to promote institutional autonomy. An essential argument that we wish to maintain is that higher education reform cannot be sustainable unless the broad policy environment and restrictions on institutions is addressed.

Table 6.2. Degree of Government Control in Higher Education Systems*

COUNTRY and type of funding mechanism	ADMISSIONS government control over institutional enrollments	FINANCE institutional dependence on government for finance	INTERNAL ALLOCATIONS government control over internal budgeting
Negotiated Basis			
Morocco	High	High	High
Algeria	High	High	High
Argentina	High	High	Medium
Honduras	High	High	Medium
Kenya	Medium	High	High
Sudan	Medium	High	High
Brazil	Medium	High	Medium
India	Medium	Medium	High
Philippines	Medium	Medium	Medium
Input Based			
France	High	High	Medium
Sweden	Medium	High	High
Nigeria	Medium	High	Medium
Norway	Medium	High	Medium
China	Medium	High	Medium
Indonesia	Medium	Medium	Medium
Japan	Medium	Low	Medium
Vietnam	Medium	Low	Medium
Ontario, Canada	Low	Medium	Low
UK	Low	Medium	Low
South Africa	Medium	Low	Low
Japan (private)	Low	Low	Low
Performance Based			
Finland	Medium	High	Medium
The Netherlands	High	High	Low
Denmark	Medium	High	Medium
Israel	Medium	Low	Medium
Student Based			
Chile	Medium	Low	Low

* Definitions are the same as in Table 2.1.

The institutions operating under the fewest regulatory restrictions, such as in the UK, Chile, Japan's private institutions, and Israel, tend to be funded using efficiency measures of some sort: either output funding, voucher funding, or throughput measures. Accountability is achieved through the funding mechanism rather than fixed bureaucratic regulations, therefore establishing a more flexible framework for the higher education system. An equally important message is that improved policies with regard to admissions procedures, diversification of funding, and the ability to redeploy resources will be needed to improve higher education performance.

In the remainder of this section we review the process of negotiated funding, and the relationships with the state that it entails, so that we can better examine means to reorient the relation between the state, to reform the environment, and to insert a new means to fund institutions.

Types of Negotiated Funding

The fundamental characteristic shared by negotiated funding approaches is that the level of funding bears little relationship to the activities conducted by the institutions. Changes in activities, such as enrollment increases, do not necessarily translate into funding increases, nor do funding increases necessarily imply taking on new activities. Among the negotiated systems, a distinction may be drawn between incremental budgeting, fixed revenue agreements, and ad-hoc negotiating. All of these methods allow the government to maintain a great degree of power over institutions. Institutions with somewhat more autonomy tend to be funded through a fixed revenue agreement in which each receives a share of the overall funding resources.

Incremental budgeting. A common and pernicious practice in developing countries is for institutions to receive a flat increment on their previous budget. Incremental budgeting allows governments to treat institutions "equitably" in the sense that all institutions receive the same proportional increment. But such allocations fail to relate to the activities that the institutions actually perform. Incremental budgeting has been relatively common in Latin America (Winkler 1990), in South Asia (Mridula 1985, Bellew and DeStephano 1991) and in Africa (Eisemon 1991). Frequently, incremental budgeting has been employed deliberately to reduce real government spending on higher education, by allowing inflation to erode university budgets; some African governments, for example, achieve budget cuts in this way (Eisemon 1991). When this practice is combined with mandatory enrollment increases, per student operating budgets are quickly eroded.

Ad-hoc Negotiations. An alternative approach is to allocate budgets on the basis of bilateral negotiations between university representatives and the appropriate government ministry or funding body. Although in most instances there is no clear distinction between negotiated and incremental budgets, under this category, the principal factor in allocating funds is the political skill of the negotiators. While negotiation occurs to some extent in

practically all systems, it lies at the heart of budget practices in many francophone and anglophone African countries. In Kenya, for example, universities must petition the president to receive funds at several points throughout their operating year. In Brazil, federal universities seek budget approval from Congress each year, and thus are forced to lobby for budgets. Even in countries where formal allocation guidelines exist, such as Nigeria, in practice negotiation can be the paramount factor in determining budgets.

Fixed revenue agreements. Some governments reach agreements with institutions to allocate a fixed percentage of the total government revenue to institutions. In Honduras, for example, the government allocates six percent of total expenditures to the National University. In Sao Paulo, the state government guarantees the University of Sao Paulo eight percent of total government expenditure. A similar approach is an earmarked tax, in which the government diverts a fixed percentage of revenue from a given (often non-related) source to higher education. In Jordan the universities are funded on the basis of a fixed percentage of revenue generated from a stamp tax. We include these agreements under negotiated funding agreements because in common with them, they bear no relation to the activities of the institution.

Consequences of Negotiated Funding

Negotiated funding, in general, has not been an effective mechanism for allocating higher education resources. The principal failures stem from uncertainties regarding future funding; lack of incentives for efficiency; and an absence of any clear signals regarding external demands. In environments where institutions have more flexibility to respond to funding cuts (i.e. they can limit their enrollments), such funding techniques may provide a relatively stable source of funding. In highly regulated environments and where government allocate insufficient resources to meet the demands placed on the system, they constitute a framework within which the problem of rapid expansion without resources can continue apace, as quality falls.

Another principal shortcoming of negotiated funding is that it provides no incentives for efficiency. If an institution receives a flat increment on its previous budget, or if it simply negotiates a budget with the government, the resulting funding bears little relationship to the activities expected of the institution. The funds are transferred and the activities (teaching and research) are determined after, not before, the allocation of funding. That is, since funding is unaffected by whether institutions behave efficiently or not, it is tempting for them to continue in established inefficient ways.

In Brazil, for example, between 1983 and 1988, federal university budgets remained fairly constant while enrollments fell by seven percent. The Brazilian universities were allowed a high degree of control over their enrollments, thus allowing them to adjust admissions in line with their funding each year. There is no indication that extra funding has been used for quality investments. In fact, most went to support a highly inefficient

staffing arrangement in institutions. A similar problem exists in Honduras where the public university's budget is constitutionally guaranteed at six percent of total public expenditure. Since there are no fixed relations between the budgetary allocation and the expected activities of the institution, the University is able to be highly inefficient in its use of funds. Nearly 50 percent of the University's expenditures are absorbed by administrative costs (Box 6.1).

Box 6.1. Honduras: Funding in a One-University System

Many countries with less developed higher education systems have only one public university. Developing funding methods to allocate among institutions therefore is not applicable, but it remains necessary for the government to formulate criteria to determine funding to the one institution.

Honduras provides an example of a mono-institutional system. The National Autonomous University of Honduras (UNAH) is the single government run university. Currently, there is a constitutional requirement for UNAH to receive six percent of all government expenditures in a given year, although UNAH must guarantee admission to all students completing secondary school.

Generous funding, however, has not resulted in a high quality or efficient university. UNAH offers training in courses that are increasingly divergent from the demands of students and the labor market. Excessive numbers of administrative personnel, absorbing a high percentage of the budget, are seen as a major factor hampering any internal reform. Indeed, administrative costs represent nearly 50 percent of the university's annual expenditures, while spending on books was less than one tenth of one percent of the budget in 1990. As a consequence, expensive private universities have appeared in the last few years, catering mostly to middle class students who wish to opt out of the low quality public system.

The tendency to deploy staff inefficiently occurs because many governments implicitly may view their institutions as places to satisfy political patronage through employment. If an institution were to eliminate staff (to increase spending in other areas), it would, in all probability, place itself in a poorer position to negotiate its next budget; governments may regard staff salaries as having a first call on budgets (and employees are likely to have vocal unions) whereas purchase of equipment and library books can more easily be put off for a year. Thus there is often an implicit incentive for institutions to preserve even unnecessary staff, to maintain future budget levels.

Finally, negotiated funding has not enabled institutions to be adaptive to labor market or student demands. In general, there are no mechanisms in place to ensure that courses which universities offer provide students with skills that are needed by employers. Growing rates of graduate unemployment (and underemployment) is a symptom of the

problem. Besides the lack of clear signaling, institutions may be constrained further because ad-hocism is usually combined with tight government restrictions on expenditures. Autonomy to redeploy resources, as well as an incentive mechanism to encourage institutions to do so, are essential for responsiveness to the labor market.

While negotiated funding has been the dominant form of funding for universities in the developing world, it has not served higher education well. Many of the problems stem not from the funding approach per se, but from restrictions on institutional ability to control enrollments, to seek additional funds to supplement declining government income, and to redeploy resources to be efficient and responsive to changing external demands. Nevertheless, year to year uncertainties with regard to government budgets, and the negative incentives that penalize efficiency compound these problems. The challenge for many developing countries will be to design a means to improve the broader policy context within which institutions operate, and at the same time, to develop new funding strategies that will allow governments to ensure accountability over the use of their funds. That is, to increase institutional autonomy over financial matters, while also creating funding mechanisms that ensure accountability.

The remainder of this chapter explores means adopted in both developing and industrialized countries to achieve this twin balance between greater latitude for institutional decision making and accountability for performance. The next section will examine the experience with utilizing a specialized institution to handle funding decisions, namely the use of a buffer funding organization that stands between the government and the universities. The following sections will examine the role of funding on the basis of economic criteria -- either on the basis of inputs or university outputs. Finally, the alternative of providing funding via students, instead of directly to institutions, will be examined.

The Role of Buffer Organizations

One way to enable the state to step back, while still ensuring accountability, is to establish a new institutional arrangement to preserve autonomy. Some governments have introduced a buffer body that stands between the government and the universities to handle funding decisions, and to insulate institutions from direct political interventions. The membership of buffer bodies varies from country to country, but usually consists of university officials and technical experts related to universities, who agree to evaluate university needs. Besides university officials, government and industry representatives have sometimes participated.

The legal status of these institutions also varies. Some are firmly grounded with statutory powers. Others have no formal powers. The classic model for a buffer is Britain's, recently defunct, University Grants Committee (Box 6.2) which was never charged with statutory powers, and therefore was always subject to the possibility of disbanding by the

government (as occurred in 1988). Most similar bodies in other countries, however, do have a legal status that defines formal powers and responsibilities. India's University Grants Committee, for instance, has had its powers legally redefined (expanded) several times since its inception. To what extent have buffer institutions have furthered the objectives of stable, efficient and responsive institutions? We find that in some instances buffer organizations can play an important role in resource allocation, but the effectiveness of these buffers has varied widely.

Box 6.2. UK: Funding through the University Grants Committee

The University Grants Committee (UGC) was established in 1919 as a non-statutory body to recommend to the government the overall funding needs of the universities and to allocate the overall budget to each institution. It served as a buffer between the government's agendas and the autonomous Universities. During the 1960's the government embarked on a deliberate program of university expansion. To oversee this expansion, the UGC began allocating funds using an enrollment based funding formula.

The exact UGC formula was always concealed from institutions. However, in order to create stability, the funding body guaranteed minimum resources over five year periods. The UGC transferred "block grants" to institutions which contained unspecified components for both teaching and research. Institutions were free to allocate funds as they wished (Shattock and Rigby 1983).

The approach was regarded as successful, as long as resources were plentiful (until the late 1970's). Expansion proceeded in a rapid, but controlled manner, and the quality of institutions was maintained. Hiding the formula from institutions proved to be one of the system's strengths, since it provided the UGC with a certain degree of flexibility. The program began to unravel, however, when Britain's macro-economic situation required public spending retrenchment, which led to the collapse of the guaranteed five year plan of funds. The power of the UGC, however, allowed it to link budget cuts to corresponding enrollment cuts and the closure of inefficient programs, and thereby preserving per student resources.

Rationale and Functions

Based on an examination of the charters of buffer organizations, four principal rationale for their operation can be identified. First, buffers consist of a group of technical experts (usually university officials) that are expected to evaluate university financial needs, present a budget request to the government and allocate funds to individual institutions. Second, buffers are supposed to insulate institutions from direct political intervention; buffers are to provide autonomy, while preserving accountability to the government. Third,

buffers sometimes act as a quality control mechanism, to maintain standards throughout the higher education system. And finally, some buffers serve to decide on institutional enrollments and their distribution by field and degree level.

Table 6.3. Actual Functions of Buffer Funding Bodies: Selected Countries

Country (Organization)	Core Budget Allocations	Preserving Autonomy	Quality Control	Enrollment Determination	Funding Mechanism
UK (UGC)	x	x	x		Input
Nigeria (NUC)	x		x		Negotiated
Israel (PBC)	x		x		Output
New Zealand (UGC)	x	x	x		Input
India (UGC)			x		Negotiated
Pakistan (UGC)			x	x	Negotiated
Kenya (CHE)			x		Negotiated
Sudan (UGC)			x		Negotiated

Sources: Shattock and Rigby 1983; Singh 1984; Bellew and DeStaphano 1991; Zadok 1985; Eisemon 1991; Eisemon 1984.

The actual functions that many developing country buffers perform, however, have diverged significantly from the rationale for their introduction. Table 6.3 lists principal functions that eight buffer bodies actually perform, dividing tasks into four central areas: allocation of resources, preserving autonomy, quality control and enrollment determination.

Financial role. While nominally almost all buffers are charged with the allocation of resources to universities, many do not control funding. In India, the UGC funds certain "thrust" areas of science and technology, particularly for post graduate training and research. But these areas are often determined by the government itself (Sharma and Sanyal 1990). In Kenya, Pakistan and the Sudan, the buffer bodies are too weak to effectively control funding decisions. The universities bypass the buffers and negotiate their budgets directly with the ministries of education or finance. In Kenya, recent reforms to strengthen the Committee on Higher Education are attempting to create a stable buffer that will handle funding decisions, contrary to past practices of appealing to the President three times per year for budget allocations.

Autonomy. Preserving institutional autonomy has been an extremely important function of the buffer bodies in the UK and New Zealand. In these countries, the high quality of instruction and research has been partially attributed to the relative absence of government intervention (Eisemon 1984). Nevertheless, while preserving autonomy is, in theory, the central function for buffers, they have often failed to do so for one of two reasons. Either the buffer is too weak and the government overrides its decisions to infringe

on autonomy (Kenya, Pakistan, India, Sudan); Or, the buffer becomes too strong and itself interferes with university autonomy. This concern has been noted in Israel (Iram 1990; Zadok 1985) and in Nigeria.

The Nigerian buffer, the National Universities Commission (NUC), is a somewhat special case. Its authority grew tremendously during the mid-1980's when the government gave it genuine power to allocate budgets to institutions. But the government did so only when it was severely short of funding to maintain its well-developed higher education system. The NUC has been used to diffuse tensions and deal with a problem the government preferred not to address directly: namely, how to allocate the limited funds which are far below what the institutions actually needed. Thus, while buffers often serve to insulate universities from government interference, equally they can buffer the government from university protests.

Quality control. Most buffers also serve as quality control organizations, periodically inspecting institutions to ensure that standards do not fall. This function has become the primary role of India's UGC, but has also been adopted by the PBC in Israel and to some extent by the UGC in the UK. Virtually all buffers take on this role to some extent. Quality control in some instances has led to regulation of institutions, by setting target student teacher ratios, for example. The most common form of quality control is for the buffer body to serve as an accreditation institution, approving new institutions, or programs within existing institutions.

Enrollment determination. Some buffers have been charged with the responsibility of determining enrollments at institutions. The buffer's role is to counteract institutional tendencies to lower enrollments in light of funding shortages. Sudan's UGC and, to some extent, Pakistan's have taken on as a primary function controlling the intake and distribution of enrollments at public universities. Besides setting overall enrollment numbers for institutions, some organizations determine field distribution within universities, and therefore act as a "manpower planning" body by relating enrollment numbers and distributions to development objectives.

Funding criteria. Does the existence of a buffer have an effect on the funding criteria used? The simple answer is that those buffers that are empowered to make budgetary allocations do use normative criteria related to the inputs and outputs of universities. The notable exception is Nigeria. Despite the existence of cost-parameters for allocating funding, the NUC has been forced into a more haphazard approach because it has fewer funds than would be warranted by an objective examinations of Nigeria's many institutions. In instances where buffer bodies lack real authority, however, governments typically allocate resources according to the negotiated practices discussed in the previous section. In these instances, governments simply are not willing to yield direct control over funding to an autonomous body.

Limits on Effectiveness

The diverse experience with buffer organizations reveals a somewhat logical flaw. Is it really possible to have an organization that remains independent of universities and government, when the buffer's powers are always determined, and can be readily changed, by the government? While buffer organizations can work well in certain political climates, they are never truly buffers because they are always much more dependent on the government than the universities. If a government strongly disagrees with buffer policies, then it has the authority to disband the buffer. Alternatively, governments can leave the buffer body intact, but render it impotent, leaving real decision making to higher level government officials.

The experience in the United Kingdom and Australia (where powerful, independent buffers have been disbanded) reveal situations where buffers are likely and unlikely to work effectively. In both countries, when higher education systems were small and resources were plentiful, the government delegated considerable authority to their buffers. In these instances, it preferred to have a panel of experts preside over a rapid increase in public expenditure to higher education to determine how those extra funds could best be utilized. But as the systems grew, the expenditures became larger, and economic conditions deteriorated, both governments called for increasing accountability over funds. The divergence between the agendas of the government and the buffer organizations led to their replacement (Marshall 1990). Buffers function well in instances where governments prefer to rely on a panel of university experts, rather than bureaucrats, to make decisions.

In contrast, buffer (or similar type) organizations are sometimes used to execute budget cuts. In both Nigeria and the Netherlands, when the government had to reduce spending to higher education, decision making was transferred to a panel of university experts rather than remaining with the government. Buffers, therefore, enable governments to transfer decision making away from bureaucrats to experts, usually in instances where the government is either ill-equipped or unwilling to make certain budgetary decisions.

In many developing countries, while buffers exist in name, they are often rendered impotent because governments are unwilling to forgo real authority. The quality control function often remains intact, however, because this is truly an area where governments do need to rely on expert help. In general, the complexity of funding universities, the large amounts of funds involved, and the generally strong political standing of the parties involved, often create a need for a panel of such experts to be involved in the allocation process. An illustration of this need is what happens when a void is created by the elimination of the buffer. When the UK government replaced the UGC with a more closely held state funding organization (UFC), the Council of Vice-Chancellors and Principals (CVCP) which consists of the heads of the universities, increased considerably in stature. The experience with buffer funding bodies demonstrates that in some instances they can be a mechanism to promote university autonomy, as well as funding that is allocated on more institutional rather than

political criteria. But their existence is not a guarantee that this will happen. Nor are strong buffers immune to politics either from the universities or governments.

The next two sections switch from an examination of the relation between the state and universities, to the criteria governments have utilized to transfer funds to institutions. These sections focus on funding mechanisms that address the inputs and outputs of universities, and thus seek to twin accountability with more institutional autonomy. A third section will return to the environment in which such criteria are utilized to develop transfers via students.

Input Funding

In response to the problems described in the previous sections, more countries, including those with limited institutional infrastructures, have shifted towards cost-based funding mechanisms. In most industrial countries and some developing countries in Asia and Africa, funding is allocated on the basis of estimates of costs for educational inputs. Such input funding requires that governments have a means to identify costs, and to distinguish the costs among institution and among programs. The methodology used to calculate costs has an important impact on institutional incentives.

Institutions with relatively low government constraints receive funds on the basis of formulas. The lowest control systems are specifically designed to encourage institutions to be efficient, i.e to seek lower unit costs, as in South Africa and public funds to Japan's private institutions. Encouraging institutions to be efficient, however, requires that they be permitted to redeploy resources. Experience with these input systems is described below.

Types of Input Funding

Line item budgeting. A highly restrictive form of input budgeting is where governments to require institutions to have each expenditure item approved on the basis of expenditure norms. Institutions typically submit budgets for future years to the ministry of education, and expenditure items are examined on an individual basis, but usually include cost parameters to assess them. Until recently, budgeting in Norway and Sweden occurred in this way. During the 1970's, the Swedish Ministry of Education would set enrollments in each department of universities, and allocate budgets according to permitted expenditures in each faculty. In a few developing countries, such as Nigeria, budgets are approved on the basis of cost parameters which specify rules to govern line item funding decisions. These include such specifications as student teacher ratios, administrative staff student ratios, and space allocations.

Program budgeting. Some countries that formerly practiced line item budgeting, have begun to increase institutional autonomy by allocating block grants to cost centers. During the 1960s, many US state higher education systems replaced line item review with Program Plan Budgeting Systems (PPBS); instead of allocating funds by cost categories such as academic salaries, funds are allocated to cost centers (faculties). In Germany, budgets are given for individual professors; in this way, cost centers could be differentiated to recognize the higher costs found in some scientific fields compared with arts and social sciences. The Scandinavian countries have moved towards cost-center based financing to allow institutions more flexibility in allocating their own budgets.

Formula budgeting. The most flexible input funding approach derives budgets from formulas, typically based on enrollment or staffing patterns. Instead of institutions submitting budgets to a government ministry for approval, the funding agency allocates resources on the basis of the costs of activities -- typically instruction and research. The most common approach is to multiply enrollments by a parameter of unit cost (often referred to as the unit resource). Enrollment formulas have been widely used throughout North America, Europe and Asia.

The complexity of funding formulas, and indeed many of the important incentives to institutions, come from the weightings (or coefficients) used . The weightings provide incentives for internal distribution of resources. The most common weightings are for field of study, level of education, type of institution (location, size, and mission within the system), and type of students. In principle, weightings should reflect differential costs, i.e., that an engineering course might cost three times an arts course. Weightings can, however, be employed as an indirect form of government control over enrollment patterns; if a government wished to increase the supply of engineering places, it could raise the weighting given to engineering enrollments.

Some formulas have become more sophisticated so that they encourage efficiency, essentially by attempting to fund expansion at marginal rather than average cost. To limit the incentive for expansion, some formulas pay less for additional students. North American higher education systems tend to discount allocations for expansion to promote efficient expansion.

Another interesting alternative to encourage efficiency gains is to adjust them on the basis of how resources are used, i.e. on the basis of throughput indicators. The Japanese government calculates its support for private institutions on the basis of inputs (enrollments). But it adjusts this allocation in light of how institutions actually use their funding. The adjustments can reduce allocations by up to 50 percent or increase them by up to 30 percent based on each institution's conformity to four throughput norms: the ratio of actual students enrolled to the number suggested by ministry; student-teacher ratios for each faculty; the ratio of non-salary educational expenditures to student derived revenue; and the overall budgetary balance.

An Input Funding Alternative: The Market Determines its Own Costs

All the above input funding techniques require that the government establish cost norms or guidelines to establish what it will pay to universities. There are no objective criteria for establishing what cost should be. An alternative method for establishing costs is to let the higher education system itself establish costs -- by introducing market oriented competition. That is, rather than establish cost norms from outside, institutions could be encouraged to seek the most efficient provision of services by competing for funds. In this competitive environment, universities could lower costs either by seeking out means to avoid existing inefficiencies or by taking advantage of economies of scale. Such a system has recently been tried in the UK, with mixed results.

In addition to direct institutional funding, public support for universities is channeled indirectly to pay what are notionally called "tuition fees". Virtually all British students have their fees paid through their local governments. The fees provide institutions with funding per student on the current rather than the previous year's enrollment. This channel of funding has been increased over the last two years. In 1989, the University Funding Council (UFC) introduced a new mechanism for institutional funding in Britain by requiring institutions to compete through bids for students, to obtain government funding. The objective was to introduce elements of price signals and competition to determine resource allocation, thereby leading to a more efficient allocation of resources. The UFC required all universities to submit "bids" for each program area. The UFC was to accept the lowest bids, subject to maintaining quality standards. The bidding process was seen as a mechanism to pressure institutions to reduce unit costs for teaching by encouraging them to take on extra students at marginal costs. Institutions submit the price per student (and the number of students) in a given program at which they are willing to take on students.

The university bidding process, as it was initially conceived, was abandoned because institutions tended to enter similar bid prices, very close to the UFC guide prices. The funding approach required that institutions start with a zero budget, and receive public support for instruction only through successful bids. Due to the uncertainty this created for future income, all the institutions submitted their "bids" at the highest possible prices (as stipulated by the UFC). While it is possible that institutions entered into a cartel arrangement and rigged prices, other explanations have been suggested (Johnes 1992). The publication of UFC guide prices may have tempted universities to play safe and use these in their price setting. However, Johnes (1992) has shown, using the economic theory auctions, that even in the absence of a price ring or guide prices, the auction procedure adopted was likely to result in similar bids from the participating institutions.

A similar, but more successful strategy, was adopted by the Polytechnics and Colleges Funding Council (PCFC) that funds the more vocational half of Britain's higher education system. This approach maintains the bidding process, but only for marginal funds. The PCFC guarantees institutions 95 percent of their previous year's funds, while requiring them to bid for the remaining five percent pool of funds (increased to 10 percent this year).

While this funding approach encourages changes only at the margin, it has nevertheless produced efficiency gains without causing huge institutional uncertainty. Institutions are expanding programs with excess capacity, and where they have a comparative advantage. Although this process has been more successful, there is no indication of when it will stop. Efficiency gains must have a limit, and therefore this funding approach cannot be a long term strategy.

The theoretical advantages of this approach are that it should encourage institutions to identify areas where they have comparative advantages for efficiency and quality, and move into or expand these areas in which they can provide education more effectively, while abandoning those areas in which they cannot. In addition, rather than imposing more rigid standards of cost that apply equally to institutions over time, it should allow the funding system to be more flexible.

Consequences of Input Funding

One of the principal problems with input funding is how it relates to access policy. If there are not fixed limits on enrollments to the system, then the government commitment is theoretically open ended. The government has a choice: either increase the overall budget to higher education or reduce its payment per student. The latter has more frequently been employed. The experience in Ontario illustrates the tendency to change the overall formula in light of government budgets. The Ontario government has revised the unit resource (the per student amount used in the formula) it pays to institutions annually, in order to contain total expenditures. The unit of resource declined by 20 percent over a seven year period during the 1980s. Many institutions expanded beyond their capacity just to maintain their share of the budget, and quality declined (Darling et al 1989).

Some countries have responded to this problem by setting a price which the government will pay per student, but for a fixed number of students only. Other students can be admitted by institutions, on a fee for service basis. That decision, however lies with individual institutions. Such a funding approach has been adopted in Vietnam since 1989, and is being considered in Uganda. This approach appears to maintain more stability for institutions.

A second problem encountered is that most input funding mechanisms fail to provide efficiency incentives. While input funding essentially compensates institutions for costs incurred for salaries and physical needs, it does not really establish cost norms per output, nor does it provide incentives for institutions to lower their costs. If governments simply purchase "inputs" to educational activities, there are no guarantees that those inputs will be used to capacity or that institutions will seek to better deploy their resources. Funding formulas give institutions a tremendous incentive to expand inefficiently when resources are provided at average rather than marginal cost.

A central motivation behind the UK's change in funding is to prevent institutions from expanding simply on the basis of average cost. Similarly, Japan has experimented with "throughput" formulas for institutions. To the extent that institutions conform to these measures, they can receive extra funding. But two cautionary points should be noted against efforts to squeeze efficiency gains from institutions. First, there is a limit to efficiency gains beyond which quality suffers. Second, although there may be excess capacity in institutions, enrollment formulas are often too rigid to allow distinction between efficient and inefficient institutions and programs.

Input funding leads to three problems with respect to responsiveness. First, budgeting practices can encourage instruction that is out of kilter with labor market demands because the government is either implicitly or explicitly determining supply. Explicit determination occurs if the government places quantitative restrictions on enrollments in courses. Implicit restrictions often occur with funding formulas because of the signals transmitted by weightings which are often arbitrary. In Indonesia, for example, there are no weightings by field of study. Institutions with scarce resources have an incentive to put students in their low cost courses, such as the social sciences. It is not surprising that Indonesia's institutions offer relatively few places in the more expensive fields; 53 percent of all students study social sciences, while only two percent study basic sciences.

Similarly, in Ontario post graduate enrollments received six times the funding of undergraduate arts enrollments. The labor market demand for Ph.D.s, however, was not sufficient to absorb the large number of graduates, and many Ph.D.s were unemployed. In a subsequent about-face move, the government has required institutions to shut down many Ph.D. programs.

Another concern with input funding is that it promotes excessive homogeneity among institutions. The use of indicators to allocate funding presupposes a "norm" for institutions, to which they should all converge. Underlying the norm (indicator) is the idea that it is a proper target towards which institutions should move. This may not always be the case, however. In fact, most input funding techniques actually provide disincentives to diversify activities and sources of funding. Many funding formulas either deduct or limit the amount of external funds institutions may generate, particularly through fees (Ontario and Japan). Many institutions are therefore penalized for engaging in contractual services with their local community that would enhance their relationship and understanding of local needs. They are also prevented from competing on the basis of price and quality because of a lack of fee differentiation.

A third inhibition to differentiation results when the same input criteria, such as enrollments, determine research funding as well as instructional budgets. In small higher education systems, it may be effective to build up research capacity in all institutions. As systems grow, however, this may lead to resources being spread too thinly.

Finally governments, particularly in some developing countries, must be careful in the choice of indicators used to create a normative funding mechanism because of the inaccuracy of certain reported statistics. In Ecuador, for example, the government has tried to utilize a student based funding formula for public universities. To maximize their funding, institutions reportedly claim extremely high enrollments that are much higher than true enrollments. However, since the government lacks the capacity to verify these numbers, it is unable to determine if these are simply ghost enrollments. A similar problem has been reported in Mexico, where the government recently implemented an enrollment funding formula. Institutions are including as many people as possible in their enrollment counts in order to increase their funding. The lack of accurate information to verify actual enrollments undermined these funding mechanisms. To address this problem, the planned shift to a funding formula in Brazil would use reliable statistics such as the number of graduates and new entrants.

Movement towards a more normative mechanism of funding has been a significant departure for countries that were dissatisfied with the results of negotiated funding arrangements. Input cost criteria, most notably funding formulas, have predominated throughout European and North American systems and have allowed for greater autonomy in institutions. In principle these programs provide a means to link funding to the costs of activities, and therefore secure accountability from institutions. In some countries, the lack of institutional information limits the possibility for using such funding techniques. Concerns with input funding have arisen as a result of experience. In particular, they fail to encourage efficiency and also inhibit the process of institutional differentiation that becomes critical as higher education systems grow in size. Some important experiments will need study over the next few years, in particular the use of marginal cost criteria for expanding systems, as well as the market oriented bidding process in the UK.

Output Funding

Input-based funding may encourage high unit costs -- either due to poor resource utilization, or a high cost per graduate because of student drop-out and repetition. Some allocation systems therefore link subsidies to outputs rather than inputs in an attempt to avoid high costs. As discussed here, output funding is concerned essentially with effectiveness in producing graduates. While emphasis tends to be on quantity, the quality of output is equally important.

A major concern motivating governments to develop output funding techniques has been the high cost of producing a graduate, due either to institutional inefficiency, or more likely, to a poor flow of students through the system. The unit cost for a science graduate in Senegal, as a result of high repetition and dropout, is $17,500 (Salmi 1991). Output finance provides a means of avoiding these inefficiencies and for promoting a greater output

per unit of resource. However, government controls have not always been conducive to the achievement of these aims.

There are two general government policies that promote inefficient student flows: open enrollments, and generous student support schemes. If institutions are not selective, students who are unable to handle workloads at universities will fall behind. Second, when students receive better standards of living as a student than if they graduate, they have an incentive to remain in school, particularly if tuition costs of these additional years of study are minimal.

Experience with Output Funding

Output funding typically subsidizes universities on the basis of their productivity. In Finland, the government determines institutional budgets on the basis of the number of students that should be graduating (based on the prescribed lengths of courses). In essence, when students take longer to graduate than the period allowed for them in the funding calculation, institutions are penalized.

In the Netherlands, where universities are obliged to take on all secondary school graduates, the Ministry of Education employs a funding formula to encourage institutions to weed out students to improve student flows. An important element of the funding formula is its provision of incentives for institutions to dismiss poorly performing students early on, rather than later. The Ministry of Education, which handles the allocation of public funds, distinguishes between graduates and dropouts. The universities receive much less funding for students that leave without diplomas than for those who receive them. The formula essentially grants a university 4.5 years of annual unit cost funding per graduate, and 1.5 years for dropouts -- regardless of how long students take to complete their studies or at what point in their studies they drop out from the institution. The dual incentives are both to weed out poorly performing students early on, and to get students to graduate as quickly as possible.

Since 1974, funding decisions in Israel have been made by an independent funding body, the Planning and Budgeting Committee (PBC). Government participation in university budgets has fallen steadily in recent years and now accounts for less than 60 percent of their regular budgets. Of this, the largest portion (presently some 80 percent) is for direct allocations (as opposed to special purpose allocations). As reported in a recent annual report (Israel Planning and Budgeting Committee, 1985) direct allocations are based on a two track approach, though more recently the allocation system has undergone various changes.

One team conducts comprehensive discussions with each university on its detailed budget proposals, in the broad context of planned academic activities, staffing, outside income and so on. The second team examines recent data relating to the "productivity" of

each institution. No single productivity formula is used; rather the team reviews various data, including number of students and graduates (both by degree level and field of study), the value of research grants and other factors reflecting the scope and quality of research. These data are used as "raw material" for arriving at a suggested division of overall direct allocations between universities, based on institutional productivity. However, the weightings given to the various productivity indicators are not made known to the university institutions. Should there be a discrepancy between the recommendations of the two teams - based on institutional budget proposals and productivity - then the PBC takes both into consideration, with greater emphasis accorded to productivity data.

Consequences

Most of the experience with output financing is too recent to draw any certain conclusions. In the Netherlands the new funding formula has imp ed student flows - or at least the efficiency in weeding out poorly performing students, i absence of selective entry to the university. Table 6.4 uses the ratio of graduates over university leavers to illustrate the improvement.

Table 6.4. Graduates vs. Dropouts in Dutch Universities 1980-1987

Year	Total Outflow (Graduates and Dropouts)	Number of Graduates	Graduates as Percent of Total Outflow
1980	22,784	10,832	47.5%
1981	20,312	11,075	54.5%
1982	20,779	12,583	60.6%
1983 *	19,077	14,230	74.6%
1984	22,288	14,670	65.8%
1985	24,896	16,062	64.5%
1986	24,971	17,376	69.6%
1987	31,724	25,495	80.4%

* year in which reforms introduced.
Notes: excludes students studying part-time. 1987 is estimated
Source: Florax and Koelman 1989.

In 1980, more than half of all Dutch students leaving higher education were dropouts. After the 1983 reforms, the graduation rate sharply increased as a result of structural changes to reduce the length of courses. After the one-time improvements from structural changes, the number of graduates has been steadily increasing, while most of the drop-outs occur early in the education process.

While the new funding approach has helped to improve student flows at the Dutch universities, it is not clear that this was the only, or in fact the best, means of correcting the problem. A similar situation was corrected in Germany by improving curricular obstacles that encouraged poor student flows. In addition, such a funding mechanism may penalize and reward institutional programs unfairly because it attacks symptoms rather than the source of the problem. In the Netherlands, repetition is partly a consequence of the quality of entering students. Low selectivity (automatic admissions) implies that institutions are likely to have a lower average quality of student. Many universities provide "remedial" courses to students in areas such as mathematics when they pursue science fields. Therefore such blanket penalties as imposed by the Dutch system may discourage universities from offering necessary programs. The experience in Denmark lends support to this criticism. While institutions are given financial incentives to improve student flows, the external examination system in place to ensure maintenance of education standards, has blunted the effect of incentives on student flows; their impact has been marginal. Given the need to maintain quality standards, the absence of improved student flows seems to have resulted more from the need to bring students up to university standards than from institutional inefficiency.

In general, the countries that have implemented output funding formulas have found it necessary to strike a balance between responding to the incentives for efficiency (adjustments to funding) and annual stability. If all institutional funding is based on performance, the year to year uncertainty may complicate planning and discourage institutions from making investments that will lead to future improvements. In Denmark, output finance constitutes only five percent of the core allocations to institutions. Similarly, the funding reforms in England pertains to 10 percent of annual income. In Israel, assessments are flexible in that they provide ranges of satisfactory performance within which funding can be given.

Output funding perhaps offers a second best solution to inefficiencies that are caused by low admission standards and poor incentives. The Dutch experience with output funding is promising, and yet they are still seeking to reform their funding mechanism -- mostly due to problems with institutional diversity and responsiveness. One of the enduring problems of such funding, however, is to provide incentives that are sufficient to improve performance, but not too much so that university activities are excessively disrupted. In addition, most output funding has evaluated the quantity rather than the quality of output. Stimulating quality is an important priority in many developing countries. Output funding has also been less successful at encouraging diversity and flexibility among higher education institutions, so that they are capable of adapting to changing student and labor market needs.

Student Based Funding

Previous sections have examined criteria and formulas for allocating subsidies directly to institutions. Input and output funding mechanisms utilize criteria of cost to establish annual budgets, while negotiated funding results from both political links between institutions and the government, and admissions policies divorced from the available funding for higher education. An alternative path, discussed briefly at the beginning of this chapter, is to channel subsidies via students, rather than directly to institutions. This indirect approach, in which governments' focus on students rather than institutions, without necessarily yielding budgetary savings, has considerable implications for institutional incentives.

In discussing student based funding, we are moving towards a consideration not so much of the criteria for funding, but the environment and context within which funding decisions are made. In some aspects, student funding will appear similar to an input funding formula which calculates institutional budgets on the basis of the number of students it enrolls. And indeed what we refer to as student based funding would often use the formulas discussed in the previous sections. However, there are important distinctions between the two. Input and output funding occur in more restricted environments -- where institutions are not allowed to distinguish themselves on the basis of price, or to deploy their resources where they see fit, or to control their enrollments. When these restrictions are loosened, the system shifts from direct to indirect funding. What we call student based funding represents a suitably reformed input based funding system, in which student choice becomes a focal point of the system.

The prime example of student based finance is through student entitlements to higher education (usually referred to in the literature as voucher funding). Vouchers have been discussed for the most part for primary and secondary schools, although there have been some suggested applications to higher education as well (Peacock and Wiseman 1964; Barnes and Barr 1988; Stager 1989). Under a pure voucher plan, institutions would be made wholly autonomous in setting fee levels and students would use government provided vouchers, in partial or full payment for university education, depending on the level of fees set by individual institutions. The government's main intervention for undergraduate instruction would be through student support (the higher education entitlement). A move towards student support could take the form of individual grants to established levees of subsidy, or of publicly sponsored student loans. The size of student support in the form of grants would typically be less than or equal to fees in the new system. Students are free to seek universities offering fee and course quality combinations that they find desirable; where necessary, students would top up fee payment from private resources. Proponents see entitlements as a means of incorporating market mechanisms into public subsidies.

Student based funding is also expected to improve the equity of higher education systems by increasing overall access through stimulating increased provision of educational

places. Critics, however, argue that an entitlement scheme may have negative equity impacts because a two tier system could emerge whereby poorer students would attend lower cost institutions, while wealthier students might use their entitlements to supplement payments at expensive private institutions.

The central motivation for student based funding is to promote competition that, in turn, is expected to stimulate efficiency and quality. Competition, at the higher education level, would be promoted on two levels: students would compete for support and higher education institutions would compete for students.

Students compete for support. The government would limit the number of students receiving financial aid. Allocation decisions could be made on the basis of ability and/or need. Aid could be differentiated so that poorer students receive more generous aid than better off students. A simple scenario would be to take a university system where the government was providing subsidies to institutions, averaging say $1,000 per year, for 10,000 students. The government could remove those subsidies to institutions and grant 10,000 students a year a voucher worth $1,000. Institutions would be free to set tuition fees, and some would raise them beyond the value of the entitlement. It is this provision of realistic fee setting that distinguishes input based funding from student based funding. From an immediate fiscal standpoint, this change would be neutral. But over time, as pressures to expand the system grew, a government might have a clear mechanism to limit public subsidies to only the best students. The government might wish to differentiate the value given on the basis of the course of study taken; those who qualified for medical training, for example, might receive more than those who qualified for social sciences. And the government might also want to impose restrictions on the number of years for which the entitlement is available for use, in order to promote efficient student flows.

As pressures to expand systems increased while governments confronted fiscal constraints, there would be a variety of options: limit the number of entitlement-financed students, while letting the remaining students pay full cost fees, as in Vietnam (Box 6.3); move more gradually towards loans instead of grants; let inflation erode the value of grants, while increasing the number of grants given. No matter which option was adopted, institutional budgets would remain in line with costs, so long as the institutions had reasonable control over admission and tuition policies.

Box 6.3. Vietnam: A System with a Fixed Number of Subsidized Students

Public subsidies to Vietnam's institutions of higher education are regulated by the State Committee on Planning. The committee fixes an allocation per student and also specifies the number of places it will purchase from each institution. The university is expected to fill those places in order to receive its public budget. But institutions can accept additional fee paying students.

Universities are able to accept three broad categories of students, from a financial point of view. Within the government allotment there are scholarship and non-scholarship students. The scholarship students must be admitted free of tuition charges, and receive living stipends awarded by the state. Institutions may charge fees to non-scholarship students, for which the universities receive subsidies. Finally, institutions may accept additional students (for which they do not receive government support) on a fee-for-service basis. Institutions have a wide degree of control over their tuition policy (although there is a maximum fee), complete freedom over their non-state budgets (which are about half of income) and have a large degree of lassitude to determine their enrollments. Nearly half of all students are paying fees, and thus institutions have rapidly become responsive to student demands.

Institutions compete for students. The second level of competition promoted would be among institutions for students. Institutions would rely for the most part on income from fees (paid for by student resources or higher education entitlements), while still receiving direct government support for capital expenditures, perhaps some base funding and, most importantly, funding for research and post graduate training. But under such a proposal, institutions would be free to set their own tuition charges. Furthermore, institutions could differentiate their fee policy, depending on the type of market they wanted to satisfy. Institutions could choose to be high fee, high quality institutions or offer low fee programs of lower quality. They could set differential fees by course of study, according to costs or potential graduate income. The fees could be above the value of the entitlement, with student choosing to contribute from their own resources for these more expensive courses. Furthermore, to attract student holding entitlements, institutions would both have to open up programs that responded to student demands and be more likely to close programs that did not (Stager 1989). If student demand does in fact correspond to future labor market demands, then a useful signalling mechanism would be introduced for increasing the external efficiency of higher education.

There is an important practical benefit of student based funding over the norm based formula funding. As noted above, one of the potential limitations of input and output funding in developing countries is the lack of institutional capacity to use indicators. For example, input based funding relating to student enrollments can function well only if reliable information is forthcoming from universities on the number of students enrolled. But in some systems (Mexico and Ecuador, for example) reliable student number statistics

are not made available; bloated claims for funding on the basis of "shadow" students would obviate the use of input funding. We have noted the formal similarity between input funding based on student enrollments and higher education entitlements; yet one administrative advantage of the latter system is that, since the number of entitlement students is fixed by the government, it automatically provides a check on the number of students eligible for funding.

Several systems are beginning to move in the direction of such educational entitlements. In Vietnam, the government provides subsidies for a fixed number of students, but allows institutions to accept fee paying students up to their capacities. The market incentives created by such a system have given institutions clear signals as to how reorientation should occur as Vietnam moves to a market economy (Box 6.30). In Uganda, discussions of university reform are considering a move towards student based funding where by the universities would charge fees, but students who could find sponsors from various government ministries, would have their fees paid. The ministries would sponsor students in relation to their own staffing needs. All other students would be required to finance their own studies.

Case Study: Chile

Chile's funding system for higher education is the closest approximation to such entitlement (or voucher) funding to be found in the world. Chile's higher education system underwent major financial reform in 1981. Before the reforms, both public and private universities received public subsidies. The new system has abandoned the terms public and private, and simply distinguishes between those institutions that receive fiscal support and those that do not. In the fiscally supported sector, institutions must compete for a portion of their non-research funding, which flows through three government channels: a base of direct support for research capacity and basic institutional infrastructure; a variable amount known as indirect support, which is allocated via students and not directly to institutions; and a supply of funds for student loans (and more recently scholarships) to be managed by the universities. In addition, universities collect fee revenues for approximately 25 percent of their income and for research grants on a peer review basis from national research councils.

Under the planned reforms, direct grants to universities were to fall to 50 percent of the 1980 total allocation.[40/] These direct funds were to provide sufficient resources to pay for institutional infrastructure and part of teachers' salaries. Replacing the other 50 percent of previous allocations was a competitive pool of funds which constitutes the "indirect" channel. This funding channel operates similarly to an entitlement since there are a fixed number of students receiving this type of funding each year (although the student does not actually receive the money). The size of the indirect allocation to any given institution is

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40/ These funds had been determined both on enrollments and historical contingencies.

based on its ability to attract "top students", initially defined as the highest 20,000 grades on secondary school examinations (of 30,000 who matriculate each year in public universities).

Because it reinforced existing quality differentials, the mechanism was altered in the mid 1980's so that all 30,000 students carried at least some indirect funding. A second change eliminated weightings by field of study because these were believed to promote expansion of courses that bore little relation to labor market priorities. In 1990, a further modification has enabled all universities (including the truly private universities) to access indirect funding and thus converted public subsidies into a true voucher (Covarrubias and Gonzalez 1991).

Thus, the new funding mechanism creates two basic channels to provide income for instructional costs. The first channel is tuition fees, for which the government provides limited subsidies through public loan funds and scholarships. The second channel is the indirect funding mechanism, which provides the best students, essentially, with a higher education entitlement, which can be taken to any university. Competition is promoted both through tuition levels and most crucially through institutional ability to attract the limited number of students that carry the entitlements.

Macro-economic difficulties, however, limited the government's ability to maintain funding during the 1980s. In 1990, institutions received only about 60 percent of the resources forecasted in the initial reform plan. The most notable shortfall was in indirect funding, and thus it is difficult to assess what the impact would have been had the funds been sufficient to stimulate more competition. The dependence on a diverse set of funding sources, however, has significantly mitigated the impact of reduced public resources.

Consequences. Brunner and Briones (1992) have analyzed the consequences of the 1980 reforms, in terms of their impact on quality, efficiency and equity. They conclude overall that the reform did not have much apparent impact on the quality of education (although new private institutions provide cause for concern). While quality has not improved or worsened, the reform could be viewed as similar to preventative medicine: the reforms allowed the system to expand rapidly, without the deterioration of quality that has plagued so many other countries.

Inefficiencies still remain. Student staff ratios remain low. Brunner and Briones point to high input output ratios (that is, there is apparently a large degree of drop-out and repetition). High tuition fees do not seem to have helped student flows. In terms of equity, the system is still biased towards upper income individuals, but less so than other university systems in Latin America (Carlson 1992). The government has found it necessary to introduce more scholarships, in addition to loans, to maintain access for lower income groups

Chile's experience with financial reform bears important lessons for other countries. Student based funding has changed the incentives under which the system operates, and

reduced fiscal burdens. Competition has been promoted and the need to respond to student demands has changed the institutional outlook. Problems have arisen, particularly in securing access for low income students. However, many of these problems of access are being tackled and with private expansion, a large increase in supply of quality higher educational opportunities will result, with far less government burden than in most other developing countries.

Problems with Student Based Funding

The Chilean reforms have been enacted too recently to provide clearcut conclusions on their efficacy, or that of student based funding in general. While such programs of indirect student support offer the promise of important gains, there are also several theoretical and practical problems that could emerge.

First, a strongly student driven system could cause a drop in higher education standards. The distinction between the human capital model and screening model of higher education, a continuing subject of debate, is relevant here. If students enroll in courses of higher education in order to acquire skills that are in demand, and rewarded, by the market (the human capital investment approach), then student choice should be promoted. But where students seek diplomas, less for any additional skills but mainly to entitle them to entry to higher paying jobs (the screening model), course content and standards are less important to them. Indeed, many students would simply choose the easiest route to a diploma, and those institutions that have low standards. Students might pressure institutions to become more lax in their grading assessment. Similarly, student based funding might encourage fadism that could be both costly and inefficient for institutions. Combining entitlements with external assessment for quality control might be one way of mitigating these problem.

Second, a student driven system makes less sense in a country where labor markets do not operate smoothly. One principal justification for a student driven system is that students are the best (although imperfect) interpreters of labor market demand. Yet in many developing countries, government interventions have created segmented labor markets, have compressed skills earnings differentials, or have led other distortions. In these cases, a students driven demand system will not be socially efficient, as students react to false signals.

A third general problem with the entitlement approach is that it could lead to an undermining of science and other costly fields. Science courses tend to be about three times as expensive as arts courses. While institutions could charge differential fees, it is unlikely that potential science students would pay such high fees. In the US, most institutions cross-subsidize their science courses and charge uniform tuition. In a truly competitive higher education system, some institutions could specialize in low cost courses. Those institutions cross-subsidizing science with higher arts fees, would lose students and have to charge more

for science. All institutions would therefore have an incentive to opt out of expensive courses. A solution might be to weight entitlement values by course.

Options for Reform

Given the importance of focusing on government funding to higher education, this chapter has evaluated higher education funding mechanisms from three perspectives: the extent to which they have promoted or inhibited the stability, efficiency and responsiveness of institutions. For the most part, these goals are not being met, particularly in developing countries. First, due to the poor policy framework within which institutions operate, funding has not been stable in relation to the activities expected of universities. Besides macro-economic difficulties, access policies and institutional dependencies on government finance have led to serious declines in effective resources. Second, while often underfunded, many universities suffer from inefficiencies, in terms of resource utilization, staffing patterns as well as poor student flows. These problems have diverse roots, but it is clear that in many instances, neither institutions nor students have clear incentives to use scarce resources effectively. Third, publicly funded institutions often possess little autonomy or incentive to respond to labor market or student demands. Institutional diversification -- in terms of activities, areas of specialization and quality -- has been impeded, and few countries have established clear plans to allow institutions to differentiate and find areas of specialization. As more countries focus on developing non- government sectors of their economies, only a few higher education systems have been adaptive enough to respond to varying demands.

Funding Dilemmas

With regard to funding stability, one must ask if **funding mechanisms can adapt to periods of austerity as well as booms?** Most of the funding mechanisms work well while resources are plentiful, but once resources are scarce, budgets can fluctuate significantly. Three factors significantly assist institutions in achieving stable funding. First, a mechanism to control admissions so that they do not continually increase while funding is decreasing. Second, a diverse funding base helps to buffer any decline in one source of funding. Tuition income, for example, ensures that funding is proportional to enrollment. Third, institutions need both the freedom and incentives to eliminate inefficient programs when their incomes fall, so that their resources can be redeployed more effectively.

A second dilemma pertains to efficiency: can incentives for efficiency be combined with funding stability and a mechanism to determine when institutional quality will suffer? Incentives for efficient use of resources are clearly important if **institutions have control over their own resources and their enrollments.** But at some point, efficiency gains imply quality losses -- although at what point this happens is always subject to debate. In Ontario, competition among institutions to preserve their relative share (rather than their absolute

amount) of public resources, was healthy for a few years, but in the medium term seems to have resulted in quality losses. Similarly, many universities and polytechnics in the United Kingdom fear that the government lacks an end point notion of efficiency, where further reductions in unit cost will result in quality sacrifices. As a general rule, efficiency is better achieved through incentives rather than regulations concerning staffing and resource use.

The third dilemma poses one of the most difficult questions to answer: **If governments provide funds for education, how can those investments be made sensitive to labor market demands?** The question is essentially one of who should be interpreting labor market demands, and translating that interpretation into signals to institutions. There are three possibilities: governments, institutions, and students. Clearly all participants have a role -- although it is difficult to say what each is. Too often, governments have dominated the decision making process. In an age where governments are no longer the only employers of graduates, and in which technological change leads to changing skill demand, governments, while understanding their current skill demands, often have little information on what they will need in the future, nor what types of graduates the private sector is looking for. Nevertheless, funding to universities, for the most part, either implicitly or explicitly prevents institutions from responding to labor market and student demands for training.

High graduate unemployment and underemployment are explained by a number of factors. In many instances, graduates remain unemployed simply because they are waiting for opportunities in the civil service (Psacharopoulos and Woodhall 1985). Nevertheless, there is often a mismatch between training and labor market demands. As many developing country universities were developed to supply labor to the civil service, training was often geared towards rigid manpower planning targets. One of the most notable training gaps has occurred with engineering. It was once (and still is in many countries) the conventional wisdom that countries should focus on supplying more engineering graduates to further economic development. This training was pursued with broad infrastructural and industrial building in mind. However, the absorptive capacity for engineers has rarely matched the supply of engineers in those countries where such manpower planning devices were implemented.

A growing body of literature, both for developing and industrial countries, has pointed to the problems of manpower planning, particularly in engineering fields, and recommends that decision making on fields take place elsewhere. Similarly, a series of studies in Kenya, where universities have been prompted to expand the supply of engineers, has revealed that there has not been a demand for these engineers nor their skills in the labor market (Bennell 1986).

The questions raised by these studies is who should determine the supply and type of training and through what mechanism will skill demand changes be reflected in the university. Current literature, has suggested that students, while imperfect, are the best predictor of future labor market demands. Universities should interpret those demands, and

respond as they see fit, and as they are able. Creating responsive universities is only half the task. Serious consideration should be given to how signals are transmitted to institutions regarding demands. Unilateral government decision making, however, has not proven to be effective. Channeling subsidies through students may encourage decision making that relates to labor markets rather than government interpretation of them. Encouraging institutions to work with future employers, and integrating into their surrounding community is another effective approach.

General Principles for Improvements in Funding

The first priority in most developing countries should be to stabilize the basic decline of resources to universities by limiting institutional restrictions over enrollments, financial sources and internal allocations. Only within this framework can institutions begin to improve their quality, adapt to changing demands and operate more efficiently. The key to reform will be to combine a more effective policy environment with a funding mechanism that ensures accountability over public funds.

Linking funding and admissions policies. The first priority of many developing countries must be to link subsidies to admissions policies. Broad access and uniformly high quality are difficult to achieve in tandem, especially with declining resources. If maintaining access is an important political goal, lower cost solutions (such as distance universities, or private institutions) should be explored. Governments should bear in mind that access policies can be the most destabilizing element to a university. But movement towards a normative funding mechanism will be prohibited until governments allow stricter admissions criteria.

Linking funding to access can be achieved in several ways: either through funding formulas that account for inputs or outputs, indirectly via student subsidies or some combination of the two. The feasibility of these options depends on administrative capacity (institutional development) in different countries and the structure of the higher education system. If reliable statistics are not present, then norm based funding will probably encounter difficulties, as it has in Mexico and Ecuador, although using more reliable statistics such as the number of graduates per year may circumvent this problem. Funding bodies will need to have reliable statistics on cost and activities at institutions to make effective funding decisions.

A second important factor that should be assessed in determining how funding is linked to access is the state of the labor market in the country and its relationship to the education system. Demand driven funding, for instance will make less sense when labor markets are heavily distorted.

Diversification of funding sources. Resources at institutions should be more diverse. Minimizing dependency on any one source reduces potential shocks of eventual changes in

available public resources. Institutions have more funds if they have a wider resource base, and tuition ensures that resources are proportional to the number of students. Thus, institutions should be free to engage in such activities, since integration increases the relevance of material covered in institutions.

Tuition (combined with student support) as a significant source of income establishes a sound framework within which institutions can operate. First, tuition creates incentives for increased cost efficiency since institutions must be accountable to their users, especially if there are competitor institutions. Tan and Mingat (1989) revealed a significant negative correlation between the level of tuition in public universities and their unit cost in Asia. That is, higher tuition leads to lower unit costs. If tuition policy is in the hands of institutions, rather than governments, the incentives for efficiency are stronger. User charges also encourage students to finish on time. Finally, tuition encourages institutional diversity, since institutions must cater to different student demands.

Autonomy. In order for institutions to carry out their duties efficiently and effectively, they need to have autonomy to be innovative, to redeploy their resources and to respond to market demands. Autonomy should be furthered in many instances with regard to enrollments, internal allocations and the ability to seek additional income. Autonomy does not exclude the need for accountability. Accountability, however, can be achieved through incentives related to the criteria of funding, peer review and accreditation, rather than institutional regulation.

Criteria and Conditions of Funding: Encouraging Efficiency and Diversity

Channeling funds to institutions, particularly with increased autonomy, should encourage and reward institutions that are both efficient as well as those which develop areas of specialization. Funding mechanisms should minimize budgeting on the basis of political criteria, and transfer funds in line with costs and institutional criteria. But this cannot be done unless admissions policies allow for predictability. The funding mechanism should also recognize that activities cost different amounts, and that instruction and research be funded according to different sets of criteria, and possibly through different institutions (i.e. research councils).

Efficiency incentives twinned with funding stability. Institutions need to have constant incentives to try to lower their costs, and yet a mechanism must be in place to ensure that efficiency gains are not quality losses. Tuition is one device, but some of the alternatives used in industrialized countries would be feasible in developing countries as well. Public funds can be adjusted according to throughput or performance criteria. In many instances, competition for funds can promote efficiency. But competition has to be based on criteria other than politicking. In addition to introducing performance incentives, governments should eliminate performance disincentives, such as restrictions which penalize institutions that generate income through fee charging services.

Encouraging responsiveness and diversity. Institutional diversification is a crucial tool through which governments can mobilize their resources for higher education more effectively. And yet, many norm based formulas discourage diversification. Several options to further diversity are discussed below.

Diversification can occur at several levels. On the one hand, institutions can have broadly different missions, e.g. research institutions vs. instructional institutions. On the other hand, institutions can be encouraged to seek areas of specialization, rather than duplicating expertise and compromising overall quality. Finally, institutions can try to adapt their course offerings to student demands and local labor market needs. While graduates should certainly come away from their education with skills that enable them to find employment, labor markets in developing countries often do not operate on the basis of market mechanisms.

The first step to promote diversity and responsiveness should be to remove disincentives for institutions to forge links with their local communities. This means not penalizing institutions that engage in profit making service and research activities. The impact of removing disincentives alone can be tremendous: universities in both China and Vietnam have rapidly integrated into their local environments as a consequences of simply allow them to keep revenues. Furthermore, positive incentives, such as matching funds, could be phased in. Australia and Israel both utilize a system of matching grants for outside funds raised, and thus encourage adaptation to local needs.

Second, in larger higher education systems, resources should be concentrated by allocating research and instructional funds using separate criteria. Separate funding bodies, or mechanisms for assessment of funding needs, should be in place.

Third, departmental differentiation and adaptation to local demands could be promoted through competitively awarded funds to begin new programs. These proposals should be reviewed on a merit basis. This strategy has been implemented in India (the Center of Excellence Scheme), Hungary, and many US state institutions.

Finally, tuition differentiation can be used to introduce a demand driven higher education system, which requires institutions to set their tuition in ways that respond to external demands (Stager 1989). The introduction of fee-for service courses in Vietnam has provided powerful signals to institutions as to what they should teach as their economy moves from a planned to a market system. Tuition fees could vary within institutions according to program costs, and by private rates of return to a given field of study. Business courses, for instance, with relatively low costs, can charge high fees because of the high private rates of return. Money can be used to cross-subsidize other more expensive fields. Such a demand driven system may be more desirable where graduates are working in both public and private sectors, and where labor demand is related more to market pressures.

Where possible, governments should seek accountability from higher education systems through funding incentives, not rigid enrollment requirements or expenditure policies. Those institutions suffering the most severe financial problems will be unlikely to witness improvements until these changes are made.

The Transition to a New Funding System

Movement from some of the past practices in funding to a new system that encourages institutions to receive funding on a more normative basis and to have the capacity to respond to a new environment government by efficiency incentives and a need to be adaptive is cannot be fully achieved overnight. Often there are a myriad of legal practices that need to be changed in order to guarantee university autonomy. But two important considerations need to be kept in mind.

First, many institutions will need to develop strong management capacity to survive in a new funding environment. Overwhelming dependency on government has often left institutions ill equipped to manage their affairs effectively. Capacity building through management information systems, staff training and the development of a management culture within universities will have to complement financial reform. Nevertheless, it may not be productive to invest in management capacity without a change in the funding environment that would yield incentives for effective management.

A second consideration is the need for a transition period. Under a new funding regime, institutions may find that a formula does not allocate sufficient funds to pay staff salaries, staff that they may not be free to dismiss. Compensatory adjustment funds may be necessary to facilitate the transition to a new type of system.

Chapter 7
Payment in Kind: The Role of National Service

The previous chapters have examined ways to resolve financial pressures at institutions via alternatives to government revenue as well as changing the mechanisms for allocating government resources to improve the efficiency of institutions. In this chapter, we broaden our perspective beyond the issue of purely financial flows to universities. If students are to contribute to the costs of education born by society as a whole, there are other ways in which the graduate may "repay his debt". Here we adopt a broader, societal, focus: since it is society as a whole (via the taxpayer) that ultimately subsidizes higher education. The graduate, therefore, may be seen as owing a debt not to the university system as such, but rather to society as a whole. This view paves the way for the consideration of an additional form of cost recovery: repayment in kind through service to the community. While there are schemes for national or community service in place in many developing countries, for the most part, these are aimed more at the personal development of the individual than emphasizing his social contribution. The use of existing national service schemes primarily, as a form of cost recovery in kind, would require some change in their orientation and focus.

Forms of Repayment in Kind

Schemes for repayment in kind may differ along two dimensions, in terms of timing and in terms of relevance to a university's budget account. In-kind student repayments may be coincident with study ("work-study" arrangements) or may be effected after graduation, as is more typical of national service schemes in practice. Again, repayment in kind arrangements may have direct, and positive, effects on the financial position of universities or, as is more common, they may be separated from university finances.

Work Study Arrangements

"Working one's way through college" is a well established method of self financing university education in developed countries, especially in the USA. Many universities provide part-time jobs for students as librarian assistants, clerks, gardeners or in maintenance, usually for wage payment but in some universities in lieu of tuition or living support. A quite radical situation is exemplified by Berea College, in Kentucky, USA which provides free tuition and living to students that work in on school enterprises (Box 7.1).

Box 7.1. Berea College: Work-Study for Free Education

Berea College in Kentucky, USA provides free education and living to students who work on school enterprises. The private college was founded in 1855, primarily to serve low income students living in the Appalachian region of the United States.

The vocationally oriented college manages its own hotel, farm, craft stores and restaurants. In exchange for free education, students work in these enterprises, both to gain relevant managerial skills, and to generate sufficient profit to cover the university's operating costs. Students manage all activities at the enterprises, in addition to their classwork. The university has virtually no other source of income.

Such arrangements seem to be rare in many developing countries, although in recent years, programs have been implemented in the Philippines and in Uganda. Such work-study arrangements may therefore be a useful means for pursuing partial cost recovery, by allowing student-employees to receive exemption (or appropriate reductions) from university fees. In Chapter 3 we argued that work-study programs may be an effective mechanism for self-targeting the allocation of financial aid to students.

Cost recovery and budget savings for the university is achieved in so far as students would replace regular workers in their tasks. The effect of student employment is to reduce staff costs and therefore overall university expenditures (rather than contributing to revenues); it would thus have a beneficial effect on the net budgetary position of universities. Student employment of this type also would be consistent with public policy, in many countries, that aims at reducing the numbers of government workers. On the other hand, such changes may be less readily acceptable in countries with small modern sectors and limited employment opportunities and in which few alternative job openings would be available for the former semi and unskilled university employees that students would displace.

Student employment of the type discussed above is conceptually different from community service in that it does not yield external benefits to society as a whole. Work-study is simply payment through an employee-worker arrangement. However, in a number of countries, there are other work-study schemes that offer students the opportunity of earning full or partial exemption from university fees in return for service to the community. These activities are not generally carried out within the framework of the university, nor do they contribute to any improvement in the financial standing of the universities. However, society as a whole benefits from the provision of services that it deems to have high societal value but which might not be available otherwise.

An interesting example of a work-study scheme of this kind is provided by the Perach ("flower") scheme in Israel. Israeli students may work as tutors to disadvantaged teenagers, for which they receive payment equivalent to half of their university fees (in turn covering

about 20 percent of university costs). Some twenty percent of Israeli students are enrolled in the program, which offers a valuable service that the free market seems unable to provide.

National Service Schemes: Cost-Benefit Framework

Not all forms of national or community service may be considered payment in kind for university education. Graduates[41] enrolled in national service programs may be regarded as repaying a debt to society only if one of two conditions actually hold. The first condition is one in which labor markets work effectively and wages approximate productivity. If graduates are employed at below-market wage levels in certain designated positions, such as civil service posts, then the difference between regular wage rates for these positions and the earnings they receive under the scheme represents the repayment for subsidized higher education. In Botswana, students can receive "bonded" bursaries, to cover tuition and living expenses, under which they are required to accept a job assignment in government or a parastatal organization for a period equal to the length of their study plus one year, at a wage five percent below normal.

However, while a regime of below-market wages may be part of a national service program, it is not necessarily an integral part of such a scheme. A second condition is one where the societal value of any particular labor market employment exceeds the current market wage; the employment of graduates in these activities would constitute a form of cost recovery for higher education, that accrues to society as a whole. This excess could arise because of externality effects (as discussed in Chapter 1) stemming from the employment of educated individuals in certain activities, but more frequently it is the result of the imperfect working of distorted labor markets in certain employments.

We give two examples of relevant labor market distortions. One is provided by situations where inflexible civil service wage rates do not permit the payment of a sufficient differential to understaffed occupations (that are deemed to have high societal value, such as secondary school teachers of science or mathematics) in order to clear markets. Another instance of labor market distortion occurs when, within a given occupations (say primary school teachers or health workers), standard wage rates do not offer sufficient incentives to work in rural areas.

In all these cases, labor market distortions are present in the sense that occupations or activities of high societal value are undermanned because of difficulties in recruitment, stemming from inflexible labor markets. The classic solution for particular labor market shortages -- the raising of relative wages in shortage activities - is not available where relative wage differentials are made insensitive to such shortages. In these situations, society

[41] Or students, if study and service are coincident or service is sandwiched between periods of study.

gains by assigning graduates to fill these shortage positions for a year or two[42] as part of a scheme of national service. The difference between the value to society of these activities and the wages received by graduates constitutes a form of partial repayment for resources devoted to the higher education of these graduates.

Box 7.2. Ghana's National Service Program: An Additional Benefit to Students?

In the early 1970s, the Ghanaian government implemented a required period of national service for all university graduates. The program originated both in order to instill development values in students, and to respond to labor market shortages for university graduates, particularly in rural secondary schools. The National Service Program would pay students a wage slightly below the traditional civil service remuneration. Students were initially recruited to work in their assignments for one year, but to increase the supply of students, the requirement was raised to two years.

The program yielded considerable social benefits, particularly when there was a scarcity of university graduates, given that they had to offer below civil service wages -- a wage insufficient to attract rural teachers. But macroeconomic difficulties in the 1980s, combined with a rapid increase in the supply of university graduates changed the labor market situation dramatically. The shortage of university graduates quickly became a surplus.

Is the program exacting some form of cost recovery from students? The main question raised by this new program is that in an era of unemployment and a surplus of university graduates, the national service program may actually be providing an additional benefit to students, rather than exacting "payment".

National Service Programs in Practice

The experience with national service programs related to university instruction has been extensive throughout the developing world. On the one hand, programs have ranged from two year obligatory service in rural areas to short apprenticeships in government or industry. On the other hand, some programs have focussed on instilling particular values in students, others seek to provide students with additional skills, while others have primarily been interested in community rather than individual benefits.

This discussion examines the potential of service programs as a form of cost recovery through contributions to a "societal" account, rather than a fiscal account. For this reason,

[42]These occupations may include many that also offer some form of externality, even where wages are non-distorted.

we have categorized programs into three basic types. First, compulsory programs for all higher education students (or a specified portion, such as medical students); second, voluntary programs that represent an alternative to the payment of fees (that lead to a fee waiver); third, voluntary programs which are either charitable contributions by the student, or recognized as an alternative to traditional classroom activities. For our purposes, the first two categories of programs potentially represent cost recovery; the third, because it is essentially a charitable contribution, would not. It should be emphasized that simply because a program fits into the category of compulsory, for example, does not mean that it can be regarded as an equivalent to cost recovery. Quite the contrary, most are not.

Table 7.1 describes 26 programs that exist, or at one time existed. They are sorted according to the three broad types outlined above. The programs are widely distributed throughout the world, in all regions, and in all income groups. This list is far from complete, as virtually all countries have small programs associated with individual universities on a voluntary basis. Most programs are either compulsory requirements related to a degree or its completion, or purely voluntary programs. However, three notable programs, one in the United States, one in Botswana, and the other in Israel, are voluntary programs whereby students can provide "socially valuable" service, or reduced wage service, in exchange for forgiveness of part or all of their tuition.

Program Objectives

The first column in Table 7.1 summarizes the primary objective of the overall scheme in each country. Objectives fall into several categories: development of the student through awareness of national needs and priorities; development of student skills through internship programs that will improve both learning and future productivity; and third, service to the community to promote development of particular areas or projects. Most of the programs have as objectives all of these elements, although there is usually a clear primary rationale (Monal 1984; Fussel and Quarmby 1974). One should note, however, that virtually all programs, and particularly the African ones, have another fundamental objective, which is to create national unity and integration.

Awareness has been a primary function of programs in Mozambique, Tanzania, Kenya and to some extent in the Philippines. Often a program reflects a particular ideology of a government, and seeks to instill certain values into students. In Mozambique, Tanzania and Kenya, such values are fostered through hard physical labor. Most programs, however, do hope to sensitize students to their country's problems in the hope that concern with a nation's future and the needs of others will affect their lives.

Internships have been the primary function of programs in Morocco and Nigeria, where students are responsible for finding employment, typically in a government ministry, to assist them in career decision making and to learn practical skills before moving on to a more permanent position. The Nigerian program began more as a nation building and

rural development program, playing a particularly crucial role in achieving universal primary education.

Duration of Service and Timing in Relation to Studies

Programs require service from students either on a part-time or full time basis for periods ranging from a few weeks to two years. The shorter programs of a few months are typically part-time programs that are concurrent with studies, as in Indonesia, where students work in villages nearby the university, as part of their overall degree requirement.

Table 7.1 Sample of Existing Service Programs Related to Higher Education

Country	Primary Objective	Duration of Service	Timing in Relation to Studies	Function of Student	Compensation for Service
Compulsory Programs					
Botswana	Awareness/Service	1 year	Prior	Teacher/Generalist	Wage
Costa Rica	Community Service	300 hrs.	Concurrent		Expenses
Ethiopia	Community Service	1 year	Prior	Teacher/Generalist	$70 per month
Ghana	Internship	2 years	Prior and After	Student Choice	Reduced Wage
Guyana	Community Service	1 year	Subsequent		Expenses
Indonesia(KKN)	Community Service	3-6 months	Concurrent	Generalist	Expenses
Iran*	Community Service	18 months	Subsequent	Education/Health	
Kenya	Awareness	1 year	Prior	Generalist	
Mali	Internship	3 months	Concurrent	Generalist	
Mexico	Community Service	6 months	Subsequent	Medicine	$550 per month
Morocco	Internship	2 years	Subsequent	Student Choice	Reduced Wages
Mozambique	Awareness	1 year	Subsequent		
Nepal	Community Service	1 year	Concurrent	Generalist	Expenses
Nigeria	Service-Internship	1 year	Subsequent	Student Choice	Expenses + $20
Philippines	Awareness	5 weeks	Concurrent		Expenses
Tanzania	Awareness/Service	2 years	Prior	Generalist	
Yemen	Community Service	1 year	Subsequent	Teacher	Expenses + salary
Voluntary Programs in Exchange for Tuition					
Botswana(Bonding)	Service	Study Length + 1	Subsequent	Government Employee	Wage less 5%
Israel	Community Service	4 hrs/week	Concurrent	Tutor	Tuition Waiver
USA (Health Corp)	Community Service	1 to 4 years	Subsequent	Physician	Tuition Waiver + salary
Purely Voluntary/Goodwill Programs					
Brazil	Community Service		Concurrent	Generalist	
Canada	Community Service		Concurrent	Generalist	
Egypt	Community Service	2 weeks-3 months	Concurrent	Generalist	
India	Community Service		Concurrent		
Sri Lanka	Community Service		Concurrent		
Thailand	Community Service		Concurrent		

* Alternative to compulsory military service.
Sources: Monal, et. al. 1984; Fussel and Quarmby 1974.

The longer programs, typically for a year, require service as an entrance or exit requirement for university, and sometimes both. Although in Botswana, two types of service are required for some students. The first is a one year service requirement for all students. The second is an optional bonded service requirement, whereby students agree to work in exchange for bursaries for a period equal to their study plus an additional year at a wage five percent below the standard for their job. In exchange they receive a bursary for their tuition and living expenses.

In Ghana, students are required to perform one year of service before attending university, and a second year upon completion. In Nepal, the National Development Service required one year of full-time rural development work in the middle of studies. While the primary emphasis of the program was provision of service to isolated rural villages, the program was used as a feedback mechanism both for the government and the University curriculum.

Function of Student

The range of activities that students perform varies from teaching to construction to public health campaigns and mobilizing local resources to work on Agricultural or infrastructure projects. The most common activity, particularly in Africa and Asia is as a local school teacher. Typically, it is difficult to attract high quality teachers to rural secondary schools, thus students can fill an area of critical manpower need. In Yemen, for instance, a scarcity of secondary school teachers, particularly in rural areas, forced the government to hire overseas teachers at a considerably higher cost. The service program now in place allows the government to replace the high cost overseas teachers with lower cost university graduates, thus generating considerable savings for the government. (There is concern, however, as to whether the quality of graduates as teachers is as high as the overseas teachers). In Latin America, several countries (Mexico, Peru, Guatemala) require physicians to perform a period of their residency in rural hospitals. Finally, a few programs, particularly those that are primarily interested in providing an internship for students, allow the student to choose his or her area of focus.

Compensation for Service

Virtually all programs offer some form of compensation to students, either in the form of payment for living expenses, or a small stipend in addition to expenses. When students do receive a stipend, it is typically below the traditional wage for the service. For example, the programs in Morocco and Nigeria paid students sub civil service wages during their service period. In Yemen, while graduates are paid full teaching salaries, this cost is far less to the government than hiring foreigners as teachers. Despite paying full salaries, the government generates a real fiscal savings. The alternative form of compensation for

service are the tuition waivers in the US National Health Service Corps program, and the Israeli Perach program.

Are any programs generating "payments in kind"?

No formal cost-benefit analysis has been conducted with these programs, and indeed it would be extremely difficult to do so with any accuracy because many of the benefits are non-quantifiable "externalities". A few programs have had particularly important impacts on societal and national development. Yemen's program which uses university graduates to replace secondary teachers hired abroad at significantly higher costs probably does generate significant fiscal savings. Nigeria's National Youth Service Corp facilitated the expansion of primary education that would have been impossible without the valuable labor contributions from students. Iran's Educational and Health corps had positive impacts on the coverage and quality of these services in many parts of the country (Fussel and Quarmby 1974). Botswana's program of bonded bursaries exacts a payment in the form of a graduate tax, whereby students forgo approximately five percent of their annual earnings for each year of study.

A large majority of the programs, however, fail to achieve significant societal benefits, as many are simply internships, indoctrination exercises or displace other workers from employment. In Ethiopia, as well as Ghana, initially successful programs, began to displace other university graduates from scarce job slots (Fussel and Quarmby 1974). Many, programs, particularly those in Latin America, are poorly managed, and are riddled with implementation problems whereby the bulk of students avoid service in one way or another. In the next section, however, we examine a few programs that seem to have had a positive impact.

Programs In-Depth

In this section we examine two programs in depth, a compulsory service program in Nepal, and a tuition fee waiver as an option for medical students in the United States. These two programs point to the potential and pitfalls of national service. We begin with the National Development Service in Nepal.

Nepal's National Development Service

Between 1974 and 1980, the Nepalese government implemented a program of required rural service for all higher degree university students. The primary emphasis of the National Development Service Program (NDS) was twofold: to supply educated manpower for rural development and to improve the higher education curriculum and the

relevance of student training. Each participating student worked for one year under both university and local supervision, partly as a teacher in a rural secondary school and partly as a general community development worker in the surrounding community. Participants were responsible for mobilizing local resources and manpower for community projects, including health and nutrition education, reforestation campaigns, adult literacy teaching, improved sanitation, water supplies, bridges and schools, family planning promotion, and agricultural and horticultural demonstrations.

A pilot national-student service program was implemented in 1973, using 22 degree level (masters) students. The following year, the program was successfully extended as a graduation requirement for all students in the middle of their degree level studies. The program mobilized 209 students in 1974 and nearly 800 students in 1979. The NDS planned to expand coverage by requiring service for first degree students, thus bringing the participation up to more than 3,000 students per year. These figures should be put in the context of Nepal's population of 13 million, with approximately 4,000 village areas (or Panchayats).

The societal benefits associated with the program were high. Rural school enrollments rose sharply, particularly for girls. Literacy campaigns proved successful, and clean drinking water and public health campaigns improved living conditions. Students were able to transport materials to remote villages, as well as providing a feedback mechanism for the government.

In addition to its manpower function, the NDS was planned as a tool to make higher education itself more relevant to resolving the most pressing needs of the society. University relevance had come into question as the curriculum retained much of the colonial legacy. The NDS was seen as a means to adapt the university curriculum to national concerns facing people outside Kathmandu (where 95 percent of the population lives). The NDS therefore served as an important feedback mechanism for university planners and teachers.

The program ran smoothly until 1979. Unanticipated benefits came from student reports to the government on rural needs (as communications with rural areas are almost non existent in Nepal). The program, however, became politically controversial as students became valuable tools for newly emerging political parties and were regarded by the government as a disruptive force in the countryside. In 1980, the government abandoned the program, reducing it to a skeleton one month voluntary scheme. The current government is considering reinstating it.

Mechanics of the program. Service was compulsory for all degree level students before the last three semesters of academic study. Students were assigned to remote villages in development regions by random ballots to avoid complaints of favoritism. In selecting the villages for assignments, priority was given to the most remote and least-developed areas of the country. Only students with health problems were allowed to work near towns or

main roads. The list of activities which students were involved in varied according to the skill, energy and commitment of the student as well as the needs of the village itself. But all students were expected to teach in a primary or secondary school, and supplement teaching with general development activities. To improve the effectiveness of student input to rural development, all students would spend two months out of twelve in orientation and training. Limited field support was also provided. Individual students were evaluated with "academic" grades based on their performance and earned credit towards their degree. Participants were also required to write a profile about the village in which they worked.

Costs and Benefits. Tribuhavan University administered the NDS, with a complement of full-time staff, supplemented by lecturers. The program was financed by the government through the University budget, and also received small supplements from UNICEF. The principal costs of the program were basic administration, covering student expenses (transport and a minimum stipend) and training. Students were paid a subsistence wage according to the cost of living of the village to which they were assigned. The monthly wage varied between US$ 25-37.50, while the average total cost per student in the program was calculated at $437 per year. The true economic cost of the program, however, would have to consider the opportunity cost associated with a student forgoing work for a year.

While financial values associated with costs can be determined, it is virtually impossible to do so with the benefits. The observed benefits of the program include a dramatic rise in school enrollments, especially for girls; improved irrigation and agricultural production; improved water supply in many villages; improved health and nutrition; and a mechanism to transmit village needs and government supplies to and from villages.

Box 7.3. Indonesia's Service Programs

Indonesia has engaged in various service programs using university students. The first, BAMAS, was established in 1969 as a means to create a student army for teaching in secondary schools. A similar program BUTSI recruits graduates as volunteers for two years of service as village-level generalists.

In 1972, the government implemented a compulsory program, the Kuliah Kerja Nyata (KKN) which requires approximately six months of community service from all public university students. Individual universities manage the program, on the basis of national guidelines from the Ministry of Education, which shares financial responsibility with local governments. Students are assigned (either individually, or in a pair) as village generalists. The program operates a relatively low costs, approximately $150 for a six month student service period, the largest part going for student expenses.

The United States' National Health Service Corp

An alternative form of payment through service allows students to choose between direct fees and service. In 1973, the United States government began the National Health Service Corp (NHSC) scholarship program as a competitive program of service conditional awards for students of medicine, dentistry and other health professions. The scholarship provides payment for tuition and fees, and a monthly stipend to cover other educational expenses in return for future service in designated manpower shortage areas. The required service is equal to the period for which students received their awards. That is, for each year of the scholarship, recipients must provide one year of service, the minimum service obligation being two years. In 1979, 6,408 awards were allocated. The number of students accepted in that year represented approximately 32 percent of applicants.

Mechanics of the Program. Selection of applicants is competitive, and based on an assessment of student commitment to primary health care. The criteria for selection include career goals, work experience, community background and academic performance. The award size varies with the cost of a particular program. In 1981, the total award was capped at $16,000 per year.

The NHSC determines geographic areas and target populations which students must serve upon completion of their studies (and internship period for physicians). Service can be rendered in three different manners: first, directly through NHSC's publicly funded health clinics; second, via private practice (fee for service basis in specified areas); third, via private placement assignments in which the participants are employed by an entity that receives grant support from the Community Health Center. Pressure to limit costs of the program, beginning in 1981, led the NHSC to encourage individuals to opt for the private sector. In 1986, owing to budgetary pressures, and the belief in Congress that manpower shortages were being filled, the program was scaled back significantly.

Costs and Benefits. No cost benefit analysis on the program has been undertaken. Costs for the program, however, include the $16,000 per student year of the scholarship plus some amount for administration. In terms of benefits, no information was available on the health impact of the program, as service obligations often lag well behind the time of scholarship awards. What is known is that between 1973 and 1979, the program accrued service obligations for over 22,000 person years (U.S. Department of Health and Human Resources 1980).

Implementation Issues

While the idea of study service seems an attractive policy option for securing a form of societal payment for higher education, there are many implementation issues that need

to be addressed in program design, and practical obstacles that may need to be overcome. We discuss a few below.

Identification of societal need: There is the need (not always a straightforward matter) to identify those jobs and activities that have high societal benefits. It will usually not be possible to measure, other than very roughly, the gap between societal value and wage paid; "repayment" is not a precise concept as in the case of student loans.

Ex ante "buy-out": Would all students attending subsidized courses be required to participate in the scheme -- to both benefit from the education subsidy and participate in the program of national service? Or, could some students "buy-out" at the outset by paying higher tuition fees? This might be regarded as socially divisive and the program in general would lose much of the potential gain for the individual in the form of personal development, broadened life experiences and so on that are a major objective of some of these schemes.

Ex post exemptions: Some graduates would be trained in high productivity fields -- such as engineering, export-related activities. Indeed, their value may exceed that of the national service designated occupations, where indeed their talents would be underutilized. In this case, it would be socially inefficient to require them to join the program of national service. Should such individuals be formally exempt from national service, again given the problems of horizontal equity, issues of individual development, etc? Indeed, there is a more general issue of whether individuals may be permitted to buy exemptions after graduation. One issue related to this point is that wealthier students will be more likely to benefit from such exemptions, as they tend to be accepted in the more selective fields. In addition, once loopholes are allowed, a program is more easily fragmentable.

Training for students: Students may not be particularly well suited to the development tasks asked of them. Many, for instance, do not have any experience or knowledge about pedagogical techniques, and thus many of the benefits of the program may be wasted. Some programs, such as the NDS, provide students with brief training periods to improve the quality of service. If service periods are too short, however, the cost of providing training may outweigh the benefits of the program.

Default and evasion: Programs that allow students to defer their education costs through service run many of the same risks as do student loans. Students may default on their promised service (as has happened in the US), or simply evade requirements because of family connections. The US medical program imposes penalties for failure to comply with a service agreement. Penalties were perhaps not high enough as private salaries made it attractive for many students to opt out. Default on such programs could become a problem in many developing country settings. In some instances, therefore, governments require service before completion of the degree, to ensure compliance.

Politics and resistance: A final issue relates to the likely resistance that a program may generate. The Nepal experience points to several obstacles. First, students may be opposed to a new burden, just as they would oppose fees. Second, teachers may oppose programs on the grounds of its disturbing the normal teaching routine, and delaying studies. Third, in non-democratic societies, the political activism of students could cause opposition to be generated within the government.

Chapter 8
Conclusion: The Paths to Reform

Higher education financial problems persist in many countries, although reform is underway in all parts of the world. While the roots of these problems generally lie in a rapid expansion of public institutions, lacking the autonomy to control resources and enrollments, the roads to reform have been, and will continue to be, diverse.

Where reforms should begin, will depends the current structure of a country's higher education system, the country's level of economic development, and its political culture. Countries that still have small elite university systems confront a different set of options than do wide access systems and they can avoid some of the pitfalls encountered by others. Those that have over expanded capacity relative to their resources face more difficult questions. They perhaps must confront questions such as: can institutions be privatized, closed or merged?

In less economically developed countries, options are also limited. Delayed repayment programs are unlikely to function due to a lack of infrastructure necessary to manage them. Labor markets are likely to be highly distorted, and thus a regime of higher fees and private sector development, without quality regulation, is likely to lead to the sale of diplomas rather than education. A first goal in reform should be to establish priorities for the system as a whole, and to integrate institutional activities with the overall plans for economic development.

While stressing that there is no one formula, all reforms should share two common elements. First, efforts should be made to mobilize more non-government resources for higher education to provide a stable source of funds, given the tasks that universities are expected to perform. Second, the resources available to institutions need to be used more productively. Such a reform will require a fundamental shift in the relation between the government and institutions, by creating an environment in which institutions are free to make decisions, but responsible for managing themselves better.

The Substance of Reform

Revenue diversification will be fundamental to bring more resources into higher education systems. Revenue diversification can be fostered via direct cost recovery from students, through the levying of various fees. In many instances, progress needs to be made in recovering the costs of peripheral activities at universities -- housing, meals, books, etc. By redirecting expenditures from these activities, far more resources would be available for investments in instructional and research needs. In other instances, direct tuition charges could become an important source of income. The most financially stable public institutions

in the developing and industrialized world now recover between 15 and 25 percent of their total recurrent costs from students.

To assist the process of cost recovery, payments may be made from the future income streams of students, via a system of loans or a graduate tax. Such schemes, however, should be regarded with caution, as subsidies usually implicit in them may significantly reduce the returns on cost recovery, and blunt the impact of revenue diversification. If loans are introduced, reliance on strong institutions to manage them, with appropriate incentives, a willingness to charge positive interest rates, and a reform of the time path of payment streams to parallel a graduate's income, will significantly increase overall returns.

As a general note of caution, in some instances, there can be a tendency to focus on cost recovery as an end itself. Such a strategy can be as detrimental to education as the benefits are positive. Cost recovery should not be divorced from the context in which it is being implemented. That is, fees are a means to supplement government resources for education, to improve the functioning of systems by requiring them to operate in a competitive market, and to facilitate demand oriented decision making within education institutions. But even with significant moves towards cost recovery, most elite universities will be dependent on government for the bulk of their resources. This leaves a large potential for reforms that will improve the internal allocation of resources.

Finally, universities should be encouraged to engage in activities with the local community, and they should charge the full economic cost of these activities. Otherwise, service type revenue diversification will only worsen the university's financial position. These activities should be seen more as an important exchange of knowledge and priorities between communities and higher education institutions, and perhaps as a small source of internal profit for universities, rather than as a means of relieving serious financial pressures.

Reform ought to begin by improving the broad policy environment within which institutions operate. This type of reform should be given emphasis over cost recovery so that the raising of student fees has its desired effect. That is, institutions should have the freedom to recover private funds (so they will do it) and the freedom to operate in an environment where they must be competitive and efficient. Unless institutions are free to redeploy their own resources, they will not strive to become more efficient. In addition, a general stabilization of resources for institutions will only occur if there is a linkage between resources and enrollments. For this to occur, institutions will need to have more control over the inflow of new entrants.

In general, offering university's increased budgetary autonomy will be crucial for mobilizing the support of university leaders and many of their staff. If a university rector or vice chancellor has more control over budgetary allocations, internal reforms can be initiated, and the institution is more likely to develop a management culture with regard to resources.

In addition to reforming the environment and increasing the degree of autonomy of institutions, transfers of public subsidies should be effected in ways that encourage efficiency and relevance to economic demands. Efficiency can be promoted through increased competition for funding or funding on the basis of evaluation of the effectiveness of an institution in performing its activities. An important way to stimulate competition is to begin to transfer subsidies via students, on the basis of their choice, within a system that offers more options to students. Such a move would have to be supplemented by important quality control mechanisms. Alternatively, resources can be allocated on the basis of cost, either for inputs or outputs, adjusted on the basis of peer review evaluations.

Government funding should also encourage diversity among institutions so that they are more responsive to local needs. Fostering linkages with the economic environment should be a goal of funding reform. Funding formulas in themselves tend to inhibit diversity. To counteract this tendency, separate funds can be allocated to increase the likely integration between institutions and communities. Matching grants for revenue generation, e.g., contract research or tailor made courses, could be an important step. Fee charging can also promote diversity by encouraging institutions to seek quality niches in which they have a comparative advantage.

The Process of Reform

Consensus building. Higher education reform is virtually always a politically divisive process, and thus needed reforms are often postponed as long as possible. Even when implemented, many reform programs generate increasing opposition to mandated policies, and thus have to be scaled back. Despite such drawbacks, reform is possible, and programs can be "marketed" so that consensus among most, although perhaps not all, actors can be achieved.

Quality is the key element for consensus building. It is in the interests of all major actors, and can be the crucial rallying point for moving towards a new, more stable, more efficient system. Quality relates to instruction for students, the working conditions for staff (including their remuneration), the standards of housing and meals offered to students. In the process of reform, those who participate should be rewarded through access to capital funds to invest in needed upgrades. Quality, however, will not be achieved through a quick fix, but rather through the establishment of policies that will permit sustainable improvements.

Autonomy is a crucial element in consensus building because it provides university administrators with powerful leverage inside universities through control over discretionary budgets. Such control will be necessary to implement reform and to generate a management culture within universities.

Staff members (as well as their unions) may oppose reform for fear of losing employment and salary guarantees. Properly defined, reforms can offer active staff members important supplements to salaries which tend to be low. Control over discretionary budgets may allow for salary increases that are allocated on the basis of performance. In addition, university autonomy will allow staff members to supplement their income via contracts and other revenue generating activities. Such measures should be encouraged, although universities should be careful to recover overhead costs from the contract beneficiaries.

Students will be the most difficult actors to appease in the process of reform, but they should be brought into the process, and sensitized to the rationale behind it. If fees are to be introduced, support programs should be offered in parallel, but these programs must be limited to the minority of students most likely to suffer. Students should be made aware that their financial contribution will assist the lower income students. Fees should be seen as a way to allow expanded access and increased quality for programs that are more likely to lead to meaningful employment. In general, reformers need to engage in a process of political marketing to circumvent opposition.

Radical vs. incremental reform. Each government must confront the decision of whether to implement full or partial reforms. Partial reform runs the risk of not resolving underlying problems, simply postponing them until a more convenient date, or implementing palliative measures that will not serve the system well over the long run. Repeatedly having to return to reform measures can be a painful political process, and there are never any guarantees that a future government will be willing or able to continue a process that has only begun.

Radical reform, which attempts to redress the bulk of problems through being more complete and substantive, runs the risk of creating dissension, even violent opposition. In the long run, such dissension might undermine the whole reform process, and if the government is not strong willed enough to see reforms through, compromises may be made that undermine any real progress. In some instances, the traumatic shocks of a more radical change, however, provides the stimulus necessary to provoke profound reorientations rather than moderate adjustments.

The reform process will almost certainly require a transition period, with capital funds to enable adjustments and reorientations. These funds should be reserved for those institutions willing to take reform seriously, and should provide and important incentive for consensus building for reform.

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Appendix 1

Methodological Note for Calculating Subsidies on Mortgage Loan Programs

Assumptions used in calculations for Table 4.2.

1. Students receive equal real value loans over a four year disbursement period in lump sums at the beginning of each year.

2. Administrative costs are spread out evenly during the life of the loan.

3. Default is the frequency of loans that fail to repay. It is expressed as a probability for each year of repayment.

4. Grace periods have been rounded to the nearest year.

5. Repayments are in equal nominal amounts in yearly installments, at the beginning of each payment period.

6. Inflation is constant throughout the life of the loan.

7. Defaulted loans carry an administrative cost equal to good loans.

(1) Calculating the Student subsidy

PV = present value
D = disbursement value
i = initial interest rate (during lending period)
I = Interest rate during repayment period
g = grace period in years
n = repayment length
N = final repayment year
r = opportunity cost of capital, from time of lending onwards.
l = disbursement length
L = final disbursement year

Amortization value = $$A = D\sum_{l=1}^{l=L}(1+i)^{g+(l-1)}$$

The annual payment = $$P = \frac{(A)(I)}{1-(1+I)^{-N}}$$

The cash flow is as follows:

4 years of loan disbursements of equal real values (adjusted for inflation each year),
0 during the period of the grace, and
P during the repayment length (n)

$$\text{PV disbursement} = \sum_{i=1}^{i=L} \frac{D_i}{(1+r)^{i-1}}$$

$$\text{PV repayments} = P\sum_{n=1}^{n=N} \frac{1}{(1+r)^{g+L-1+n}}$$

$ Subsidy to student = PV_{disb} - PV_{repay}
% Subsidy to student = $(PV_{disb} - PV_{repay})/PV_{disb}$

(2) Calculating loss with default

The calculations are the same, except that payment amounts are reduced to include the probability that they are not made. Thus, the cash stream uses the following repayments:

$P_{def} = P(1-d)$ where d is the probability of default.
Thus the cash stream is only adjusted during the years of repayment.

(3) Calculating the total loss to the government

Each year of the cash stream is adjusted to reflect the cost of administering the loans. This is calculated by using the annual percent cost of servicing outstanding debt.

od = outstanding debt on loan
ac = administrative cost of servicing loan, as percent of outstanding debt each year
t = year in the loan life
cf = previous cash flow, including deductions for likelihood of default
CF = adjusted cash flow, including deductions for both default and administrative costs.

Thus in each year, the cash flow is adjusted:

$CF_t = cf_t - [(od_t)(ac)]$

and the PV and subsidies are calculated as in section (1).

Appendix 2

Checklist of Policy Options for Deferred Cost Recovery

Structure/ Policy	Options	Description
Lending Institution	a. Autonomous Public Body	The most common institutional structure is to create a publicly administered and financed loan organization to distribute and collect loans.
	b. Public Banks	Another common institutional structure utilizes publicly owned commercial banks to administer loans.
	c. Private Commercial Banks	In countries with more developed banking systems private banks may be used to allocate loans. ('JS, Indonesia, Denmark).
	d. Higher Education	Governments may transfer funds to higher education institutions for the purpose of administering loans. Institution (China, Chile).
	e. Directly from Government Accounts	Money is disbursed directly from government ministries or trust fund, and collected by treasury. (Australia, Ghana).
Repayment Mechanism	a. Mortgage type loan	The most common approach by which the capitalized loan is broken into equal monthly payments.
	b. Income Contingent Loan	Payments are a fixed portion of monthly or annual income, thus putting a limit on the debt burden to a graduate (Sweden).
	c. Graduated payments	Payments fixed in advance, but increase with time.
	d. Income Contingent Loan (Tax)	Same as 'b' except payment may be collected through the taxation system (Australia).
	e. Deferral of Social Benefits	Repayment is through an already existing payroll tax in which pension benefits do not begin to accrue until the loan is repaid (Ghana).
	f. Graduate tax/equity finance	Students contribute through a lifetime increase in their tax contribution. (Offered briefly at Yale University, proposed in US and UK).
	g. Employer Contribution Through Tax or Loan	In countries where graduates are scarce, employers contribute to loan or tax repayments as a form of "scarcity" tax. Loan repayments are shared between employers and employees in Ghana and China.
	h. National Service	Repayment through labor that is socially valuable to and in demand by the society.
Targeting	a. Means Testing	Selection of credit recipients on the basis of family or individual (Sweden, Norway) income. Or more complex socio-economic status indicators (Chile).

	b. Ability Criteria	Selection of students on the basis of performance at secondary school, on national exams or within universities (Indonesia).
	c. Priority Areas	Priority support for students who study in fields of national manpower priority -- e.g. engineering, teacher training, health. (Colombia, Barbados)
	d. Restricted Length	Limitation on availability of funds to a fixed period of study -- as the official duration of a given course. (Brazil, Denmark)
Interest Rates and Subsidies	a. Fixed Real or floating	Interest rates can fixed in relation to inflation at either negative, zero percent or positive real rates, or they can float with an index of commercial rates.
	b. Differential Interest rates	Students charged different rates of interest based on their economic situation, thus targeting more subsidized support to needy. (US, Japan).
	c. Repayment Length	The length of the repayment period can be varied to achieve a balance between debt burden and financial efficiency.
	d. Graduated Annuities	Payments can be calculated so they are smaller in the first years and larger later on.
	e. Up-front Discount on Tuition	Allow students who are eligible for a subsidized loan to have their fees reduced by a fixed percentage if they forgo the loan. (Australia, Israel).
Default Minimization	a. Grace Period	Allow students a specified time after graduation before repayment begins, with the assumption that they need time to find employment.
	b. Income	Allow graduates to defer payment during any time Thresholds specified level (Sweden, Kenya, UK).
	c. Incentives for Financial Agent	Where the government is the guarantor on the loans, the government discounts the value of that guarantee sufficiently so that institutions prefer to collect from the student.
	d. Require Guarantor	Requiring an income earning co-signer on a loan who agrees to pay in the event that the graduate does not. (Ghana, Barbados, Brazil)
	e. Payroll Deductions	Requiring employees to withhold a portion of salary of graduates for the purpose of paying the loan. (Jamaica)
	f. Income tax to locate defaulters	Governments to locate individuals that might be in default, through taxation institutions Canada
	g. Moral Pressure	Publish lists of defaulters (Jamaica)
	h. Required Insurance	Require student to pay an up-front fee to insure against losses that result from death or debilitating illness or accidents. (Brazil).
	i. Bar Further Credit	Bar access to further credit if default. (Brazil)
	j. Collection Agencies	Utilize private collection agencies to locate students and secure payment. (Honduras, Colombia).

Appendix 3

HIGHER EDUCATION STATISTICS, SELECTED COUNTRIES

COUNTRY	AVERAGE ANNUAL STUDENT ENROLMENT GROWTH (%)	PUBLIC HIGHER ED. EXPENDITURE AS % OF ALL PUBLIC ED. EXPENDITURE	PUBLIC HIGHER EDUCATION EXPENDITURE AS % OF GNP	UNIT RECURRENT COST OF PUBLIC HIGHER EDUCATION (US$)	UNIT RECURRENT COST AS % OF GNP PER CAPITA	STUDENT–TEACHER RATIO
	1980–1988	1988	1988	1988	1988	1988
SUB–SAHARAN AFRICA						
ANGOLA	12.2	8.7	0.5	..	3.4	6.8
BOTSWANA	13.2	14.1	0.6	7,023	6.9	10.5
BURUNDI	7.3	22.4	..	1,850	8.8	5.0
CAMEROON	10.9	22.0	..	1,803	1.8	23.0
ETHIOPIA	10.2	13.3	..	1,842	18.2	18.4
KENYA	10.6	14.5	1.0	2,201	6.5	15.1
LESOTHO	14.5	18.3	0.7	664	1.8	18.9
MALAWI	4.5	16.6	0.4	539	3.6	12.2
MAURITIUS	9.3	6.6	0.3	2,147	1.2	5.9
RWANDA	9.9	14.2	0.9	3,535	11.1	4.6
SENEGAL	2.0	22.9	..	2,328	3.5	11.2
SWAZILAND	6.8	21.2	1.7	1,699	2.1	12.2
TANZANIA	4.0	..	0.5	1,446	9.9	4.4
TOGO	5.5	14.1	0.8	1,158	3.1	19.1
ZAIRE	10.1	35.4	0.3	..	2.2	15.9
ZIMBABWE	24.5	7.9	0.6	678	1.1	24.0
LATIN AMERICA						
BARBADOS	4.3	14.9	0.9	2,729	0.5	10.0
COSTA RICA	3.1	30.9	1.9	..	0.7	11.9
DOMINICA	1.0	2.7	0.5	2,351	1.5	8.7
HAITI	5.2	7.8	..	493	1.4	8.8
HONDURAS	6.4	1.7	..	939	1.1	13.0
JAMAICA	−1.5	20.7	1.2	2,023	1.9	10.0
PANAMA	3.0	22.4	1.6	1,057	0.6	15.8
ST. LUCIA	3.3	9.8	..	3,544	2.2	6.3
TRINIDA & TOBAGO	2.9	11.9	0.6	11,751	3.5	7.2
VENEZUELA	6.3	35.7	1.4	..	0.5	13.3
MIDDLE EAST						
CYPRUS	12.7	4.0	..	1,023	0.2	11.8
EGYPT, ARAB REP.	0.8	29.8	1.9	423	0.6	20.3
IRAN, ISLAMIC REP.	..	10.5	0.5	627	0.3	18.4
ISRAEL	2.4	18.9	0.9	5,057	0.6	8.7
JORDAN	7.7	6.1	0.3	..	1.8	24.8
MALTA	7.4	9.4	0.4	3,452	0.7	13.1
ASIA						
BANGLADESH	5.4	..	0.2	..	0.3	17.8
CHINA	8.1	20.6	0.6	507	1.7	5.5
FIJI	7.6	9.0	0.5	2,444	1.4	9.4
HONG KONG	1.5	28.8	1.0	377	< 0.0	18.8
KOREA, REP.	11.7	7.0	0.3	165	< 0.0	28.0
MALAYSIA	8.2	14.9	1.0	3,332	3.5	12.9
PAKISTAN	10.0	18.2	0.5	7,044	24.3	22.4
SINGAPORE	9.2	30.7	1.1	3,146	1.2	11.2
THAILAND	12.4	11.9	0.4	190	0.2	29.4
OTHER						
AUSTRALIA	3.8	23.9	1.5	5,571	0.5	17.2
AUSTRIA	4.4	19.5	1.1	6,116	0.4	14.9
BELGIUM	3.3	17.6	0.9	4,705	0.3	12.6
CANADA	5.0	23.0	2.1	6,767	0.4	22.0
CZECHOSLOVAKIA	−0.8	15.9	0.7	1,931	0.6	7.4
DENMARK	2.2	21.8	1.6	11,447	0.6	8.2
FINLAND	2.2	21.2	1.2	6,623	0.4	12.2
FRANCE	4.0	13.1	0.7	3,925	0.2	21.1
GERMANY, FORMER WEST	4.1	21.8	0.9	5,679	0.3	8.5
HUNGARY	−0.3	14.8	0.7	1,462	0.6	6.3
IRELAND	5.0	19.0	1.3	2,759	0.5	16.0
JAPAN	0.9	22.5	1.8	10,230	0.5	9.8
NETHERLANDS	1.5	29.2	1.9	9,653	0.7	8.8
NEW ZEALAND	5.1	30.7	1.9	3,758	0.4	11.1
NORWAY	4.8	15.0	1.1	5,722	0.3	12.0
PORTUGAL	5.0	15.3	0.8	1,478	0.4	10.0
SPAIN	5.9	16.0	0.8	1,650	0.2	19.8
SWEDEN	0.9	12.8	1.5	6,280	0.3	15.6
SWITZERLAND	4.9	18.7	1.0	11,832	0.4	9.6
UNITED KINGDOM	3.8	18.9	0.9	5,215	0.4	13.1
UNITED STATES	1.2	40.2	..	6,661	0.5	18.6

Note: .. data not available

Source: World Bank Social and Economic Database