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Innovations in Tertiary Education Financing: A Comparative Evaluation of Allocation Mechanisms

by
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Contents

1. Introduction 3

2. Typology of Allocation Mechanisms 7

Part I. Direct Funding of Institutions 8

Part II. Indirect Funding of Institutions and Direct Support Provided to Students and Families 28

3. Assessing the Effectiveness of Innovative Allocation Mechanisms 45

Objective 1: Increasing Access and Equity 47

Objective 2: Increasing External Efficiency – Improving Quality and Relevance 55

Objective 3: Increasing Internal Efficiency and Sustainability 58

4. Ensuring Successful Implementation of Innovative Mechanisms 65

Gauging the Administrative Capacity of Government and Institutions 66

Ensuring Transparency and Objectivity 70

Addressing the Political Feasibility of Reform 73

Anticipating Unintended Consequences 77

5. Conclusion: Some Lessons Learned 80

6. Annex 1 – Typology of Allocation Mechanisms 84

7. Annex 2 – Assessing the Effectiveness of Allocation Mechanisms 92

8. References 94

1. Introduction

In recent decades, a growing number of countries have sought innovative solutions to the substantial challenges they face in financing tertiary education.[1] One of the principal challenges is that the demand for education beyond the secondary level in most countries around the world is growing far faster than the ability or willingness of governments to provide public resources that are adequate to meet this demand.

There are three main reasons for this rapid increase in demand. First, the economic value of attaining a tertiary education in virtually all countries, as measured by rates of return or other indicators, is growing faster than the economic returns accruing to those who receive a secondary education or less. Secondly, in many cultures there are strong social pressures on students for moving beyond the secondary level of education for non-monetary reasons such as greater social standing and prestige in the community--sometimes even better marriage prospects for girls. Thirdly, many countries are attempting to make their tertiary education curricula more relevant as governments and tertiary education institutions de-emphasize certain fields with low levels of labor force demand such as public administration and education in favor of emerging fields such as information technology, engineering and science

Competing demands on public resources are growing more intense as governments around the world face challenges across the board in providing more and better public services, including health care, housing, transportation, agriculture, and the full range of education. In this context, tertiary education is often far from the highest priority for public funding in both industrial and developing countries.

Countries and institutions have responded to the mismatch between available public resources and the growing demand for tertiary education in several broad ways. The most frequent response has been to mobilize more resources principally by introducing or raising tuition fees as a way of increasing cost sharing. Another related response has been to seek

[1] This paper adopts the OECD definition of tertiary education as "a level or stage of studies beyond secondary education. Such studies are undertaken in tertiary education institutions, such as public and private universities, colleges, and polytechnics, and also in a wide range of other settings, such as secondary schools, work sites, and via free-standing information technology-based offerings and a host of public and private entities." (Wagner, A. 1999. "Lifelong Learning in the University: A New Imperative?" In W. Hirsh and L. Weber, eds. Challenges Facing Higher Education at the Millennium. 134-52. American Council on Education. Phoenix, Arizona: Oryx Press. p. 135).

additional private resources through the commercialization of research and other private uses of institutional facilities and staff. A third, perhaps less commonly found response, has been an increased reliance on bond issuance and other forms of creative financing that allow for greater public/private partnerships in providing services related to tertiary education activities.

This paper focuses on the trend towards innovative allocation mechanisms that allow both public and private funds to go farther in meeting the challenges that tertiary education systems face around the world. Such groundbreaking mechanisms cover a broad range of approaches, including:

- the evolution of public resource transfer mechanisms for recurrent expenses and capital investment in a number of countries from the more traditional negotiations of budgets between governments and public institutions toward increasingly sophisticated funding formulas that aim to insulate allocation decisions from excessive political pressures and encourage positive institutional behaviors.
- the creation of a 'demand-side' voucher system, such as the one recently launched in the state of Colorado (US), in which institutional operating subsidies will be distributed through a voucher given to all undergraduates, or the consideration of possibly using voucher-like incentives by allocating formula funds to institutions based on student characteristics, an approach which might be referred to as 'supply side vouchers'. Such vouchers can be limited to public tertiary institutions, but can also cover students in private institutions.
- the adoption of a variety of performance-based allocation mechanisms in a number of countries including: setting aside a portion of funding to be distributed to institutions on the basis of a series of performance measures; performance contracts negotiated between governments and institutions; competitive funds that encourage innovation, greater academic quality, and strengthening institutional management capacity; and financing mechanisms that directly pay for results, either as part of the basic funding formula or as a separate set of government payments of institutions.
- the development of alternatives to the most traditional way of financing university-based research that jointly funds it with instruction and operations, including approaches that fund research separately from instruction, the creation of centers of research excellence on selected campuses and the use either of 'blue skies' approaches that encourage broad

based experimentation in basic and applied research or of competitive project-based funding

- the substantial expansion of financial aid for students with high levels of financial need and/or academic merit to allow for financing strategies that anticipate higher fees to increase overall resource levels to institutions and to help students pay for their housing, food, and other living expenses while enrolled, including the provision of student aid in the form of vouchers as a means of stimulating greater competition among institutions as an alternative to more traditional government funded but institutionally administered student aid programs the creation of tax incentives (credits, deductibles, etc.) in a number of countries to help students and their families offset the expense of tuition fees and tax-based family allowances that primarily cover the living costs associated with attendance in tertiary education[2]
- the growth of student loans in many countries, to help students pay for the higher tuition fees entailed in cost recovery strategies and for living expenses, including the development of income contingent repayment schedules in which repayment levels are tied to the amount borrowed and the income of borrowers once they complete their education, as well as a series of creative financing arrangements by which the initial funding of mortgage-type student loans is leveraged to provide higher capital levels through modern financing techniques.

As the list above indicates, the search for innovative mechanisms applies both to the funding of institutions and the funding of students. In the case of institutional support, the allocation mechanisms apply to the financing of instruction, operations, and capital investment as well as university-based research. In terms of the support of students, the mechanisms include the provision of grants and scholarships, the use of tax benefits to offset the current expenses of tuition fees and living costs, and the continuing growing reliance on student loans in many countries around the world.

[2] Several countries also use their tax system to provide incentives for greater levels of saving for future expenses related to tertiary education. These tax incentives for savings are more of an example of resource mobilization than resource allocation that is the focus of this paper.

The primary purpose of this paper is to review the scope and potential impact of these various innovative resource allocation mechanisms. Such a review can help policymakers, institutional leaders and stakeholders in tertiary education identify and explore the most effective ways to improve the equity and efficiency of public resource transfers to institutions and students. The paper begins by proposing a typology that describes both traditional and innovative approaches to resource allocation that are being used or considered in various countries. This typology includes approaches that fund institutions directly and indirectly through students as well as those that fund students and their families. Chapter 3 examines how these various allocation mechanisms meet important policy objectives such as expanded access and improved equity, better external efficiency such as enhanced quality and relevance, and increased internal efficiency through cost containment and better throughput. Chapter 4 identifies the various conditions required for the successful implementation of the various innovative approaches. The paper concludes, in Chapter 5, by drawing some lessons from international experience with both traditional and innovative allocation mechanisms.

2. Typology of Allocation Mechanisms

This section describes two general types of allocation mechanisms for tertiary education that are used in countries around the world: (i) those that make resource transfers directly to institutions for the support of recurrent expenses, capital investments, specific purposes, and research, and (ii) those that indirectly support institutions through resources transfers, vouchers and subsidies provided to students or their families in the form of grants and scholarships, tax benefits, and subsidized loans to defray or delay the cost of tuition fees or related non-educational expenses such as housing, food, and other living expenses.

The chart presented as Annex 1 summarizes the allocation mechanisms that are described in this section. It also indicates examples of countries and sub-national units such as states or provinces where these mechanisms are in use, being implemented, or have been proposed in a serious way. An effort is made to indicate which of these mechanisms are more traditional and which qualify as being more reform-oriented or innovative. A more detailed description of these mechanisms and examples of countries where they are now being used or contemplated is provided below.

Part I. Direct Funding of Institutions

Governments typically provide public support of universities for two principal purposes: (i) to finance the cost of instruction, operations, and investment; and (ii) to pay for the conduct of university-based research including investment in research facilities and equipment.

1. Funding instruction, operations and investment – Governments around the world use a number of different approaches to help tertiary education institutions pay for their expenses related to instruction, operations, and capital investment in academic and related facilities and equipment. These payments typically apply only to public institutions, although in a few countries such as New Zealand and Chile some private institutions are also eligible for public forms of institutional support.

In examining mechanisms that support institutional activities, it is important to distinguish between how the level of public funding for tertiary education is determined and how those public funds are allocated. The decision on the level of funding can be taken in a number of ways including: constitutional provisions, appropriations legislation, and negotiations among key government policy makers and stakeholders.

A key issue addressed in this paper is how the level of public funds for tertiary education, however determined, is allocated among various institutions. Countries have traditionally used variations of the following three allocation mechanisms to support these basic activities:

- Negotiated or ad hoc budgets
- Categorical or earmarked funds
- Funding formulas

1.1. Negotiated or ad hoc budgets. Negotiations between government and tertiary education institutions are the most traditional way in which the funds for the operations and investment plans of public providers are allocated to individual institutions. The levels of funding decided through the negotiations process, usually primarily based on historical trends, are then typically distributed to institutions in one of the two following ways:

i) Line-item budgets – Negotiated budgets very often are implemented through line-item allocations to institutions. These line items typically entail relatively rigid restrictions on how

institutions can spend the public funds they receive from governments or other public bodies. The extent to which institutions can switch or reallocate between budget headings in some instances is controlled centrally while in other cases institutions have greater discretion.

ii) Block grants – Providing a single block grant to each institution is another way that negotiated budgets can be implemented. Block grants tend to give institutions more flexibility and autonomy than line-item arrangements in determining how public funds are to be spent. Nepal is an example of country that is currently considering moving from line-item budget to block grant financing as part of a reform aiming at giving tertiary education institutions more autonomy. Australia, on the other hand, has recently adopted reforms that move in the opposite direction: in exchange for enhanced public funding levels over a several year period, university officials agreed to move away from block grants toward a more regulated, line-item approach. Countries considering a transition from line-item to block-grant financing must consider the various laws and regulations that may need adjustment to accommodate such a step.

In some countries, the negotiation process takes places within the framework of a budget calculated on the basis of set guidelines. In several Central American and Andean nations (Bolivia, Peru, Ecuador), for example, the Constitution stipulates that the public universities should receive 5 to 7 percent of the national budget every year. In Costa Rica, the allocation for tertiary education is determined as a percentage of GDP. In Jordan, the budget of the universities represents a set percentage of import/export duties.

1.2. Categorical or earmarked funds. Categorical funds are another traditional means of allocating public funds to tertiary education institutions. These usually involve the government designating or 'earmarking' a particular institution or group of institutions to receive funds for a specific purpose. Frequently, categorical or earmarked funds are established in an attempt to correct or ameliorate real or perceived past under-funding for a group of institutions most often characterized by their geographic location or the types of students they serve. For example, institutions located in rural areas might be deemed by the government as eligible to receive funds to expand opportunities for distance learning. Or institutions that serve large numbers of chronically underserved students might be eligible for grants to upgrade their facilities or equipment.

The United States and South Africa are examples of countries that have used categorical funds for this latter purpose. In the US, the so-called Title III program for decades has provided funds for institutions that serve high proportions of minority students. In South Africa categorical funds for libraries, academic facilities, and equipment needs were set aside for predominantly black institutions before widespread mergers occurred post-apartheid.

Experience suggests that categorical funds are best suited for targeting funds on specific institution or groups of institutions with an identified set of needs, particularly for specific physical resources or services such as libraries or laboratories. The distribution of earmarked funds to participating institutions may be accomplished in one of several ways: the allocation can be specified in legislation, based on an assessment of need for the designated activities or services, or based on enrollment or some other formula basis. As a general rule, categorical funds seem better suited at funding capital investment projects than operational expenditures. Categorical funds can also be particularly useful to fund activities in which benefits spill over beyond the university and its students to the broader community. On the other hand, categorical funds have the disadvantage of only influencing those institutions eligible for funding. Institutions ineligible for the earmark have little or no incentive to improve or address the expressed government priorities since they are not allowed to compete for funds.

1.3. Funding Formulas. Many governments over time have moved away from negotiated budgets and earmarked funds toward some type of formula as the primary means to allocate funds to institutions for their recurrent expenses. These formulas vary on the basis of the factors used in their development and the type of organization that develops the formula. Examples of factors often used to determine funding formulas include:

i) Inputs such as staff or students – Most funding formulas are based at least in part on inputs in the form of staff or students. The most elemental type of funding formula utilizes the number of staff or staff salaries at each institution as a basis for allocating funds. Nepal is an example of a country currently using such a funding formula. Sometimes, more refined staff-based measures are used such as the number of professors with a PhD. Staff-based formulas are still used by many governments, particularly in Eastern Europe.

As funding debates have become more sophisticated over time, formula designers have tended to move to using numbers of students rather than the number or qualifications of staff as the basis for distributing funds. The number of students may be calculated on a prospective or retrospective (actual) basis. Retrospective allocations, by their nature, tend to be more based on actual data while prospective formulas typically require mid-year adjustments to reflect reality (see description, below, of charge-back arrangements. In some cases, staff-based formulas have been combined with formulas based on the number of students enrolled. In Poland, for example, the allocations are based on a combination of the number of students enrolled and the number of full-time teaching staff with PhDs.

One of the big issues that policy makers must resolve, when using enrollment-based formula systems, is how to define what course load constitutes full-time status and how to differentiate between full-time and part-time students. There is great variety in how countries address these questions although in almost all cases full time students, however defined, are given a different weight than part-time students in calculating per student costs, student/faculty ratios, and other measures. Another common convention is to convert part-time students to full-time equivalency based on their course load.

Another key issue in developing enrollment-based allocation systems is whether the number of students that will be funded is capped. Most countries do limit the number of students they will fund principally through a planning process as a means for controlling budgetary exposure. A few countries have a more demand- driven funding system in which funding caps are not imposed and all qualified students are funded albeit often it at lower per student spending levels than would apply under a capped system. New Zealand is perhaps the most prominent example of such a demand-driven funding system, although budgetary realities are leading to reconsideration of these open-ended arrangements.

- Charge back arrangements – When funding formulas are based on prospective estimates of student numbers and/or costs, charge back arrangements allow for initial allocations to be reviewed mid-year or ex-post to reflect actual spending levels, and funding may then be adjusted. Most countries that use formulas based on prospective numbers of students now recognize that they should use charge-backs to correct for erroneous projections in the numbers of student or costs per student. This kind of mid-course correction substantially reduces the amount of 'gaming' that is likely to occur when institutional

officials are asked to estimate figures for the upcoming year rather than reporting actual enrollments or spending per student in the previous year. Another approach is for the government or funding body to project enrollments and to take the "risk" of projecting incorrectly. This reduces the potential for "gaming" while allowing for growth. South Africa uses this kind of planned approach.

ii) Costs per student – Most funding formulas now are based on some measure of the number of students enrolled at a point in time multiplied by a cost per student calculation. The cost per student figures are typically calculated retrospectively for an obvious reason – institutions should not be funded on the basis of the costs they think they will incur – and are based on one of several enrollment figures as shown below:

- Actual costs per student – The most traditional form of formula funding occurs when allocations to institutions are based on actual costs per student as reported by the institution. Most states in the US use actual costs per student in their funding formulas; many countries also seek to use actual costs in calculating their institutional allocations.
- Average costs per student – In this approach, which constitutes an alternative to using actual costs per student at each institution, allocations to institutions are based on system-wide average costs per student, usually calculated from aggregate statistics on spending and enrollments.
- Normative costs per student – Perhaps the most innovative way of calculating costs per student in funding formulas is to base the calculation on normative costs. Under this approach, optimal staff/student ratios and other standardized efficiency measures are used to calculate what costs per student *ought* to be, rather than what they are on an actual or average basis. Thus, formulas using normative costs have the potential for improving efficiency by tying how much institutions will be paid for their expenses to a more efficiency-based standard. Among industrial countries, England is one of the main countries where normative costs have become part of the funding formula calculation. Often at the urging of the World Bank, normative costs have recently been introduced into funding formulas in a number of developing and transition countries as well, for example in Bulgaria, Hungary and the Czech Republic.
    - Benchmarking – One form of normative costs used in some countries is one in

which the cost figures and structure are pegged to a 'benchmark' institution or set of institutions. A number of states in the US, for example Kentucky, use the cost structures of comparable institutions in other states to help establish the costs per student in their funding formulas.

- Differentiating costs per students by level and field of study. The question of whether to differentiate costs by field and level of study is an important consideration regardless of what type of cost per student calculation is used. For example, should undergraduate costs per student be calculated separately from graduate student costs? Should distinctions be made between relatively low cost fields in the humanities and education and typically higher cost fields in the sciences and engineering? Most governments do make such distinctions in their allocation systems but in a wide variety of ways. One approach is to 'band' certain fields of study into cost categories, 'x' cost for a humanities student and a larger 'y' cost for an engineering student. These bands can become quite numerous. At one time the UK had a matrix of 44 cells in its cost per student formula, although that structure has been simplified under more recent reforms. Australia has recently announced that it will move to an allocation system in which fixed sums per student will be used in eight subject groupings, and that the number of students to be funded in each group will also be set, representing a step forward in control.

iii) Priority-based funding – Another basis for funding is one in which adjustments are made to cost-based considerations to reflect national and regional priorities such as critical labor force needs. This approach might also be referred to as "funding for relevance" since fields of study designated as being of greatest relevance tend to receive the highest level of funds. The traditional way for funding relevance occurs when central bodies determine which programs to fund based on their determination of relevance. In the more innovative approach now being introduced in some countries, the 'price' paid by the government or the funding body to institutions for a seat in a high priority field is higher than what is paid for seats in lower priority fields of study. In some cases, the full cost per student or even more might be paid to institutions for seats determined to be in high priority fields of study. Or payments might be increased for

those institutions that are deemed to be of higher priority than other institutions. For example, institutions in rural areas might be paid more for their seats than more urban institutions if there is a desire to ensure a more dispersed distribution of students. The special per capita grants for students in 'scarcity subjects' used in England would be one example of priority-based funding.

- *Supply-side vouchers*. One form of priority-based funding occurs when public funds are distributed to institutions based primarily on the characteristics of the students who enroll in them rather than the more traditional method of funding based on institutional characteristics such as costs per student. This kind of formula could be referred to as *'supply side vouchers'* as funds would be distributed to institutions based on which kinds of students enroll at different institutions. There are relatively few examples where supply side vouchers have been implemented or even seriously proposed by governments. For a number of years England has paid a premium in its funding formula for students from postal codes with high concentrations of families with low socioeconomic status, although the government is now considering abandoning this policy. Ireland is moving in the opposite direction, now paying institutions about one-third more for disadvantaged students in its funding formula. In Chile, 7 percent of public funding for tertiary education is linked to the ability of universities to attract students receiving the highest scores in the national university admission exam.[3] Jordan and the Palestinian National Authority have are considering allocation schemes based on student characteristics with some of the funds then being used as grants for targeted groups of students, thereby improving the equity of the tertiary education system.

iv) Performance-based formula components – Another nontraditional funding approach occurs when institutional performance measures are built into funding formula, e.g., by paying institutions on the basis of the number of year-end completers or degree recipients rather than the number of students enrolled. This approach is discussed in greater detail below under the section on performance-based funding.

Organizations developing and maintaining formulas. A number of organizations may take responsibility for how public funds are allocated at the national or sub-national level, including

[3] Thorn and Holm-Nielsen, 2004.

relevant ministries or an agency that acts as a buffer body to negotiate between government and tertiary education institutions. The two principal options are*:*

- *political entities* – In most countries politically elected entities such as chief executives or legislatures, or the bureaucracies that report to them, design and implement the funding formula and/or are responsible for negotiations. Mexico, Chile, South Africa and India are countries where non-elected administrators have considerable independence in devising allocation processes and procedures. In many other countries, elected officials have more authority over funding and allocation decisions.
- *buffer bodies* – In a minority of countries, groups known as buffer bodies develop and implement the formula. Buffer bodies are institutions such as the University Grants Commission in India or the Higher Education Funding Council of England (HEFCE). These buffer bodies represent the link between governments and institutions and are intended to insulate the funding process from excessive political pressures. The Higher Education Council in Turkey (YOK) is one of the more independent buffer bodies deciding on the allocation of funds to tertiary institutions.

Decisions about the level of public funding allocated to tertiary education should rest with political bodies to ensure that the public interest is best served. In contrast, decisions regarding how public funds or appropriations are to be distributed to institutions should be insulated as much as possible from the political process to a large degree. The funding system administered by the Higher Education Funding Council of England (HEFCE) is a prime example of a buffer funding body that distributes funds on a priority- and performance- basis, as institutions are paid more for students enrolled in high priority fields of study, bands of normative costs are used to determine per student payment levels to institutions, payments are based on the number of students who complete a year of study rather than their enrollment, and institutional payments are higher for students who live in districts with high concentrations of low income families.

Higher Education or Tertiary Education? Another issue relating to the organizations that develop or maintain formulas is whether they govern higher education, i.e., primarily academic colleges and universities, or the broader range of tertiary education institutions including more vocationally oriented colleges or institutes, open universities, etc.. The traditional approach has

been for separate entities to govern the funding of universities and other tertiary institutions. The funding councils in England, Ireland, Pakistan and Turkey and in most US states are examples of this traditional approach. With the creation of the Tertiary Education Commission in 2002, New Zealand was among the first countries to establish funding bodies that cover the full range of tertiary education. Ireland is following the New Zealand lead by incorporating polytechnics into its higher education agency as are a number of other countries.

1.4. Performance-based funding. In contrast to negotiated budgets, earmarked funds or funding formulas that focus on inputs or numbers of students enrolled, performance-based funding represents one of the more recent and growing innovations in tertiary education allocation mechanisms in recent decades. By linking funding levels to some measure of outputs or outcomes, performance-based funding represents a clear shift from traditional funding approaches. Performance-based allocation mechanisms differ from most other allocation approaches in that they tend to use performance indicators that reflect public policy objectives rather than institutional needs. They also typically include incentives for institutional improvement, not just for maintenance of the status quo that is often the characteristic of more traditional allocation mechanisms.

Performance-based allocation processes can be based on a number of criteria that recognize institutional performance or student performance. Systems using performance indicators to measure the exam scores of students would be an example of a student-based approach while a process that uses completion rates would be considered institution-based.

Four types of allocation mechanisms might be considered performance-based funding:

- Performance contracts - governments enter into regulatory agreements with institutions to set mutual performance-based objectives
- Performance set asides - a portion of public funding for tertiary education is set aside to pay on the basis of various performance measures
- Competitive funds, which support peer-reviewed proposals designed to achieve institutional improvement or national policy objectives
- Payments for results - output or outcome measures are used to determine all or a portion of the funds that institutions receive either through a formula or as a separate set of payments.

The following table indicates how these performance-based allocation mechanisms differ from more traditional approaches.

Table 1 – Traditional and Performance-Based Allocation Mechanisms

Traditional	Performance-based
Negotiated Budgets – allocations of public funds are negotiated between government agencies and institutions	**Performance contracts** – governments enter into binding agreements with institutions to reward them with resources linked to the achievement of mutually determined performance-based objectives
Categorical Funds – categories of institutions designated as eligible for funds for specific purposes including facilities, equipment, and programs	**Performance set asides** - a portion of public funding for tertiary education is set aside to pay institutions on the basis of their achieving various performance targets **Competitive funds** – institutions or faculty compete on the basis of peer reviewed project proposals against a set of policy objectives
Funding Formulas – funds are allocated to institutions on the basis of staff numbers or enrollment levels and unit costs	**Payments for results** – output or outcome measures are used to determine all or a portion of distributions from a funding formula, or institutions are paid for the number of students graduating in certain fields of study or with specific skills

i) Performance Contracts – Despite their name, performance contracts typically are not legally enforceable documents. Instead, they are more often non-binding regulatory agreements negotiated between governments or buffer bodies and tertiary education institutions which can take a number of forms. The agreements may be with entire systems of institutions or individual institutions. All or a portion of funding may be based on whether institutions meet the requirements in the contracts. The agreements can be prospectively funded or reviewed and acted upon retrospectively. In some instances, such contracts can be viewed as a punitive instrument rather than as incentives, as failure to meet goals may result in reduced funding.

Examples of performance contracts include:

- *France* which since 1989 has devoted one third to half of the recurrent budget to 4-year performance contracts. Payments are made when the contracts are signed, with a post-evaluation to assess the degree and effectiveness of implementation.
- *Finland and Denmark* which have contracts that set out general goals for the entire tertiary education system as well as specific goals for each institution.[4]
- *Colorado* (US) which as part of its new voucher scheme is setting up performance contracts that would penalize institutions that do not meet standards as part of broader reform effort that includes demand-side vouchers and fee for services.
- *Virginia* (US) which is developing contracts with its public universities in which increases in autonomy are exchanged for reduced funding levels from the state. The model evolved from a request by the three top universities in the state to swap reduced public funding for greater autonomy in how public funds are spent to the final version that applies to all public institutions in the state.
- *Quebec* (Canada) which used performance contracts beginning in the mid-1990s, but has dropped them as a policy mechanism in recent years.
- *Switzerland* which started to introduce performance contracts in the mid 1990s as part of a reform to grant universities greater autonomy. A recent evaluation of the reform (Schenker-Wicki, 2006) indicates that, in the absence of complementary changes within the universities themselves, the performance contracts have not yielded significant efficiency gains.
- *Spain* where some provinces have recently developed an interesting variation on this model called a "contract program" ("contrato-programa marco de financiación global") as a result of the new decentralization policy which delegates significant powers to the autonomous regions of the country (see Box 1).

[4] In Denmark, these contracts are called "development contracts" to reflect the long term strategic perspective of the activity.

Box 1. Performance Contracts in Spain:
The "Contract Program" in Madrid

The first "contract program" in Spain was signed in 2005 between the autonomous government of Madrid and the six public universities operating in the Spanish capital city. This agreement combines the elements of a funding formula and a performance contract with a multi-year horizon (five years). Not only does the formula allocates resources for both teaching and research, amounting to 85 percent of the total budget contribution, but it also provides funding against a number of policy objectives (restructuring of studies in accordance with the Bologna process, better deployment of teachers, improvement in pedagogical practices and use of education technologies, continuing education, etc.). The "contract" includes as well a clause for compensatory payments to the universities less favored by the new allocation model in order to reduce past resource disparities.

Source: Interview with Rector of Universidad Autónoma de Madrid, 28 November 2005.

ii) Performance Set Asides - In countries and sub-national units that use performance set asides, a portion of funding for recurrent expenses is set aside to be allocated on the basis of a number of performance measures. The set aside typically is less than 5 percent of total funding but in some cases may be nearly 100 percent of recurrent funding. The number of indicators varies from single to multiple (as many as twelve or more). The performance measures are typically decided through negotiations between government agency or buffer body and institutional officials: the allocation of funds is usually not done on a formula basis.

- South Africa has for a number of years set aside most of its core budget for teaching, research, and other services based on multiple performance measures. This performance funding is supplemented by a competitive fund.
- In the US, more than a dozen state governments have used performance set asides over the past decade or more. Examples include:
    - Tennessee which sets aside 6 percent of funds based on multiple criteria - four standards and ten indicators – with each of these given a certain weight. Institutions compete against their own record, and
    - South Carolina which for a number of years based most of its recurrent budget allocations on a wide variety of performance criteria. The South Carolina experience is instructive in that it represents an extreme in performance-based funding as the state decided to allocate almost its entire recurrent budget on the basis of performance measures. The general evaluation of the South Carolina

performance-based funding experience is that it failed because there were too many indicators and standards and thus the signals provided to institutions were mixed and confusing.

iii) Competitive Funds. One of the more prominent innovations in tertiary education finance over the past several decades, competitive funds represent an alternative to the more traditional approach of categorical funds. Typically, under such systems, tertiary education institutions and/or individual departments within institutions are invited to formulate project proposals that are reviewed and selected by committees of peers according to transparent procedures and criteria. Argentina, Bolivia, Bulgaria, Chile, Ghana, Hungary, Indonesia, Mozambique, Sri Lanka are examples of countries that have established competitive funds in the past decade or so, often with financial and technical support from the World Bank.

Competitive funds are typically established for the purposes of improving quality and relevance, promoting innovation, and fostering better management – objectives that are difficult to achieve through funding formulas or categorical funds. The actual eligibility criteria vary

Box 2. The Contribution of Competitive Funds

Well-designed competitive funds can greatly stimulate the performance of tertiary education institutions and can be powerful vehicles for their transformation and innovation. Argentina's Quality Improvement Fund (FOMEC) has encouraged universities to engage in strategic planning for the strengthening of existing programs and the creation of new interdisciplinary graduate programs. Within universities, faculties that had never worked together started cooperating in the design and implementation of joint projects. In Indonesia a series of World Bank projects that began in 1993 has succeeded in stimulating ownership within the entire academic community of new paradigms in tertiary education. In Egypt the Engineering Education Fund was instrumental in introducing the notion of competitive bidding and peer evaluation in the allocation of public investment resources. The fund promoted in an effective manner the transformation of traditional engineering degrees into more applied programs with close linkages to industry. The new competitive fund in Jordan has detailed guidelines which are described in an operations manual, and it relies on international peer reviewers for projects of national interest. In Chile a second wave of tertiary education reforms is being supported by a competitive fund for diversification (development of the non-university sector, including private technical institutes) and quality improvement of all tertiary institutions.

Source: World Bank (2002), pp. 104-105.

from country to country and depend on the specific policy changes set out by governments. In Argentina and Indonesia, for instance, proposals could be submitted by entire universities or by individual faculties or departments. In Chile both public and private institutions are allowed to compete for public funding. In Egypt a fund was set up in the early 1990s specifically to stimulate reforms within faculties of engineering.

A fundamental prerequisite for the effective operation of competitive funds—and one of their significant benefits—is the practice of transparency and fair play through the establishment of clear criteria and procedures and the creation of an independent monitoring committee. In countries with a relatively small or isolated academic community, it is desirable to draw from a regional or international pool of peer reviewers to reduce the danger of complacency and subjective evaluation among a limited group of national colleagues. Use of a transnational pool is a long-standing practice in Scandinavian countries and the Netherlands. One of the added benefits of competitive funding mechanisms is that they encourage tertiary education institutions to undertake strategic planning activities which help them formulate proposals based on a solid identification of needs and a rigorous action plan.

International experience with competitive funds has shown the need to consider three operational questions when designing a new fund: (i) How to create a level playing field in diversified systems with strong and weak tertiary education institutions? (ii) Should private institutions be eligible? (iii) Is it desirable to closely link access to funding with accreditation or similar quality assurance requirements?

To deal with the heterogeneity of institutions and capacity, there may be a compelling argument for opening several financing windows with different eligibility criteria and funding ceilings or for setting up compensatory mechanisms to increase equity among institutions with varying levels of capacity. In Indonesia, for example, three different windows of competition were designed to serve universities according to their actual institutional capacity. This decision helped to prevent the strongest institutions from winning all of the funding while leaving the weaker institutions out of the game and unable to tap into significant public resources for important investments in quality improvements. In a recent tertiary education project in China, the strongest universities with the greatest capacity were required to form a partnership with a weaker university located in a poor province as a condition for competing for resources from a curriculum reform fund. In Egypt the competitive fund initiated under the World Bank-

supported Engineering Education Reform project had a special window for technical assistance to help less experienced engineering schools prepare well-formulated proposals. Also in Egypt, proposals that included a partnership agreement between a stronger university and a weaker one received additional points for evaluation purposes. In Chile a special grant window was recently opened to provide preparation funds for universities requiring assistance in strategic planning and subproject formulation.

Governments that wish to encourage the growth of high quality private institutions can use competitive funds to support investments in these institutions. A competitive fund for engineering education in the Philippines had this feature in the 1980s and ongoing innovation funds in Sri Lanka, Chile and Ghana make public resources available to private institutions.

Finally, one of the strengths of competitive funds is that they are more likely to be effective in improving quality than broader-based approaches such as negotiated budgets or funding formulas. Therefore, one way in which competitive funds can improve quality is to link eligibility for funds to participation in the accreditation process, either on a voluntary basis (Argentina) or in a compulsory way (Chile). Another approach is to use quality improvement as a criterion in evaluating proposals and selecting recipients.

iv) Payments for Results - There are two ways in which some governments pay for results. One approach uses some set of performance measures to calculate institutional eligibility for all or part of their formula funding of recurrent expenses. The second occurs when governments or private entities agree to pay institutions for each student who completes a year of study or receives a degree in certain fields of study or with specific skills.

Examples of countries that have built performance into their funding formulas include:

- England where the recurrent expenses formula is paid on the basis of the number of students who complete each year of study;
- Denmark which has a 'taximeter model' in which 30 to 50 percent of recurrent funds are paid for each student who passes exams;
- Netherlands where half of recurrent funding is based on number of degrees awarded;
- South Africa where the funding formula takes both the number of students enrolled and

the number of graduates into consideration; and

- Norway where some funding has been based on the number of credits obtained and beginning in 2007 a portion of funding will be based on the number of graduates.

Payments for results can also occur outside of the regular funding formula. In Colorado (US), for example, the state now purchases through a fee-for-service contract a specific number of subsidized graduate credit hours for resident students to complement the demand-side vouchers scheme for undergraduates. Another type of payment for results takes place within the community college systems in the US and Canada, whereby the government contracts with private firms to train employees.

2. Funding of Research[5] – Basic and applied research is one of the essential functions of a comprehensive university. The responsibility of the government with respect to academic research is to help ensure that public funds allocated for this are spent efficiently and effectively to meet the policy objectives of generating relevant findings and improving the quality of research capacity and academic offerings. A number of arrangements exist around the world for the funding of university-based research including the payment of overhead costs. These comprise instances in which instruction and research are funded together, project-based funding, and block grant funding for research. The sources of funding research are also varied and include: national research bodies/councils, government departments, charities, industry and commerce as well as the education ministry or the funding buffer body.

2.1. Instruction and research funded together. Combined funding of instruction and research is perhaps the most common approach for funding campus-based research, whereby institutions use some of the public resources they receive to pay for the conduct of research on campus in addition to expenditures for academic instruction and institutional operations. Most states in the US and many countries around the globe fund research together with instruction as part of their negotiated budgets or funding formulas. Joint funding of instruction and research arguably is the easiest to administer as it does not require additional entities such as a research council or similar

[5] In many countries, some or most of the research conducted within universities or related institutions is funded through private sources but in this report the focus is on how public funds are allocated for research.

body to make allocation decisions. At least in theory, joint funding of teaching and research also has the strength of being the research funding method most likely to integrate teaching and research efforts, which many tertiary education officials and analysts to believe is a desirable outcome.

In spite of the many positive attributes of combined funding of teaching and research, one of the strongest arguments against it is that it may remove public officials from setting their country's research agenda. Many observers would rightly view it as a strength that politicians are kept apart from decisions about what research gets funded. But joint funding of research and instruction essentially places decision-making responsibility in the hands of institutional officials and faculty who may or may not have national objectives in mind when making these internal allocation decisions. As a result, national relevance objectives may not be well served when research and instruction are funded together. In addition, the internal efficiency objective of moderating costs is probably not well served when research is funded jointly with instruction. When they are funded separately, the government may also gain certain flexibility to address changing priorities more readily.

2.2. Research project funding. Another common way to allocate public funds for research occurs when faculty or other staff are funded for specific projects, usually based on peer reviews of proposals. The federal system of funding research in the US, which is employed by multiple funding agencies such as the National Institutes of Health and the National Science Foundation, extensively uses a peer review process to determine which proposals receive funding. By measuring the quality and potential of proposals in an objective way, the process is somewhat insulated from inevitable political pressures. Multiple agencies are responsible for funding peer-reviewed research projects in a number of other countries as well. Funding is sometimes provided on a matching grant basis, whereby government funds are complemented by institutional or private sources. This matching grant approach is used in Singapore (3 from government to 1 from private sector) and New York State in the US, for instance.

Peer reviewed funding of research projects has a number of advantages over joint funding of teaching and research. Assuming the peer review process is conducted properly, the objective of maintaining and improving quality of research should be achieved. Peer reviewed projects also often have the best potential of combining relevance and quality – politicians deciding what

level of funding to provide to different disciplines but kept away from selecting which projects and institutions are funded.

But the strengths of peer-reviewed projects can also be their weaknesses. Homogeneity in the selection of peers – with those in the establishment excluding dissenters – certainly could stifle innovation, result in narrow research agendas and detract from the quality and relevance of the projects funded. Similarly, breakdowns in budgeting processes can lead to inefficiencies and even controversy when there is a perception that the funds were inappropriately spent.[6]

2.3. Block grant funding for research. Under this less traditional mechanism for allocating research funds, institutions receive a block grant allocation that is not differentiated or earmarked by project; institutions or faculties then have wide latitude in setting their own priorities for the expenditure of these funds. In some instances, eligibility for the block grant may be based on *institutional demonstrated capacity*. The amount of public research funding for each university is based on a periodic peer-reviewed assessment of collective faculty capacity to conduct research in an innovative fashion. In England, for example, the "blue skies" approach for allocating research funds is based on the results of the Research Assessment Exercise (RAE) conducted every 5 to 7 years, which attempts to measure the quality of the research produced at different universities although this assessment may be in the process of being phased out. Scotland also utilizes block grants to fund research and Australia is introducing a similar system of funding research based both on measures of the quality of research and its impact on society.

Another way to allocate research funds through block grants is to fund *centers of research excellence* at particular institutions that often specialize in certain fields or endeavors. In the US, the federal government and a number of states have adopted this approach as a way to supplement the research funding embedded in their core funding. New Zealand and the Netherlands are examples of OECD countries that have funded much or all of their academic research through centers of excellence, although New Zealand is moving toward an RAE-type system that would shift some funds previously allocated through the research centers. The China '211' project, the Brain 21 program in South Korea, and the Millennium Institutes recently established in Chile and Venezuela with World Bank funding are examples of how some other

[6] For example, in the US in the 1990s, the practice of some universities attributing excessive expenses to their indirect cost pool of resources led to heightened media attention and calls for reform of the funding campus-based research.

countries have established or boosted centers of excellence. In some cases, notably the CNRS in France, the centers function as independent research entities largely disconnected from university administration and operations.

Funding research through block grants can be an effective way to meet important policy objectives. Centers of research excellence have the potential of improving the relevance of research if the focus of the centers accurately reflects national and regional needs. Processes such as the 'blue skies' approach in the English research funding system seem more likely to stimulate innovation and creativity than many other research allocation methods because they allow for greater flexibility and autonomy in the selection of research projects. To the extent care is taken in budgeting for block grants, internal efficiency goals may also be well met. On the negative side, one of the greatest concerns is that the awarding of block grants will not be sufficiently insulated from political pressures. If grants are awarded to universities based more on political considerations than on demonstrated capacity, then the goals of improved efficiency are not well served. A key issue for policymakers to consider is how much to allocate through peer-reviewed projects and how much to provide with greater flexibility through block grants.

Box 3. Multiple approaches to the funding of research in the Netherlands.

The Netherlands is an example of a country that has adopted a number of different allocation approaches when it comes to the funding of university-based research. Methods of allocation vary for the five components of the Dutch research structure:

- Basic funding of research facilities based on a fixed amount per university
- Funding of PhDs. is allocated on the basis of the number of PhD. Dissertations and related degrees at each university
- Basic research centers are funded on the basis of resources received in several other components
- Centers of research excellence are funded in a number of different disciplines; Minister decides on the allocation of funds after consultations with research stakeholders.
- A strategic consideration component is also allocated on the basis of fixed amounts per university.

Source: CHEPS (2003), *Higher Education Reform: Getting the Incentives Right.*

2.4. Demand Side Funding of Research. In a number of countries, university-based research is funded indirectly through the provision of scholarships, fellowships, and research and teaching assistantships provided to graduate students. To the extent the government or private sector are the source of this assistance, it reduces the financial burden on the institutions themselves and thus is viewed properly as an indirect source of support for institutions. The US is a prime example of this demand side approach in which the multiple agencies that fund research each typically have various programs of graduate student support. This is discussed further in the following part of this paper that examines the various allocation mechanisms that provide indirect support of institutions as well as direct support to students and their families.

Part II. Indirect Funding of Institutions and Direct Support Provided to Students and Families

While the large share of public support of tertiary education in most countries is provided directly to institutions, most countries also provide some portion of the public funds for tertiary education to students and their families. One of the more innovative student-based approaches is demand side vouchers which finance the recurrent expenses of institutions indirectly through vouchers provided to the students. More typically, some portion of public funds is allocated directly to students and/or their families in the more traditional form of non-repayable aid such as grants and scholarships, tax-based benefits for current expenses and savings for future, and a variety of government-subsidized or sponsored student loan models. In a few countries, support is provided to students in the form of grant/loan in which the aid begins in one form and, over time, transforms into the other.

1. 'Demand Side' Vouchers. Around the world, voucher debates are much more common in basic education and some other government functions such as public support of housing than as a means of paying for tertiary education. But in all public functions, the purpose of adopting vouchers is basically the same: to promote greater competition among providers of a good or service by providing public support indirectly through the consumers rather than directly to providers.

A number of definitions could be used to describe how vouchers might work in tertiary education. A narrow definition would include:

- students and/or families receive a coupon (voucher) which represents a certain amount of money to be used exclusively for tertiary education related expenses.
- students carry the voucher to the institution in which they enroll, and the institution then redeems the value of the coupon from the government. This allows for portability and consumer choice.

A broader definition would include vouchers being utilized to defray all or a portion of the recurrent expenses of institutions, particularly those which rely primarily on public funding to fund their operations. These might be referred to as demand side vouchers as they serve as an alternative to more traditional methods of allocating public funds directly to institutions to help

meet their recurrent expenses. In developing both kinds of vouchers for tertiary education, policymakers must consider and resolve a number of key issues:

- Do vouchers cover the full cost of education, or will tuition fees be used to pay some of the costs?
- Do vouchers cover the full public cost of tertiary education, or is there a mix between supply side and demand side approaches?
- Are vouchers available to all students, or only to specific groups of students?
- Are the vouchers the same amount for all students, or do students from disadvantaged families receive more?
- Are students at private institutions eligible to use the vouchers, or are they restricted to those at public institutions?
- How are seats allocated to voucher holders at institutions that are oversubscribed?

Demand side vouchers are so innovative that there are few examples of countries or states that use them. The most prominent example can be found in the state of Colorado (US) which began implementing a voucher scheme in 2004 to pay a portion of the recurrent expenses of undergraduates in both public and private institutions. A law passed in 2004 in the former Soviet Republic of Georgia creates the framework for a similar demand-side voucher system. [7]

The recently launched Universities for All program (ProUni) in Brazil constitutes an interesting variation of a voucher scheme. Under that new program, the Brazilian government uses tax incentives to "buy" places in private universities for deserving, academically qualified low income students who were not admitted in the top public universities. An innovative scheme recently set up in the Colombian Department of Antioquia is also worth mentioning in this context. A public-private partnership bringing together the local authorities, a group of private universities and a number of private sector employers offers qualified low income students who could not find a place in a public university the opportunity to study in one of the local private universities. The students get a scholarship equivalent to 75 percent of the tuition costs and receive a loan from the National Student Loan Agency (ICETEX) for the remaining 25 percent. Finally, the new *Iskolar* scheme in the Philippines will provide a two to four-year scholarship of about $200 annually for one student of each low-income family.

[7] Pachuashvili, M., "Dual Privatization in Georgian Higher Education", *International Higher Education*, Fall 2005.

Box 4. The Tertiary Voucher Experiment in Colorado

Under the Colorado plan, all undergraduates at public and private institutions in Colorado are scheduled to receive a uniform voucher (officially referred to as 'stipend') that covers a portion of the average cost per student at Colorado public institutions. Students then submit the voucher to the institution they choose to attend (including private institutions in the state) to be used to defray an equivalent amount of their tuition fees and related expenses. Students and their families are responsible for paying the tuition fees over and above the amount of the voucher although these costs can be covered through student financial aid with no effect on the amount of voucher received.

In the first year of the plan (academic year 2004-05), the vouchers were worth $2,400 per student, which covered about half of the estimated costs of educating undergraduates in that year. The $2,400 value of the voucher was substantially below the initial estimates of the program because actual funding fell short of levels projected at the time the legislation was enacted. Colorado students attending private institutions were eligible for $1,200 in the first year of the program; unlike the benefits for public school students, however, vouchers for private sector students are limited to those from low income families, effectively making it a student aid voucher. The amount of tuition fees that voucher recipients are responsible for paying varies depending on the type of institution attended.

The Colorado tertiary voucher experiment was created in conjunction with two other financing components:

- Performance contracts have been negotiated with each public institution in Colorado in which institutions face the risk of losing public funding if they fail to meet the goals set out in the contracts.
- The State will pay public universities for each graduate student they enroll, as the demand side voucher applies only to undergraduates.

Source: O'Donnell, R., (2005) Presentation at joint World Bank / Korean Education Development Institute conference, April 2005, Seoul, South Korea.

2. Government Grants and Scholarships[8] **–** Most countries provide non-repayable aid to their students, but how this aid is provided varies on a number of dimensions, including: program administration modalities, which students are eligible, and which expenses are covered:

2.1. Program administration. Grants and scholarships are provided to students in two basic ways: direct and indirect provision. In France and most Francophone countries, eligible students

[8] The terms used to describe non repayable forms of aid vary widely among countries; they include grants, bursaries, scholarships, fellowships, and others. This paper uses the convention of referring to need-based aid as grants and merit-based aid as scholarships, recognizing the problems in making these definitions including that the term grant does not exist in French or Spanish.

receive the money directly from a specialized government agency, for example CNOUS in France. But in most countries, the traditional way of administering non-repayable aid involves an indirect transfer whereby officials in tertiary education institutions make the basic decisions on who is eligible and how much they receive, often with guidance or limits set by the government. The degree of government regulatory intervention tends to be influenced by the manner in which the grants and scholarships are financed. If institutions are using their own funds to provide discounts, the role of government in determining eligibility is typically small. In the more typical case where public funds constitute the bulk of funding for scholarships and grants, then the degree of government regulation and authority generally increases. Hungary, Lithuania, Poland, Portugal (merit-based program) are a few examples of the many countries that rely on universities and colleges to administer publicly funded scholarship programs.

In some cases, governments require institutions to match public funds by providing waivers or discounts to selected students. In the US, for example, the Supplemental Education Opportunity Grant (SEOG) program has regularly expected participating institutions to match a portion of the funds provided by the federal government.

The more innovative way in which grants and scholarships may be provided is in the form of student aid vouchers rather than relying on institutions to administer the aid programs and to determine eligibility. When student aid is provided through vouchers, eligibility is typically determined in a more centralized fashion: students receive vouchers, or chits, from the government or its agents that they then present them for redemption against tuition fees and other direct costs at the institution in which they enroll. Typically, the institutions then are able to redeem the value of the vouchers with the government. Student aid vouchers thus can be contrasted with more centralized student aid programs in which students apply directly to government once enrolled in an institution, or more decentralized programs that use institutions to administer funds, usually within government guidelines. Examples of countries that use student aid vouchers include:

- US, where since the end of the Second World War, the GI Bill has provided benefits to veterans solely on the basis of the length of their military service. Since the early 1970s, in the Pell Grant program, students receive means-tested vouchers on the basis of centrally calculated financial assessment.
- France, where students at public and state private institutions are eligible for social

scholarships based on the student's and parents' income. Similar voucher systems are in use in many African francophone countries.

- Denmark, where all university students are eligible to receive up to 70 monthly vouchers to cover living expenses related to their tertiary education attendance. An interesting feature is that students can save their vouchers early in their tertiary careers and 'double up' near graduation.

Need-based grants and merit-based scholarships can be a critical component in any country's financing structure for tertiary education. Properly designed and implemented, they represent a means for promoting greater access, equity, and quality. Such financing mechanisms can also represent an important component in any broader effort to increase cost sharing as they can offset the effects of higher fees for academically qualified students who don't have the financial means to pay for them. This contribution to greater cost sharing occurs regardless of whether the grants and scholarships are funded through public funds or are internally financed by having students with greater means pay more than students with less family resources, as long as the amount of the grants and scholarships provided is less than the overall increase in the amount of tuition and other fees.

In comparing mechanisms for allocating funds to students and/or their parents, student aid vouchers have a number of advantages over institutionally administered grants and scholarships. They allow institutions to compete for students and provide students with much greater choice of institutions than they might otherwise have. Student aid vouchers also can be more effective in promoting equity by establishing uniform rules of eligibility rather than leaving that critical decision to the institutions that typically may be less likely to promote national objectives of promoting greater equity. On the other hand, many countries may simply not have the administrative capacity to implement student aid voucher systems effectively, an issue which is discussed in greater detail in section 4 of this paper.

3. Tax Benefits – An increasing number of countries are providing tax-related benefits to families or students for tertiary education expenses. The tax benefit may be in the form of a credit against tax or a deduction from income for either current expenses or savings for future

expenses. In this paper, only those tax benefits related to current tertiary expenses are examined. This kind of tax benefits is typically provided for one of two purposes:

i) Tuition Offsets – Students or their families receive a tax benefit that offsets a portion of tuition fees paid. Ireland and the US are two examples of countries that have used the tax system to provide this form of benefit. In the US, two different tax credits and a tax deduction have been available since 1997 to offset a portion of tuition expenses at accredited postsecondary institutions. The province of New Brunswick in Canada recently established a "Tuition Tax Cash Back Credit" in which students enrolled in New Brunswick institutions are eligible to receive up to half of tuition fees up to a maximum of $10,000, provided they reside in the province after completing their educational program.

ii) Family allowances – Provided through the tax system, these tax provisions help parents offset the expenses of supporting children while they are enrolled in tertiary education. Austria, Belgium, Czech Republic, France, Germany, Latvia, Netherlands, and Slovenia are examples of the growing number of countries providing tax benefits in the form of family allowances for students attending tertiary education.

4. Student Loans – A number of different models exist in the more than 60 countries around the world where student loan programs have been developed[9]. The various student loan models can be defined in the first instance by the type of repayment terms that are applied. Yet, student loan schemes also vary on other important dimensions including: the source of capital, the type of expenses covered, student eligibility rules including applicability to private and distance institutions, and the level of subsidy.

4.1. Repayment plans. One of the principal decisions that policy makers must make in developing a student loan plan is how the loans are to be repaid. In this regard, there are two basic approaches: mortgage-type loans and income contingent repayment plans.

[9] Salmi, J. (2003). "Student Loans in an International Perspective: The World Bank Experience." LCSHD Paper Series number 44, Washington DC: The World Bank.

i) Mortgage-type repayment. Mortgage-type loans, which represent the more traditional student loan repayment arrangement, are reimbursed on an amortized (equal) basis over a fixed period of time. This equal payment approach reflects the way that banks around the world typically deal with mortgages on homes or with a variety of consumer- type loans. The period of time for each payment is most typically a month, although quarterly or even annual payments are not unusual. The amount of time required for full repayment may range from as little as three years to as much as fifteen; the more typical length of repayment is 7 to ten years.

- *Graduated and Extended Repayment Plans* – As a way of providing borrowers of mortgage-type loans with greater flexibility than what is allowed under fixed amortized repayments, student loan authorities in some countries permit graduated payments (smaller earlier in the repayment period and larger later payments) and/or extended beyond the normal fixed term to reflect more adequately the evolution of a student borrower's income over the course of his/her working life. The US graduated and extended repayment program is an example of this approach. The national Student Loan Agency in Venezuela (FUNDAYACUCHO) and the Mexican Student Loan Institute in the Northern State of Sonora (ICEES) have also moved to graduated repayment plans in recent years, following technical advice from the World-Bank.

ii) Income Contingent Repayments. One of the more innovative financing approaches for structuring student loans consists in calculating borrower repayments as a function of the amount borrowed and a percentage of the income of graduates once they complete their education**.** The theoretical basis for income contingent student loan repayment can be traced at least back to 1945 with an article written by Milton Freedman in which he argued that the prices charged for higher education should more accurately reflect the private economic benefits that accrue to the individuals receiving that education and suggested income contingency as an appropriate means of repayment. The first experiment with income contingent loans did not occur until a quarter century later when Yale University instituted such a plan that was then disbanded within a decade. Over the past two decades, half dozen countries have established versions of income contingency.

- *Mandatory Income Contingent Repayment* – The most common form of income contingent repayment occurs when all borrowers repay based on their income after

graduation, although even under mandatory arrangements, borrowers may still have an option to prepay. Within the framework of mandatory income contingency, there are two principal approaches relating to who pays the initial fees:

- Fees initially paid by students and families. This approach combines a traditional fee structure in which students and/or their parents initially pay the fees and then borrow to pay all or a portion of those fees and, possibly, related living expenses. Repayment on those loans is based on the income of the student borrower once they complete their education. South Africa, Sweden, New Zealand, Germany, and Hungary are examples of countries in which at least some loans have this kind of repayment arrangement although the scope of the loan program and the particulars of how repayment is administered varies considerably in each of these countries.
- Fees initially paid by government. The more innovative method for introducing income contingent repayment for student loans is for the government to pay the initial fees for participating students and for student "borrowers" then to repay as a percentage of their income and amount borrowed once they graduate and enter the tax system. This form of mandatory income contingency can include some borrowers being exempted because their incomes fall below some standard. Australia introduced the earliest example of this kind of income contingent approach in 1988 through its Higher Education Contribution Scheme (HECS). Scotland also has had an operational HECS-like student loan program for the past half decade. England and Thailand are introducing similar schemes in 2006.

- *Optional Income Contingent Repayment* – An alternative to mandatory income contingent repayment is that borrowers with mortgage-type repayment obligations are provided the option of repaying on the basis of their income after graduation. In the US, borrowers since 1994 have been provided with an option to repay on an income contingent basis. But usage of this option for income contingency has been modest in the US, limited largely to borrowers who have defaulted on their student loans and have been moved into income contingency repayment plans. Chile is another example of a country where student loan defaulters are moved into tax system to enhance their repayment levels.

iii) Graduate Tax – Students pay for their education as a percentage of their income through taxes paid throughout their working life once they complete their education. Income contingency differs from graduate taxation in that repayment for the loan is required only until the value of the loan has been fully repaid; it is not required for a lifetime or even until retirement as with the graduate tax. While this is a novel concept, no government is known to have instituted a pure graduate tax at this time.

iv) Human Capital Contracts – Student participants agree to repay a portion of their incomes to private sector investors who purchase an 'equity stake' in the student's education. This is paid as a percentage of the student's post-graduation income. Under some versions, investors would be able to depreciate from their taxable revenue the economic value of the students whose education they have financially supported. Such a practice, however, remains controversial. While these contracts previously were mostly a theoretical construct, private companies are now establishing pilot experiences in Chile, Colombia, Germany and the US. These private contracts represent in many ways the logical extension of the arguments made more than a half century ago by Milton Friedman, that students should repay based on the private benefit success that their education produces in the form of higher incomes. By contrast, the sharpest critics of human capital contracts argue that they are based on principles that appear too closely related to slavery.

Box 5. The experience with income contingency loans in Australia and New Zealand

Australia and New Zealand, which both charged little or no fees at their public institutions in the late 1980s, adopted similar strategies to increase cost sharing. Both decided to increase fees while introducing student loan programs that would allow students to pay for these higher fees over an extended period of time based on their incomes once they completed their education. But the two countries took somewhat divergent approaches in how they imposed fees and in the characteristics of the income contingent repayment schedules they adopted:

- In 1988, Australia through its Higher Education Contribution Scheme (HECS) adopted a very innovative approach to cost sharing. Faced with prospective widespread student opposition to imposing tuition fees, Australian policy makers decided to use public funds to pay the fees while students were enrolled. All students participating in HECS were then obligated to repay these fees once they completed their tertiary education as a percentage of their incomes, although students with below average incomes were exempted from repayment. HECS applies only to fees, not living expenses.
- Beginning in 1990, New Zealand took the somewhat more traditional approach of imposing fees at their public institutions that students and their families would be required to pay upfront when they enrolled. Beginning in 1992, students could borrow to cover the cost of these fees as well as a substantial amount of living expenses. Repayment of these loans would then occur through the income tax system based on a percentage of students' income once they completed their education and the amount borrowed.

New Zealand and Australia have moved in different directions since they first adopted their income contingent student loan plans nearly two decades ago. New Zealand began with a more market-based approach in which virtually all borrowers (who then constituted a small share of students) repaid on the basis of their income and there was only modest reduction in interest rates below market levels. Over time, New Zealand has moved away from market-based principles by increasing subsidies, including exempting more lower-income students from making repayments and forgiving interest on most loans. As a result, borrowing has grown substantially over time. The overriding policy concern now seems to be that high debt levels of graduates are leading an increasing number of them to emigrate from New Zealand to avoid their loan repayment obligations. This concern may be somewhat overblown as default in New Zealand is low by international standards. Nevertheless, the government has responded by making repayments for borrowers who remain in New Zealand interest-free beginning in 2006.

Australia's HECS system, on the other hand, created a public expenditure challenge as the government found it difficult to pay for both operating subsidies along with the initial HECS fees. To meet this challenge, Australia in 1997 moved toward the market by reducing HECS subsidies and introducing three bands of HECS tuition fees as well as reducing the level of income exempted from HECS repayment. In addition, more market-based loan programs have been developed for the more than one-quarter of students who do not participate in HECS, including growing numbers of foreign students and domestic students enrolling in fields of study not covered by HECS. So as Australia has moved to a more market-based student loan system, New Zealand has moved away from a market-oriented approach. It could be argued that the two systems now have crossed in their devotion to market principles.

Sources: Chapman, B. *Australian higher education financing*, and LaRocque, N., *Who should pay?*

4.2. Sources of funds. A principal variable in the structure of student loans around the world is how they are financed. This is particularly true for loans with mortgage-type repayments as income contingent student loans are typically funded ultimately through public sources since repayments will be made to public agencies, usually those associated with tax collection. Sources of funds for mortgage-type loans include:

- *Private sources* – Commercial banks and other private sources of capital fund most mortgage-type student loan programs around the world, including in: Canada, Chile, China, (commercial), South Korea, US (guaranteed program)
- *Public sources* – One recent innovative trend is for countries to shift from private to public funding of mortgage-type loans. Examples of countries that use public sources of funds to pay for mortgage type loans include: Canada, China (subsidized program), Hong Kong, Thailand, US (direct student loan program)
- *Internally Financed Student Loans* – In this much less utilized way to finance student loans, tertiary institutions use the fees paid by some students to finance loans that help other students pay their fees. IESA, a private business school operating in Venezuela in collaboration with Harvard Business School, has implemented a scheme along these lines. The first student loans in China, after the government introduced tuition fees in the late 1990s, operated along similar lines. These internally financed student loans may entail little or no government involvement although they can be financed by private funding that allows institutions to finance their current operations until loans are repaid. They also allow more innovative repayments including:
- *Deferred Payment Plans* – fee payments spread out over a period of time that begins while the borrower is still in school. This system can be found at some private institutions in the Philippines.
- *Privately financed and serviced* – Institutions sell loans or contract with private servicers when borrowers begin to repay. There are a number of private firms operating in the US that offer these kinds of financial services to tertiary education institutions.
- *Creative Financing* – A number of innovative financing mechanisms have been considered and implemented to facilitate the provision and expansion of mortgage-type student loans, including:
    - Secondary markets in which existing student loans are sold or used as collateral to

create new loan capital. The US (Sallie Mae and other entities) and Colombia are examples of countries that have developed secondary markets for student loans.

- "Securitization" is a financing process in which bonds are secured by the projected flow of funds from student loan repayments. The US and Chile are examples of countries that have employed securitization techniques in financing student loans.

4.3. Expenses Covered – One way in which student loan programs can vary is on the type of expenses which they cover.[10] The three basic approaches to eligible expenditures are programs that allow the loan proceeds to be used for tuition fees only, living expenses only, or tuition fees and living expenses. Examples of countries that have these different arrangements include:

- Loans for tuition fees only - Lithuania, South Korea (all programs), Japan, Philippines (all programs)
- Loans primarily for living expenses only - Denmark, Finland, Germany, Hong Kong (subsidized), Lithuania, Poland, Slovakia, England, Scotland
- Loans to pay for both tuition fees and living expenses - Canada, China, Estonia, Hong Kong (non subsidized), Malta, Mexico (Sonora), Netherlands, Thailand, US (all student loan programs)

The primary argument for limiting student loans to tuition fees is that fees represent the investment component of what students and their families spend for tertiary education and therefore should be the purpose of student borrowing. In addition, opening up student borrowing to cover living expenses can be very costly and subject to abuse as students borrow to support their life style rather than their further education. The rapid growth of borrowing in the US and New Zealand can be attributed in part to how much students are allowed to borrow against their living costs. The opposing argument is that living costs (and for that matter opportunity costs) represent a real cost of continuing one's education and student loans should be available to help students meet their responsibilities.

[10] Much of the information on the specifics of student loan models around the world are drawn from Vossensteyn, *Student financial support, an inventory in 24 European countries*, CHEPS, and Ziderman, *Policy options for student loans schemes: lessons from five Asian case studies*, UNESCO Bangkok

4.4. Eligibility for loans. Student loan programs also vary widely in terms of which students and, in some cases parents and other key family members, are eligible to borrow. One of the key issues with regard to student loan eligibility is whether participation is means-tested. Most countries with student loan programs do not require students to meet a means test in order to borrow, but in some countries including Austria, Italy, and Poland, only students who meet certain means tests are eligible to borrow. In other cases, only students who meet a means test are eligible for subsidies (see below), but students without financial need can still borrow at unsubsidized or less subsidized terms and conditions.

Course load and level of study are other conditions of eligibility. Most countries limit borrowing to full-time students although there are a number of countries including England, Poland, and the US that allow part-time students to borrow as well. In some countries such as Scotland, loans are limited to undergraduates. In other instances, loans are made available only to graduate or professional school students on the theory that these are the students who may benefit the most from borrowing and are the most likely to repay than undergraduates. In most countries with student loan programs, however, both undergraduates and graduate/professional school students are eligible to borrow.

Another key issue with regards to loan eligibility is whether students attending private institutions are eligible to borrow in the publicly funded or publicly guaranteed student loan programs. Many governments have decided that loans should be made available only to students in the public sector. The overriding principle of such a policy decision is the belief that public subsidies should be applied only to public tertiary education institutions. A number of governments, however, permit their student loan proceeds to be used by students at private institutions either on the grounds that the government wishes to assist needy students to study at the institution of their choice, or that the governments wish to have public resources flow to the institutions with the higher demand in an effort to reward quality or meeting demand. This latter rationale presumes that the best tertiary education institutions (public or private) will attract the best students. In many Asian countries students are able to borrow for studies in both the public sector and private sector including South Korea, the Philippines, and Thailand. Loan eligibility for students in private institutions is less prevalent in other regions of the world but does exist in a number of countries including Norway, Palestine, Poland, and the US (all programs).

Another way that governments encourage socio-economic equity at private sector institutions is through the application of mandatory grants. The provision of grants and scholarships in private universities is sometimes regulated by the State without direct financial contribution. In Mexico and Syria, for instance, private universities must give scholarships to at least 5 percent of their students to offer access opportunities to low income students. The Philippines also has a long tradition of requiring private institutions to provide enough scholarships or loans to needy students to maintain their accreditation.

A more specialized issue is whether students who are distance learners should be eligible to borrow. The argument for permitting borrowing is simple: distance learners are students who have costs of attendance just as other students do and therefore should be eligible to borrow. If one is serious about promoting the concept of lifelong learning, it is difficult to argue against broad eligibility for distance learners for a wide range of student financial aid programs. One argument against distance learners being equally eligible for student aid programs including loans as more traditional students revolves around the question of how living costs are treated in calculating eligibility. How countries vary in how they treat the living costs of distance learners can produce interesting comparisons. In the US, for example, distance learners are eligible to receive grants and to borrow to cover their living expenses to the same extent as students in more traditional modes of learning.

4.5. Subsidy Levels. The question of whether to subsidize student loans is directly tied to the purpose that the program is intended to serve. Student loans typically serve one or both of two policy purposes: increasing the degree of cost sharing in the system and improving access for the more economically disadvantaged students. To the extent that the primary purpose of the student loan program is to increase cost sharing, subsidies are less justified than in a program designed to increase access for the disadvantaged. This leaves open the question of whether it is better to subsidize borrowers while they are still enrolled as a student based on their family's financial circumstances or to focus the subsidy during the repayment period though an income contingent repayment arrangement in which borrowers with lower incomes do not repay the full value of what they borrowed.

One form of subsidy is for the government to pay the interest of borrowers while they remain enrolled. This subsidy is usually provided to students who meet some form of means test

to prove that they are financially needy and would benefit from additional government support, although in some cases this benefit is extended to all borrowers (at a relatively high budgetary cost). In some instances, this interest-free feature applies only while the borrower is in school; the US and Canada are examples of countries that do not charge at least some of their borrowers interest during the in-school period. Germany is an example of a country that traditionally has not charged interest on its student loans throughout the course of the loan, both while borrowers are still students and during repayment. With recent reforms, New Zealand has now moved to a student loan system to one that is much more highly subsidized throughout the life of the loan.[11]

Another form of interest subsidy occurs when student or parent borrowers are charged an interest rate that is lower than prevailing market-based rates—the government then covers the financial shortfall resulting from this lower-than–normal interest rate or lenders agree to charge a lower than market rate to meet societal obligations.[12] By charging the government rate of borrowing to student loan borrowers, countries like the Netherlands are in effect providing a subsidy to their borrowers. This is done to make borrowing for education more attractive and to reduce the financial burden on graduates.

A third type of subsidy is provided when the governments choose to cover any financial shortfall caused by deferred repayment. Governments sometimes allow students to defer payment on their loans during their period of full-time study. This lowers the financial burden on full-time students who presumably cannot undertake simultaneous full-time employment. In income contingent repayment systems, a common form of subsidy is exempting some borrowers from having to make their income contingent repayments when their incomes fall below some pre-determined level.

To summarize these different kinds of subsidies, student loan programs can be characterized according to whether they carry a relatively high level of subsidy – say, 10 percent of more of the value of the loans provided – or lower levels of subsidy where the value of the subsidy is below 10 percent of the face value of the amount borrowed.

- Means-tested and highly subsidized – Eligibility for subsidies is means-tested and interest

[11] See Usher A. (2005) for a summary of loan programs and subsidies in eight industrialized countries.

[12] Some analyses measure the subsidy as the difference between the student borrower rate and the government costs of borrowing, see, for example, discussion of subsidy levels in Usher, A. (2005). But most economists would argue that the market interest rate, to the extent it can be measured or estimated, is the appropriate standard to use in calculating subsidy levels. There is also a question of which rate to use to calculate the present value of subsidies over the life of the loan; on this question most economists would say that the government cost of borrowing is appropriate to measure the present value of government subsidies.

subsidies exceed 10 percent of loan value. Examples of means tested loan programs that carry a high level of subsidy include: China (subsidized), New Zealand, Philippines (study now pay later), Thailand, US (subsidized)

- Little or no subsidy – In loan programs where eligibility is broad-based, subsidies would typically constitute less than 10 percent of loan value. Examples include China (commercial) or the US (non subsidized)

Guarantees and Insurance. The issue of whether loans charge a 'market rate' of interest is tied to whether the student loans are guaranteed or insured against the risk of default and loss. A true market interest rate on an unsecured loan to a student would be so high that it would essentially be unaffordable to all but a few students in most countries. The market is simply not willing to take such a high risk and charges interest according to the level of risk. That is why most student loans carry some form of guarantee or charge a fee to offset some of the costs of default. It is the government that generally provides this guarantee in order to encourage lenders to develop loan programs at rates attractive to student borrowers and their families; thus, his guarantee represents another form of government subsidy for student loans.

5. Grant / Loan Arrangements. In some countries, a portion of student financial aid is provided partially as grants and partially as loans. The Basic Grant in the Netherlands is one example of such a scholarship/loan program. All regular full-time students are eligible for a basic scholarship that varies with the student's living circumstances; student living with their parents are eligible for a smaller stipend than those living away from home. For all students, the award is initially a loan, but if students demonstrate satisfactory academic progress the loan over time becomes a scholarship. Norway and Sweden are other countries that have introduced scholarship/loan structures.

6. Loan Forgiveness. Another form of loan/grant arrangement occurs when some or all of what borrowers owe on their student loans is forgiven or waived if they accept certain types of employment after they graduate. An example of loan forgiveness is in the US which for several decades has forgiven loan repayments for teachers or doctors who agree to practice in underserved geographic areas such as rural settings or inner cities for an extended period of time.

Typically the loan forgiveness is in the form of excusing a portion of loan repayment for each year of service, often until the full interest and principal is forgiven. In Norway, the government has put in place an internal efficiency incentive which allows part of the loan to be converted to a scholarship if the student finishes his/her studies on time.

3. Assessing the Effectiveness of Innovative Allocation Mechanisms

The underlying reason for governments to contemplate and implement reforms in how they allocate funds for tertiary education is to advance the goals of public policy. The following discussion, summarized in the two charts presented as Annex 2, draws from recent international experience to indicate which allocation mechanisms seem more effective at meeting various important public policy objectives. Basically there are three main policy goals that countries around the world seek to achieve with regard to tertiary education:

- ***increasing access to, and equity in, tertiary education as measured by*:**
  - increasing overall participation rates for students of traditional enrollment age who enter a tertiary education institution in the year following their graduation from secondary school
  - expanding the number and range of lifelong learning opportunities particularly for older students and other nontraditional groups of students including distance learners
  - reducing disparities in participation rates between students from low income and high income circumstances as well as other important dimensions of equity such as gender and racial/ethnic group
  - increasing private sector investment and activity in the provision and support of tertiary education activities

- ***increasing the external efficiency of tertiary education systems by improving both:***
  - the quality of the education provided, assessed in a number of ways including measures of what students learn and how effectively teachers teach
  - the relevance of programs and of graduates in meeting societal and labor market needs
  - the relevance of basic and applied research programs in addressing critical national and regional needs

- ***improving the internal efficiency and sustainability of tertiary education systems by:***
    - reducing or at least moderating the growth over time in a range of measures of funding effort, most especially costs or expenses per student
    - improving how resources are allocated, both among tertiary education institutions and within institutions, to make the system more efficient and sustainable
    - decreasing repetition and raising degree completion rates

Objective 1: Increasing Access and Equity

A fundamental policy issue everywhere is how to increase access to the tertiary education system. In most countries around the world traditionally only a small percentage of the population has been able to benefit from extending their education beyond the secondary level. As governments are evermore concerned with moving from elite to mass tertiary education, they seek a variety of incentives to ensure greater tertiary participation of all levels of society. Although the degree of access has increased markedly in many countries to levels that in some cases do represent mass or even universal systems of tertiary education, ensuring equity remains a constant struggle.

Even in countries that have achieved unprecedented and previously unimaginable levels of access, other equity problems remain including large disparities in the participation rates of different groups of students. Frequent disparities include the differences in participation between students by their socioeconomic status, by gender of the student, and by ethnic/racial differences. Another disparity often exists between students of traditional university age and older individuals who wish to pursue lifelong learning opportunities.

1) Increasing Participation Rates of Traditional Age Students. A fundamental goal in most countries is to increase the participation rates among traditional age students who have satisfactorily completed their secondary education. An examination of the experience in many countries suggests that three overall strategies seem to be most successful in raising the participation rates of these students:

- Growing funding of public tertiary education to increase the supply of seats combined with relatively low tuition fees to stimulate demand. Examples of where this strategy has been successfully pursued and much higher levels of participation have been achieved include most US states in the 1950s and 1960s and a number of Scandinavian countries over the past quarter century.
- Higher fees to increase resources combined with greatly enhanced levels of scholarships and loans to help students and families pay for the higher fees. Countries that have achieved much higher levels of participation by pursuing this approach include the US and Canada over the past quarter century and Australia and New Zealand since the late 1980s.

- Expanding private sectors of tertiary education that reduce pressure on public funding to finance expansion of the system. Examples of this approach include a number of countries in Asia (Japan, the Philippines, South Korea, Taiwan, India), Latin America (Dominican Republic, Colombia, Brazil), Portugal, and a growing number of Middle Eastern and Eastern European nations.

An examination of international experience also reveals a number of examples of financing strategies that have not been as successful in achieving higher levels of participation, particularly among traditional age students. These include countries in which:

- relatively low public funding levels for tertiary education are combined with low fee levels to create elite tertiary education systems with low participation rates by traditional age students.
- moderate overall funding levels combined with high levels of spending per student and low commitment to financial aid result in low participation rates as well.
- low public funding levels, high fees, and low amounts of financial aid to students also tend to lead to elite tertiary systems albeit at high expenditures per student.

2) Expanding Lifelong Learning Opportunities. A trend in many countries over the past several decades has been the increasing proportion of enrolled students who are older than the traditional enrollment age, that is the age when students usually complete their secondary education. This trend toward larger numbers of older students enrolling in tertiary education is a function of many factors. Key among these are the global pressures for participants in the labor market to upgrade their skills and complete periodic retraining over a lifetime, along with the greatly increased availability of distance learning and other educational delivery modes that are more flexible and sometimes more suitable to the needs of older, non-traditional students.

International experience suggests that traditional resource allocation mechanisms such as funding formulas tend not to work well in expanding lifelong learning. Most formulas and other mechanisms that provide direct funding to institutions are generally not designed to meet the specific needs of older students. Demand side vouchers also appear unlikely to promote lifelong learning as it is harder to identify older students and distance learners who would become

potential voucher recipients: such students are quite varied and they are not obvious consumers of tertiary education in any given year.

Perhaps a more effective mechanism to encourage lifelong learning would be for countries to redesign their funding formulas or categorical funds so that they pay a higher premium to institutions according to the level and intensity of their distance learning activities. Under such a system of supply side vouchers, institutions would have the financial incentive to recruit greater numbers of older, non-traditional students.

Demand-side mechanisms that directly fund students would seem to have a better chance of promoting lifelong learning than those that fund institutions, especially student aid programs that are portable and could be better tailored to meet the needs of older students. But most student aid programs are not well designed for older students either – they tend to be primarily intended to meet the needs of traditional age students and their families. Reportedly one of the main reasons why the US Open University launched in the early 2000s failed after only a few years of existence was the lack of financial aid opportunities for its students who tended to be older and non-traditional.

Three examples of student support programs that suggest a greater potential for expanding lifelong learning opportunities are:

- grants and scholarships that provide support for the tuition fees and living expenses of students who are financially independent of their parents
- student loans with liberal eligibility rules designed to serve borrowers from a broad range of incomes and circumstances pay for their tuition fees, including income contingent repayment arrangements that would allow students of all ages repay on the basis of their situation after they complete their education
- tax benefits that are designed to help meet the fees and current expenses of students who are or have been in the work force

3) Closing Equity Gaps for Disadvantaged Groups of Students. Improving the equity of tertiary education is another public policy objective in most countries. It is hard to find any country that does not have some participation gap among groups of students according to their socioeconomic status, gender, religion, ethnicity, race, and/or language. As is the case with lifelong learning, mechanisms that allocate funds to institutions are unlikely to help much in

closing equity gaps in student participation. Negotiated budgets and funding formulas are not conducive to recognizing the special needs and costs associated with educating certain groups of students. One exception could occur with various supply side vouchers when institutions are paid more for certain categories of students such as what England and Scotland do in paying premiums for students from areas with high concentrations of low income families. Thus, proposals to create supply side vouchers in which allocations to institutions are distributed based on student characteristics rather than institutional factors could prove be effective in this regard.

If demand side vouchers are differentiated by income, they also can help improve socioeconomic equity. A powerful model would be one in which demand-side vouchers that pay equal amounts for all students are supplemented by targeted student aid vouchers for needy or disadvantaged students. Under such an approach, all students could carry a voucher to cover a portion of their education and non-education expenses; those students who have demonstrated academic merit and/or high financial need could receive an additional amount of funding through a second voucher that would advance the goals of equity and quality. If not differentiated inversely by family income, however, demand-side vouchers can decrease equity as they would provide no additional resources to students who most need help to pay for the higher fees that might be entailed in implementing such a system. Thus, to be successful in promoting equity, demand side vouchers must be adequately funded and include a substantial student aid component as well.

Debates in most countries regarding the need for greater equity typically recognize that programs providing support to students and their families are more likely to be effective in closing equity gaps than mechanisms that provide financial support to institutions. International experience suggests that need-based scholarships represent the primary policy vehicle used in most countries to close equity gaps. The expectation is that such scholarships help to support economically disadvantaged students to overcome the significant financial barriers they face in continuing their education. This practice has worked well in a number of countries where need-based scholarships have indeed contributed to increased participation rates and helped narrow gaps among various socioeconomic groups.

Student loans are also viewed as a primary means for closing equity gaps in many countries. The general theory underlying this view is that, to be effective in promoting equity, loans must be substantially subsidized to encourage low-income students to enroll. But an

examination of the actual experience in a number of countries suggests that loans with lower levels of public subsidies often are more effective in closing equity gaps. It appears that students from a wide range of socioeconomic backgrounds are actually willing to borrow to pay for their tertiary expenses, as illustrated by the US experience.

How to explain this seemingly counterintuitive observation that unsubsidized loans can be more effective in promoting equity than loans that carry high subsidy costs? First, one must recognize that student loans are implemented for one of two principal purposes: (i) to enhance cost sharing efforts by allowing students to borrow to meet higher fees and other expenses, and (ii) as a vehicle for promoting greater social equity by allowing students with limited family resources to borrow to pay for tuition fees as well as living expenses. The problem is that these two objectives often may be in conflict: student loan programs designed to enhance cost sharing are more likely to focus on alleviating the cash flow needs of middle class students than on providing resources or subsidies to impoverished students. In Malaysia, for instance, where the student loan program has no family income condition of eligibility, a significant proportion of the loans granted have benefited students from wealthy families who take advantage of the 3% concessional interest rate to support expenditures not directly linked to their studies. Second, a student loan program with high levels of public subsidy will not provide loans to as many students as a program with smaller levels of subsidy per loan.[13]

Another explanation of how more subsidies in student loans can lead to less equity could begin with the recognition that most countries simply do not have the public resources to provide the student loan capital needed to fund a student loan program of adequate proportion. As a result, they must rely, at least initially, on private sources of funds such as commercial banks to provide the capital for student loans. The problem with this approach, as international experience indicates, is that private providers of loan capital usually demand high levels of public subsidies in order to provide the initial funding and participate actively in student loan programs. This use of public subsidies in various forms – paying lenders to keep interest rates below market levels and public payment of interest while borrowers remain enrolled – can be very costly and detract from the efficiency of the effort. A number of analysts also make the point that because of political pressures public subsidies in student loans tend to be distributed in

[13] Ziderman. A (2006). "Student Loans in Thailand: From Social Targeting to Cost Sharing," International Higher Education, Number 42, Winter 2006.

less equitable ways than optimal. This reality leads to the conclusion that unsubsidized student loan programs may be more likely to meet the objectives of improving equity and efficiency that the highly subsidized programs that exist in many countries.[14]

Box 6 The Student Loan Experience in Thailand

Thailand provides a good example of a country which is radically changing its approach in student loans based on an initial unsuccessful effort. The student loan program that was established in Thailand in 1996 was viewed as a leading example of an approach in which loans would be used to improve access by targeting loans to low income students with a high level of subsidy during repayment. But flaws in the program design -- including not targeting subsidies well on lower income students, allowing students to borrow mostly for living costs, and allocating loan funds to institutions based on enrollments rather than in a strategic way – led to an inequitable program that failed to meet its intended objectives.

In response, the Thai government decided to introduce a new student loan scheme that is designed more to facilitate cost recovery than to promote access. To do this, it has adopted a plan that draws heavily on the experience in Australia with HECS. Fees would be paid initially by the government and repayment would be conducted by tax authorities and be set as a percentage of income. Access concerns would be addressed through an expanded program of need-based grants. A key issue is whether the substantial differences between Thailand and Australia can be overcome to make this approach successful.

Source: Ziderman. A (2006) Student Loans in Thailand: From Social Targeting to Cost Sharing, *International Higher Education*, Winter.

The US experience in this regard is instructive. Government payment of interest while borrowers remain enrolled applies to borrowers with family incomes in the highest income quartile because of the way in which financial need is defined. In 2000, New Zealand introduced a similar interest benefit for borrowers while in school and more recently extended it to the repayment period; it, too, is poorly targeted on the neediest students and, thus, seems an ineffective policy intervention at least for purposes of improving equity.

One of the advantages of income contingent and other innovative repayment schemes tied to the income of the borrower once they complete their education is that they may be more effective in expanding access to a broader range of the population than up-front interest subsidies that often are difficult to target on the most disadvantaged students. The equity effect of income

[14] This argument can be found, for example, in Barr N., "Higher Education Funding" in *Oxford Review of Economic Policy*, 2004.

contingency is perhaps more powerful because such systems are designed precisely to have the subsidies applied when borrowers need them the most – during repayment.

Utilizing creative financing sources to provide capital for student loans represents another way to increase efficiency without necessarily sacrificing equity objectives. One type of creative financing is to use mechanisms such as secondary markets and securitization to expand the uses of private capital. Another is to use private sources of capital to allow institutions to initially fund student loans by using the fees paid by some students to pay. Still another is having privately funded entities deal directly with tertiary institutions that are willing to receive discounted flow of funds from investors in exchange for immediate cash flow. Policy makers in developing and transition countries should explore these creative financing solutions as they may allow for higher student loan volume than more traditional means of finance.

Tax benefits seem less likely to help in closing equity gaps as they accrue to those citizens who are most likely to pay taxes in the first place. Tax benefits that help students and their families pay for tuition fees and other expenses or tax incentives that encourage more savings for tertiary expenses are more likely to help middle and upper income families. But to the extent that the availability of tax benefits may allow policymakers to focus more need-based grants on the most disadvantaged students, they can indirectly help in improving the equity of the overall support system as well.

4) Expanding Private Sector Provision of Tertiary Education. One of the key issues in developing public resource allocation mechanisms and strategies is whether to permit those public funds to be transferred to private institutions and the students who attend them. One rationale for public support to the benefit of private institutions is that it is less expensive and therefore more efficient for a government to pay for a portion of a private college or university seat than to create and pay for a new one in the public sector. Policy support for these programs in the US is buttressed by studies in several states indicating that students in the public sector have a higher family income than students attending private institutions.

Very few countries provide direct public support of the recurrent expenses of private institutions. New Zealand, Chile, the Palestinian Authority, and a few countries in Asia including the Philippines provide public funds to their private institutions for their recurrent

expenses (mainly faculty and staff salaries).[15] In the US, a handful of states traditionally make payments to private institutions over and above portable student financial aid. New York has the oldest and largest program of this kind; it pays private institutions in the state for every graduate from a private college -- so much for a baccalaureate, more for a master's degree, and more for a PhD. Another way that governments transfer public resources to private colleges and universities is through the use of competitive funding for investment projects. To the extent that demand side-vouchers are made available to students enrolling in private institutions as well as public institutions, in principle they should be a good vehicle for promoting private sector development.

In general, resource allocation mechanisms that support students should be much more effective in promoting private sector development than mechanisms that support institutions, especially loan schemes that focus on helping students pay for tuition fees which tend to be higher in the private sector. In such portable, flexible systems, students may apply the proceeds from their student loans for tuition fees at either public or private colleges and universities. A number of countries provide public support to the students who attend private tertiary education institutions in the form of grants or loans, including South Korea, the Philippines, Thailand, Ivory Coast and the United States. Similarly tax benefits that are designed to offset the costs of tuition fees may be more effective in promoting greater private sector development than tax benefits for living expenses such as family allowances.

[15] In the case of Chile, only a restricted number of private institutions are eligible for this form of public funding of institutions.

Objective 2: Increasing External Efficiency – Improving Quality and Relevance

Another major public policy objective in tertiary education is the improvement of the external efficiency of the system. There are two related ways to consider external efficiency. One indicator is the level of quality that can be measured in a variety of ways. Another way to assess external efficiency is to examine the relevance of the education being provided by the tertiary system – the extent to which the system is meeting the needs of society in general and the labor force in particular. Various resource allocation mechanisms attempt to embed incentives to improve external efficiency.

1) Improving Quality. In most countries, assuring and improving quality in tertiary education is an important policy objective - though the definition of quality can vary widely. At a minimum measuring quality may simply mean ensuring that students are learning. However, some governments seek to ensure or augment the level of academic standards in their tertiary education systems and put in place regulatory or funding mechanisms to ensure that standards are met. In a number of cases quality is defined or measured in terms of spending per student or by completion rates, though in this paper such measures are regarded as indicators of internal efficiency.

In tertiary education policy debates, quality has been largely viewed as a supply concept – one that is strongly in the hands of the institution. Mechanisms that allocate funds to institutions are therefore considered a more direct way to achieve improved quality than mechanisms that allocation funding to students. One very common practice to ensure some linkage between quality and funding is to require tertiary education institutions to have achieved some level of accreditation status as a condition for any resource transfers.

Even with a solid accreditation system in place and with linkage to funding, not all institutional allocation mechanisms are equally effective at ensuring or improving quality. Negotiated budgets, for instance, are not conducive to promoting quality objectives because they are based on static line item allocations. Funding formulas are also considered weak mechanisms for improving quality because there are few if any measures of quality that are readily adaptable to formula components or calculations. Competitive funds and other similar allocation mechanisms are therefore more likely to be effective in promoting quality

improvement because they allow for a more sophisticated assessment of what it takes to improve quality and they can be more easily designed to reward whichever aspect of quality improvement is being sought. The practice of competitive funding also has the added benefit of touching more squarely on organizational behaviors within institutions, creating a strong financial incentive for quality improvement.

Funding mechanisms that support students are typically not considered as effective in ensuring quality as institutional support mechanisms. However, there are ways in which student funding mechanisms can support quality improvements. Merit-based scholarships that reward the best students are the most obvious example of student support programs that can promote quality. It is also widely believed that portable grants and student loans allow students to vote with their feet, and spend their funding allocation at the institution of their own choice. The underlying link to quality is that students will tend to spend their money on the best quality programs whenever possible, thereby rewarding institutions for good performance.

In spite of the various possible linkages between funding and quality, there is little substitute for regulatory efforts such as maintaining admissions standards at selective institutions or creating quality assurance procedures to ensure minimal levels of quality in the teaching and learning functions. A strong quality assurance system forms the bedrock of quality control in any tertiary education system. Funding mechanisms may generally influence improvements in quality at the margins through indirect means, yet they rely on incentives that touch on important organizational behaviors related to quality.

2) Improving Relevance. Although quality is perhaps the most obvious form of external efficiency, ensuring that tertiary education is relevant to the needs of society and responsive to the pressures of the market place is an equally important and related measure of external efficiency. Quality and relevance are inextricably linked as low quality programs are unlikely ultimately to be relevant to employers and other so-called consumers of tertiary education outputs.

A common measure of relevance is to determine whether the graduates of tertiary institutions are meeting the labor force needs of the marketplace. Are institutions graduating students in fields of study that match up well with the demands of employers? Do graduates have the requisite skills needed by the labor market? Similarly, is the research being conducted at universities relevant to the key challenges at hand?

International experience suggests that the goal of improving relevance can be addressed through the transfer of funding to both institutions and students. Several institutional funding mechanisms seem particularly appropriate at improving relevance:

- Priority-based funding formulas that allocate more money for seats in high priority fields of study combined with low tuition fees in those priority fields to encourage greater student demand. In the Netherlands, the three-year non-university professional training institutions (HBOs) have recently been allowed to set up master's programs as part of the Bologna process restructuring. But the government has committed to finance only master's programs in fields that are not already covered by the universities' postgraduate programs, thereby supporting the development of new programs rather than paying for existing ones. Having governments pay more for seats in high priority fields of study can serve as a powerful incentive for institutions to shift resources and attention into those fields, but such allocation mechanisms are more difficult to administer because they require additional data on labor markets that are difficult to collect. It is also difficult to use such data to project into the future labor market needs.
- Competitive funds that include relevance (improved labor market outcomes) as a key criterion in the selection of winning proposals can serve as an important incentive to achieve progress toward that objective.
- Supply-side vouchers are a more flexible tool for promoting relevance than demand-side vouchers because adjusting the prices paid to institutions for seats in relevant disciplines is straightforward. Demand-side vouchers are not well designed to improve relevance because they tend to pay institutions the same amount for each student. Thus, formulas structured as supply side vouchers have a much better chance of improving relevance.

On the student financing side, mechanisms that have a high chance of leading to improved relevance include:

- Scholarships for students enrolling in high priority fields of study.
- Favorable terms and conditions for loans made to students enrolling in higher priority fields of study.
- Loan forgiveness for student borrowers who enter employment in high priority fields or designated areas of public service.

Objective 3: Increasing Internal Efficiency and Sustainability

Increasing internal efficiency and ensuring sustainability is the third principal policy objective in tertiary education. Internal efficiency has several components. One is the need to moderate costs to conserve resources. Another is to maintain or increase the rate at which students complete their programs and receive degrees. These and other measures of internal efficiency ultimately are linked to notions of sustainability - policies will prove unsuccessful if they are not financially sustainable in the longer term.

1) Cost Containment and Moderation. Well-designed funding formulas are one of the most important elements in institutional allocation policies to help ensure overall cost containment and moderation. Funding formulas that utilize average costs per student or normative costs are more likely to lead to a moderation in institutional costs per student than formulas that use actual costs per student. The reason is that basing formulas on actual costs may encourage inefficient institutions to either spend more or restrict enrollments to increase their expenditures per student.

Another way in which resource allocation mechanisms can play a major role in moderating the cost of tertiary education has to do with how funds are distributed among tertiary sectors, a concept that economists refer to as allocative efficiency. One strategy for improving system efficiency is to allocate a disproportionate share of funds to those sub-sectors with lower costs per student. Under this approach, institutions such as community colleges and other types of institutions with relatively low costs per student receive a higher proportion of public funds than their share of enrollments would generally dictate. This was an essential element of the much touted success of the California (US) master plan for higher education in the 1950s and 1960s. By allocating a larger share of funds to low cost institutions, the state was able to leverage average levels of public resources to fund each sub-sector at above average levels, thus building an excellent system of higher education in California. Movement away from this approach is one reason the California system today may not be regarded as being as good anymore as it was in earlier decades.

Performance-based allocation mechanisms such as performance contracts or payments for results also hold the prospect of moderating costs if this goal is included in the contracts or payment agreements. Other institutional allocation mechanisms such as input-based funding or

categorical funds are less likely to be effective in moderating costs because they lack incentives for institutions to increase efficiencies. While institutional mechanisms are likely to be the most effective in containing costs, student support programs can also play a role in achieving this important objective. For example, a student's eligibility for student financial aid –scholarships, loans, or tax credits – should not be tied to their total costs of attendance in order to minimize the potential impact of aid availability on institutional pricing strategies.

The U.S. experience in this regard is instructive. When the G.I. Bill to pay for the higher education of returning military veterans was first implemented after the Second World War, the benefit was intended to cover the total tuition fees that students would pay. To implement this objective, a maximum benefit level was set that corresponded to the highest price then charged by any institution. But many institutions then raised their tuition fees to that maximum level to fully capture this new source of federal funding. The policies of the GI Bill were then changed to provide a monthly benefit of a fixed amount that included living expenses to introduce more of a market test since participating veterans could pocket the difference between the fixed benefit and the tuition fee that was charged. By contrast, the terms of the US federal student loan programs permits students to borrow up to the total cost attending higher education. Some argue that that this availability of loans may have inadvertently contributed to the dramatic rise in tuition fees in the US which grown at twice the rate of inflation for more than two decades while student loan availability has grown ten fold in real terms during that same time. Perhaps for this reason, when tuition tax credits were introduced in the US in the late 1990s, they covered only a portion of the tuition up to a fixed dollar maximum.

One of the strengths of demand-side vouchers when compared to more traditional ways of funding recurrent expenses is that they have the potential of introducing more competition among institutions, thus increasing system efficiency by forcing institutions to compete for students more than under other allocation mechanisms. This kind of competitive mechanism should lead to greater efficiency and lower costs per student, at least in theory.

Supply-side vouchers as a form of formula funding do not appear to stimulate the same market response as demand-side vouchers in terms of encouraging student choice or competition for funds. On the other hand, a supply side voucher in which payments are based on normative costs could be a mechanism that promotes internal efficiency as well as equity.

2) Improving Throughput. Another aspect of internal efficiency is the throughput of the system as measured by degree completion rates or how many students complete the educational program they start, and the speed at which students graduate. As in the case of cost moderation, improving throughput can be achieved through institutional or student financing policies. Unlike cost issues, however, discussions of throughput often focus on what can be done to encourage students to complete their education more quickly. These debates typically address the question of whether student aid should be limited to the normal duration of the course of study.

Paying institutions through funding formulas or separately for the students they graduate can be a powerful incentive to improve throughput rates. However, there is a concern that institutions could sacrifice quality by reducing standards in order to qualify for more performance-based funding. One way to address that concern is to not pay too much for results or to mix payments for enrollment with payments for degree completion. Having adequate quality assurance mechanisms in place is another critical policy means for allowing institutional incentives to work properly.

Supply-side vouchers can also be used to pay institutions more for student performance, thereby encouraging greater throughput. The Governor of Michigan (US) has recently proposed to replace the state's merit-based program of college scholarships with a pledge to automatically give $4,000 to students who complete two years of postsecondary education or apprenticeship training. By paying for graduates or year-end completers, supply side vouchers as a funding formula can lead to improve throughput while demand side vouchers by their nature are more linked to the enrollment decision of students.

3) Ensuring Sustainability. In many countries, especially developing nations, the most important consideration in ensuring that policies are effective in the long term is to ensure their sustainability. The principal kind of sustainability, of course, is a financial one: can a country afford to pay for policies over the longer term? But this issue of sustainability applies not only to financial considerations but also to cultural issues: are the mechanisms that are put in place compatible with the traditions of a particular country or region?

A prime example of this is the question of introducing student loans in a culture that is unused to borrowing for a wide variety of needs including housing and automobiles. In China, for example, when the central government introduced compulsory fees for all tertiary education

students in the late 90s, some universities set up their own student loan schemes to help students from low income families. But there was limited interest on the part of students and their families because there was no tradition of borrowing from "strangers", i.e. people or institutions outside the family circle.

In the case of allocating funds to institutions, a primary issue in countries around the world is whether public funds can keep up with the growth in demand and enrollments. In those instances where the growth in enrollments exceeds the ability of governments to fund this growth, relying on a funding formula based on enrollment may result in a sharp decline in per student decline or enrollment caps imposed by the government.

Australia's HECS program, for all of its success, is an example of a student funding allocation mechanism that may not have been sustainable at least in its initial form. To achieve political feasibility, the government of Australia initially agreed to pay the fees of all participating students with the plan that the repayment stream would be sufficient to replenish these funds except for the forgiveness of the repayments of borrowers with incomes below the average wage. But over time this arrangement proved to be too costly even for a country as wealthy as Australia and the subsidies have had to be reduced over time. This issue of over subsidization arises in a number of student loan programs as reductions of interest rates below market levels and other features are simply unaffordable.

Ghana, which also tried to introduce an income-contingent student loan scheme in the 1990s, encountered similar difficulties. Contrary to the Australian scheme that was linked to the income tax system, in Ghana loan payments were collected through the social security system. But as an increasing number of graduates started to default, the financial pressure on the social security system became unbearable and the government had to abandon the student loan scheme in the early 2000s.

Competitive funds are another example of allocation approach that can enhance long term financial sustainability. While competitive funding mechanisms have often been created as part of World Bank projects or under projects by other development agencies, it is important to ground them in a sustainability plan. Governments need to consider how they will sustain such mechanisms after the project funding is expended. In Indonesia, for example, the government committed to not only include matching funds during the project, but also to gradually transfer to the competitive funding mechanisms a percentage of the government's own investment budget

for higher education. Today about 30 percent of the investment budget for public universities is distributed through a competitive process.

4) Using Performance-Based Allocation Mechanisms to Improve Equity, Effectiveness, and Efficiency. The potential effectiveness of countries shifting to performance-based allocation mechanisms is one of the principal topics of this report. The limited experience with performance-based funding thus far suggests that program design issues are important in ensuring the successful adoption and implementation of policies. Deciding which kind of performance-based funding to use may be the most important decision that will determine success. Issues of program design that policy makers should consider include:

- What proportion of public funds should be based on outputs or outcomes rather than more traditional measures such as numbers of staff or students, or costs per student?
- How many and which measures should be used to allocate performance-based funding?
- Should poor performing institutions be punished or encouraged to do better?

Various kinds of performance-based funding mechanisms have the potential to be effective public policy tools in a number of countries, although so far relatively few countries have adopted this kind of approach. The strengths of performance-based funding approaches relative to other more traditional allocation mechanisms include that they:

- Tend to be more transparent than many other financing mechanisms if performance indicators are publicly developed and readily available
- Allow for greater linkage between funding and public policy objectives
- Encourage greater accountability in the expenditure of public funds by linking results to funding levels

The weaknesses of performance-based funding relative to other mechanisms include that they:

- Tend to be more inflexible in their application
- Can lead to greater year-to-year variation in funding if performance results vary, thus possibly contributing to instability in the system

- May discourage institutional diversity if many institutions collectively pursue similar incentives and often are linked to reduced institutional autonomy in the expenditure of public and private funds relative to other financing methods

In comparing the strengths and weakness of different specific types of performance-based approaches, the following may be helpful for policy makers to consider:

- ***Performance Contracts:***
  - These are the most regulatory of the performance-based approaches and therefore require a strong governmental body to develop and enforce the contracts
  - A key issue of design and implementation is whether the contracts should be established as incentives for good performance or penalties for underachievement
  - Another key implementation issue is that the contracts tend to be difficult to enforce or to use for incentives

- ***Performance Set Asides:***
  - These performance-based categorical funds create more competition for funds among institutions than the more traditional use of inputs.
  - What percentage of funds is set aside on a performance-basis is an important decision
  - Policymakers have to be careful not to use too many indicators and confuse signals

- ***Competitive Funds:***
  - These may be one of the best allocation mechanisms for funding quality improvement and innovation. The peer review process often associated with competitive funds seems to be an effective means for getting institutions to think through their needs and to look for innovative solutions to problems
  - Competitive funding mechanisms are flexible tools because eligibility criteria, calls for proposals, and selection criteria can be altered easily. Governments must be careful to make any changes in a systematic, fully transparent manner and broadcast the information on any changes to the system widely.

- They are typically not good for funding facilities construction or renovation because funding levels of competitive funds tend to be inadequate to meet the full range of facilities needs of a tertiary education system.
- They require more adequate administrative structures to ensure fairness and competitiveness. Competitive funds can put too much emphasis on whether institutions have good proposal writers than on whether they have worthy projects and needs.

- ***Payments for Results:***
  - These are the most market-based performance approach, thus care should be taken to prevent market abuses such as bogus or very low quality institutions being created primarily to be eligible to receive government payments
  - These payments need to be designed so as not to create perverse incentives that would reduce quality, relevance, and efficiency

4. Ensuring Successful Implementation of Innovative Mechanisms

The preceding discussion indicated which generic types of allocation mechanisms tend to be better in meeting the broad objectives of improving access, quality, and efficiency. But this kind of policy assessment may not be sufficient for policymakers trying to decide which specific allocation approach is likely to be most effective in the context of their particular country. The following discussion seeks to identify the critical elements that will ensure a successful implementation of the various innovative allocation mechanisms.

In considering the applicability and appropriateness of different allocation mechanisms, particularly in the context of a developing or transition country, policymakers should raise and seriously address three critical questions related to the process of implementation, including:

- the administrative capacity of the government and the tertiary education institutions, including the degree to which different mechanisms promote flexibility of institutions to change and adapt rapidly and the capability of the system to collect necessary data;
- the transparency and perceived objectivity of the proposed allocation mechanisms and the potential for leakage and corruption of the system; and
- the political dimensions of adopting new or reformed allocation mechanisms, particularly the risks and difficulties involved in the transition from existing to new approaches.

In addition to addressing each of the three questions listed above, policy makers should also seek to prepare for possible unforeseen and often unpredictable consequences of implementing reforms in allocation policies. All of these issues are addressed below.

Gauging the Administrative Capacity of Government and Institutions

Simply put, a key implementation issue is whether governments and tertiary institutions have the capacity to administer whatever set of policies are enacted. This question of administrative capacity covers a broad range of issues, including the size and experience of staff in administering similar programs and the capacity to collect and process accurate data. This question applies to a series of allocation mechanisms for both institutions and students.

In terms of funding institutional activities, negotiations between government and institutional officials are not only the most traditional way of paying for recurrent expenses and capital investment, they are also the type of allocation mechanism that is easiest to implement. Negotiated budgets involve representatives of the government and the institutions meeting to determine how public funds are to be allocated. Categorical funds also tend to be relatively easy to administer, especially if the criteria for selecting institutions to participate are straightforward.

By contrast, funding formulas require greater administrative capacity than either negotiated budgets or categorical funds, in large part because they rely on accurate data to produce the appropriate allocation figures. For example, it would not be advisable for a country to move to a formula based on actual costs per student if those cost figures are not regularly collected or verifiable. Formulas based on average costs or normative costs tend to be easier to administer because they do not require as much detailed information from institutions as actual cost figures.

As a general matter, the availability of appropriate data is a critical element for success of any performance-based allocation mechanism. Funding formulas work best when the measures used to allocate financial resources to institutions are readily available and easily verifiable, and there is agreement about the relationship between the measures used and the results sought. In Argentina, for example, when the government started to reform the tertiary education system after 1995, audits revealed that several universities had inflated their enrollment figures to receive more funding. In the following years, a comprehensive management information system was designed and introduced within the context of a World Bank-supported project to provide the entire university system and the government with adequate and reliable information to monitor progress in reform implementation.

As noted in earlier sections of this paper, demand-side vouchers represent a real innovation n financing. A primary strength of demand side vouchers relative to more traditional funding approaches is that they can expand the choice of students through enhanced competition, thus encouraging greater access and internal efficiency, as well as more private sector development if vouchers are made available to students who enroll in private institutions. One weakness of demand-side vouchers, however, is that they are more difficult to administer than more traditional allocation approaches such as negotiated budgets or funding formulas, thus possibly adding to system inefficiency. For instance, the process of identifying eligible students before they enroll in order to provide them vouchers requires a much stronger government structure than more traditional approaches that allocate funds directly to institutions. Another key to the successful implementation of demand side vouchers is the provision of adequate information to consumers. Demand side vouchers are more likely to be effective if students have a good knowledge of their educational options. Supply side vouchers, however, are easier to administer because of the direct relationship between the government and tertiary education institutions.

The administrative capacity of governments also is a critical variable in determining the potential success of various schemes that involve payments to students. Two particular issues with regard to administrative capacity are the possible use of student aid vouchers and determining the means of repayment of student loans. Both of these allocation mechanisms require a strong governmental structure in order to be successful.

Student aid vouchers represent an important policy alternative as they hold the promise of improving access, choice, and competition relative to institutionally-administered aid programs. While vouchers offer a number of advantages as a means for providing student financial aid, many developing and transition countries simply may not be in a position to use them as a means for providing student grants and scholarships. The conditions for successful implementation of student aid vouchers and other demand-driven approaches include:

- strong governmental structures as administrative requirements are high;
- good quality assurance procedures to prevent the proliferation of low quality institutions and programs in response to the availability of vouchers; and
- good information systems to allow students to take advantage of real choices afforded by vouchers

It is also important for policy makers to recognize the weaknesses of vouchers as a means for providing student aid. Vouchers tend to place higher administrative responsibilities on governments than decentralized student aid programs that institutions administer. Moreover, for tuition fee and aid policies to be well coordinated, which is an important condition for successful implementation of policies, tertiary education institutions should have at least some discretion in deciding which students receive aid and how much aid they receive. For these reasons, many developing and transition countries may be better served by relying on their tertiary education institutions to administer their student aid programs than moving to a voucher system despite its several advantages in promoting greater choice, competition and system efficiency.

In order to ensure that student loans are effective policy tools, policy makers must address and resolve a number of key issues entailed in implementation, including source of funds, levels of subsidy, and the means of repayment. Perhaps most important, student loan agencies need to have the capacity to calculate and monitor the debt accumulated by its student clients. For example, in Venezuela, during the years of transition from a grant to a student loan agency in the early 1990s, the Student Loan Foundation FUNDAYACUCHO often was unable to tell graduates returning from their overseas studies how much they owed.

A second, critical determinant of successful implementation of student loan schemes is to utilize repayment mechanisms that best fit the situation of the country. Putting a student loan program in place without a reasonable expectation that the loans will be repaid sharply reduces the credibility of the effort as well as its financial sustainability. A more effective approach for achieving adequate repayment levels is to have the government collect from student borrowers once they complete their education through their tax systems on an income contingent basis. The conditions for success of income contingency include: strong government structures to administer the program; viable tax structures to collect income-based repayments, and adequate public resources to wait for the income-contingent repayment streams to materialize and be returned (with interest) to the public treasury. Few developing countries (and not that many industrial countries) can meet these criteria for successful implementation of income contingent repayment of student loans.

Without these conditions, countries may need to rely on more traditional amortized repayment arrangements, with banks or other private sector entities with experience in debt

collection being responsible for loan servicing and collection.[16] This private sector servicing of loans can best be accomplished in one of two ways: either the banks or private entities own the loans and service them within proper industry norms or through government contracting of servicing to private firms that submit competitive bids. Student loans serviced and collected by banks or other private entities in accordance with generally accepted processing procedures often have the best chance of achieving levels of repayment acceptable to investors. But many developing countries do not have a banking sector or other private groups with a reasonable chance of achieving repayments that are both financially and politically acceptable. There is also the question of whether the income of young graduates is sufficient to repay the level of loans they may have borrowed. In many countries, the answer to this question is no.

Thus, for many developing countries, the two principal ways of ensuring adequate repayment levels may not be realistic options. For these countries, if student loans are viewed as an important component of their financing strategy for tertiary education, then identifying private firms with international experience in capitalizing student loans and providing the necessary repayment services may be the only realistic way to implement an effective student loans program.

[16] The convention in loan administration seems to be that servicing refers to the regular repayment of loans whereas collection is the activity that occurs when loans are in arrears or have been defaulted.

Ensuring Transparency and Objectivity

One of the key elements in successfully implementing various public policies is that they are transparent to all stakeholders including students and their families as well as faculty and institutional officials. Transparency is critical to achieving the other objectives for successful implementation discussed in this section, especially reaching an adequate degree of political agreement. Without transparency in the allocation of funds to either institutions or students, policies ultimately will fail to achieve the objectives of increased equity, quality, and efficiency. A related aspect of transparency is to minimize the potential for corruption in the expenditure of funds. Even for well conceived policies, if the perception or reality is that funds are not being distributed in a fair and acceptable way, then the policy is likely to fail.

There is considerable variation in the transparency of institutional allocation mechanisms. One of the greatest weaknesses of negotiated budgets is their lack of transparency as the criteria for how funds were distributed are typically unclear to all but those involved in the negotiations. By the same token, one of the strengths of moving from negotiated budgets to funding formulas is that formulas by their nature tend to be more transparent than negotiations that typically are conducted outside of public view.

The biggest risk of corruption may be in the distribution of funds through categorical funds of one form or another. The risk is greatest if the criteria for how funds are to be distributed are unclear or if certain institutions are able to 'game' the system to increase the level of their allocations. While it is more likely to occur in poorly performing programs or policies, it can also occur in policies that are relatively strong. One example is federal research funding in the US which is highly regarded as a model of peer reviewed projects. But more than a decade ago, widespread revelations that some of the best research universities were improperly charging for the indirect costs of doing research severely undercut the credibility of this longstanding activity.

With regard to transparency, the policy question frequently raised during implementation of student aid programs is the capacity to determine a student's and family's ability to pay for tertiary education. Should the process be a simple one, asking only a few questions to determine family resource levels, or should the determination of eligibility for student aid be a more

complicated process trying to make sophisticated distinctions among families as a means to achieve greater equity in the distribution of financial aid?

Defining eligibility for aid is an important question that policy makers in many countries may not have addressed in a systematic way. The options range from a simple system in which a few key verifiable questions are asked of students and their families to much more complex systems in which application forms can consist of many pages and detailed instructions. Simple systems can be found in a number of countries where students and their families petition for aid and are asked a limited set of questions about their own and their family's financial circumstances, including possibly income or wages. Often, though, the questions asked may not relate directly to income but rather to lifestyle issues that help to define a student's economic circumstances.

The US is an example at the other end of the spectrum with aid application forms that number many pages and which may require substantial amounts of time to complete. Some Catholic universities in the Philippines have used a complex system on the assumption that only needy students would be motivated enough to go through the time consuming process of filling the lengthy application form; that approach was reinforced by random checks of the veracity of the declaration by social workers visiting the family home of the applicants.

Compliance is another key issue with regard to the successful implementation of student aid systems. If students and their families come to believe that they can manipulate the results by providing inaccurate answers, the aid system will lose credibility over time. To ensure greater compliance and accuracy, especially in countries with weak or nonexistent tax systems or large black market economies (where income cannot be easily verified), officials in most countries should strive to establish relatively simple systems that require easily verifiable information. Examples of such questions include what high school did the student attend (especially if schools are ranked by the socioeconomic profile of their students or in countries with a significant proportion of students enrolled in private institutions), where does he/she live (if postal codes are ranked by low income concentrations), whether the family owns a car, has indoor plumbing, or even the size of the family's electricity bill.

While complexity of the aid process can yield additional equity in making greater distinctions among the capacities of students and their families to pay for tertiary education, most developing and transition countries are probably better served by opting for simpler aid systems

that ask fewer questions and make less sophisticated distinctions. Complexity can be a substantial barrier to greater equity if students and their families are intimidated by the aid application process.

Addressing the Political Feasibility of Reform

Achieving political agreement among a broad range of stakeholders is another critical component in the successful implementation of tertiary education policies, especially financing reforms. One of the chief issues with regard to the political feasibility of implementing possible reforms is the degree of displacement or disruption in how funds have been traditionally allocated. The potential for large-scale disruption exists for both institutional and student allocation schemes. The success of implementing policies that entail redistribution of funds is directly proportional to the ability of ensuring smooth transitions from old to new policies.

The imposition or substantial raising of fees is the clearest example of a politically explosive tertiary policy that creates large transitional issues. But fees are more of a resource mobilization strategy and therefore fall outside the scope of this paper on allocation mechanisms. There are, however, a number of allocation mechanisms for both institutions and students that also result in large-scale changes in the distribution of funds and therefore raise substantial transitional issues.

When looking at institutional funding patterns, a primary disruption can occur when funding methodologies are altered. For example, when moving from negotiated budgets that tend to favor the most politically entrenched institutions to categorical funds or funding formulas that provide greater percentages of funds to institutions that are less well entrenched politically, it is important to recognize the difficulties that these changes may produce for institutional budgets of the most favored institutions. Similarly, changes in the components or the weighting of different elements of a funding formula can lead to the redistribution of funds among institutions. Moving from a system in which actual costs per student are reimbursed to one in which normative cost calculations would become the standard for allocating funds means that less efficient institutions with higher than average costs per student will most likely lose in the share of funds they receive while those institutions with relatively low costs per student will gain. This is exactly what happened in Colombia after the government modified the funding formula in 2004 to introduce elements of performance in the allocation criteria. Up to 12 percent of the budget was going to be distributed on the basis of performance indicators such as degree

completion time and dropout rates.[17] But three universities filed a complaint with the Constitutional Court which reversed the government's decision in 2005 and even forced the State to reimburse these universities for the "lost" income.

To deal with these disruptions, it may be advisable to introduce 'grandfather' provisions or minimal funding levels that guarantee all institutions a proportion of the funds they would have received under previous arrangements at least for some period of time. In the extreme, institutions could be assured that they would not lose funds for a sustained period of time to increase political acceptability. Under this approach, change would come through any growth in funding being distributed on a different basis than existing funding patterns. This is how it was done in Pakistan, where the newly established Higher Education Commission (2002) designed a funding formula to replace the traditional negotiated budget system, with an equalization component intended to compensate for past disparities in budget allocations. To avoid antagonizing the more powerful universities that would lose under the new formula, the equalization part of the formula was applied only to the additional resources during the first two years. But as of 2006, the new funding formula is applied to calculate the entire budget allocation.

Another aspect of political feasibility occurs when political pressures are introduced into systems that previously were largely insulated from the political process. The history of the FIPSE competitive fund in the US, as described in the box below, provides a good example of how politically neutral organizations can become politicized and as a result may lose credibility in the broader population.

Neutralizing political pressures also is the reason why it is important for countries to have a strong buffer body to make allocation decisions while leaving decisions on the level of funding to the appropriate political bodies. Funding formulas are likely to be more successful in meeting policy objectives if they are well insulated from the political process. This is why it is preferable to have buffer bodies decide on the allocation of funds once the more politically charged individuals and organizations have decided on the overall level of funding.

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[17] Uribe, C. (2006). "New Developments in Colombia's Higher Education." International Higher Education. Number 42, Winter 2006, pp. 20-22.

Box 7. Fund for the Improvement of Postsecondary Education (FIPSE)

Possibly the first competitive fund in the world for tertiary education was the Fund for the Improvement of Postsecondary Education (FIPSE) established in the US in 1972. FIPSE, which has awarded grants to institutions or individual faculty members on a highly competitive basis for projects that promote innovation in teaching and research, operates as an office within the federal Department of Education. But FIPSE has traditionally been granted more flexible hiring and operational practices than the rest of the Department, including hiring faculty and institutional officials on exempted and limited term basis rather than as civil servants. In its more than three decades of existence, FIPSE has established a reputation for independence within the federal structure and as a constructive and effective means for stimulating innovation and quality improvement in the higher education community. However, one of the more disturbing trends in the past decade to many observers is the increasing tendency of Congress, the legislative branch of government, to designate specific projects for funding as part of the legislative appropriations process. This dramatic increase in "earmarked" projects has greatly increased funding of FIPSE but at the cost of less insulation from the political process and reduced credibility as an independent agency.

An important lesson is that it is much easier to impose redistribution measures when there is additional funding than when it is carried out under a constrained budget. When the Minister of Higher Education attempted to change the funding formula in the Netherlands in the early 1990s, with the objective of reallocating resources from the oldest, richest universities to the younger, less favored universities, the former revolted and sued the Ministry. The courts sided with them and the Minister had to drop his plan. By contrast, Pakistan's recent reform to replace the traditional negotiated budget with an objective and transparent funding formula that includes a compensatory element has been accepted much more easily by the universities because the reallocation process concerns only the additional funding part of the tertiary education budgetary envelope.

In the area of support for students, one of the most politically controversial issues in many countries is the distribution of funds by the socioeconomic status of the recipients. Whether the benefits of student aid programs are well targeted on low income students and other groups of underserved students helps to determine the success of their implementation. Student aid programs in most countries when initially begun are intended to help students from the lowest economic strata to increase their rates of participation. But over time there is a tendency for benefits to be stretched up the income scale to gain greater political acceptance from middle

class voters or the political elite. In many francophone African countries, for example, scholarships tend to be given to all students for lack of political will to fight corruption and nepotism. This kind of shift often results in higher financial costs at the expense of effectiveness in achieving greater equity in the tertiary education system. Thus, in this case and many others, making policies more politically acceptable may detract from their effectiveness in meeting the objectives they were supposed to address.

Anticipating Unintended Consequences

One of the most frequent barriers to the successful implementation of policies is the inability or unwillingness to consider the full range of possible consequences of enacting reforms or changes in existing policies. It is therefore important for policy makers to try to anticipate possible consequences both in the policy development process and in the putting together of implementation plans. In the arena of tertiary education, there are many examples of unintended consequences both in the funding of institutions and in providing aid to students and their families that ought to be considered.

In terms of funding institutions, there are a number of instances in which policies designed to achieve one goal may have unexpected adverse consequences on another important objective. Take, for example, those countries such as the Netherlands or England that have developed funding formulas in which institutions are paid for the number of students they graduate or complete a year of study rather than on the basis on the number of students who enroll. An obvious concern that should be monitored is that such a shift does not result in reduced quality as institutions seek to gain more funding by lowering their standards and graduating more students or allowing more students to complete their year of study. Another unintended consequence is when institutions choose to compete more aggressively for the top ranked students rather than seeking to improve the quality of the overall pool of students. By the same token, there should also be a consideration of whether the traditional policy of paying institutions on the basis of the number of students who enroll contribute to degree completion rates that are lower than in countries where funding is provided or distributed more of a performance basis.

For mechanisms that support students, a number of adverse consequences also exist that should be anticipated and avoided if possible. One concern is that insufficient supply of seats will blunt the effects of increasing demand by lowering the net price that students face through the provision of student aid. If seats are too limited, financially needy students will likely lose out to students with more family resources who also may have better grades or other measures of academic achievement.

Another concern with providing student aid in many countries is that institutions might raise their fees and other prices more if aid becomes more readily available. This has been a hot

topic of debate in the US for nearly a quarter century as fees and other charges have grown at more than twice the rate of inflation at the same time that the volume of student aid, particularly loans, has grown multiple fold. In the US, those who make this connection point to the correlation between aid availability and price hikes while those on the other side make the point that no causal relationship between prices and aid availability has been established in the literature.

Similarly, students might choose nicer life styles if student grants or loans that pay for living costs are not capped or if the amount provided is sufficient to allow for excesses. In the late 70s, for example, Venezuelan students benefiting from a generous FUNDAYACUCHO grant to study in the North America were known by university administrators in the US or Canada as "the richest students in town". The rapid growth in debt burdens in New Zealand has been largely fueled by the amount that students are borrowing to pay for living costs, and the exodus of university graduates (perhaps more perceived than real) to avoid their student debt repayment obligations would surely qualify as an unintended consequence of the decision to raise fees in the early 1990s and rely on student loans to pay for the additional cost recovery. Another not fully anticipated effect from the US experience is the apparent shift of institutional discounts up the income scale as many universities and colleges are increasingly relying on government funded aid to meet the needs of the most disadvantaged students, thereby enabling institutions to use their own aid to 'market' to middle income students.

These possibly unforeseen effects apply to more than strictly financial considerations. For example, if a scholarship program does not require recipients to maintain satisfactory academic progress towards a degree, then one might find students dropping out of school prematurely or with little intent to graduate. Similarly, relatively low tuition fees might allow students to take longer to graduate or to drop out of school as the size of the amount invested in the student by the family or the student is relatively small.

One of the primary responsibilities of policy makers is to try to anticipate these possible adverse effects of new policies and to take the steps necessary to offset the negative incentives and consequences. Maintaining quality in the face of payments to institutions on the basis of the number of students who graduate might require maintaining adequate academic standards. Or it could entail not paying institutions "too much" for their graduating students, thus reducing the degree of financial incentives arising out of such a policy. In the case of possible 'price' effects

of student aid, one policy response would be to provide student aid only for a portion of the fees and living expenses rather than covering the total costs of attendance as is often the policy in place.

5. Conclusion: Some Lessons Learned

Many reforms and innovations reviewed in this paper are very recent, as a result in-depth impact evaluations have yet to be conducted. Nevertheless, the experience of a number of countries over the past two decades provides a set of preliminary, lessons that can help policy makers formulate strategies for increasing the effectiveness of resource allocation mechanisms.

- ***Rely on a combination of resource mobilization and allocation mechanisms to achieve the desired policy objectives***.

  A primary lesson from international experience in recent decades with resource mobilization in tertiary education is the importance of not relying on a single source of funding. The growing diversity of funding sources has been an important and effective response by many governments and institutions to the mismatch between demand and resources. Similarly, it seems clear that most countries should rely on a mix of allocation mechanisms to achieve the objectives they seek for their tertiary education systems. Funding formulas appear to be a good instrument for allocating core resource levels but may not be as good at rewarding quality or stimulating greater equity. Student aid programs often are the best mechanism to help promote better access and equity, but they should not be relied upon exclusively for achieving this important objective. Policy makers should also explore innovative ways to use institutional allocation mechanisms to improve equity of the system. By the same token, improving quality and relevance should not be the sole province of institutional allocation mechanisms. There are several ways in which student aid can be used to improve both quality and relevance as well.

- ***Consider adopting performance-based mechanisms to achieve better results in tertiary education.***

  The experience with performance-based allocation mechanisms in various countries over the past decade or more suggests that tying policies to results can have the beneficial effect of improving key indicators such as degree completion rates or lowering costs per student below projected levels. This is perhaps the most telling trend examined in this paper – tying the distribution of funds to institutions or students to performance measures

can make a real difference in the ability of tertiary systems to achieve the goals of improved equity, quality, and efficiency. Whether the policies achieve this potential appears to depend in large measure on how the policies are designed and which performance mechanism is adopted. Competitive funds seem well suited for promoting innovation and quality improvement, performance contracts represent an improvement over negotiated budgets in defining the financial relationship between institutions and governments, while paying for results through funding formulas or other arrangements can positively change the incentives for institutions to improve equity, relevance, or efficiency. By the same token, a chief concern in adopting performance-based procedures should be to avoid adverse consequences such as reduced quality that might result from efforts to provide incentives for greater access or throughput.

- ***Choose the most appropriate mix of allocation instruments to meet the policy objectives sought.***

  While linking allocations to improving equity, quality, and performance should be a guiding principle, the selection of allocation instruments must depend in great degree on the balance of policy objectives being sought. As discussed in the paper, some allocation mechanisms are much better at achieving certain objectives than others. In general, the particular circumstances of the country matter a lot in determining the most appropriate set of allocation mechanisms on which to rely. What works well in one country will not necessarily work well in another. Many allocation mechanisms require strong government structures and adequate public resource bases to be effective. Many developing and transition countries lack these basic essentials and thus must look to other approaches that do not have these requirements for success. Even industrial countries often lack the policy structures and resources bases that make certain approaches work in other countries. In some cases, changes within the institutions themselves are needed to accompany the effective implementation of new allocation mechanisms. Furthermore, what worked well at a given moment in time may not be adequate anymore ten years later to address a different set of policy challenges and objectives.

- ***Be careful in defining and prioritizing the policy objectives that are being sought***.
  Policy discussions in many countries tend to devolve into general discussions of the need for more access or better quality or greater efficiency. Without precise and accurate definition of the objectives being sought and the indicators that can be used to measure progress, these policy discussions can easily slide into advocacy exercises in which more of everything is better, with little or no prioritization of goals or objectives. These kinds of discussions are ultimately disappointing and counter productive as they fail to inform policy makers with a plan for making the inevitable tough choices about how to utilize scarce resources most effectively.

- ***Avoid linking allocation mechanisms and systems of quality assurance and performance too rigidly.***
  Governments should be cautious and not try to establish too rigid a relationship between the results of evaluation / accreditation and performance and the amount of funding going to tertiary education institutions. A related concern is that too much emphasis may be placed on achieving certain performance measures with the result of diminished quality or equity. A more effective approach may be to make participation in evaluation and accreditation exercises or achievement of certain performance measures a criterion for access to additional public funding, rather than a determinant of the amount of that funding. Argentina, for instance, linked eligibility to the Competitive Fund to participation in the accreditation process. Chile has just introduced a new law to extend the eligibility of student loans to students enrolled in private tertiary education institutions that have accepted to participate in the accreditation process.

- ***Guarantee stable funding over the medium terms***.
  Any allocation mechanism such as a competitive fund or a performance contract that guarantees funding over several years is preferable to year-to-year allocations. Multi-year funding allows tertiary education institutions to plan their investment and reform programs over the medium to longer term in accordance with their strategic plan. To avoid the political fallout that can occur from large scale shifts in the distribution of funds

that often are the result of reforms, policymakers should consider 'grandfather' provisions to produce more gradual shifts or using new funds to implement reforms.

- ***Address the political feasibility of reforms through appropriate expert studies, stakeholder consultations, public debates and press campaigns to minimize the risks of opposition and resistance***.

  Many financing reforms, including establishing or increasing tuition fees, replacing grants and scholarships with student loans, or authorizing private tertiary education institutions to operate are controversial measures. Political difficulty should not be used, however, to delay implementing important and necessary reforms.

- ***Make anticipating the unforeseen consequences of policies a key component of the implementation process.***

  An examination of the experience in many countries indicates that policy makers tend to shift their attention away from policy areas once policy decisions have been taken and before implementation has begun. This tendency contributes to the situation where the unintended consequences of policies detract from their eventual effectiveness in addressing the critical goals of improving equity, quality, and efficiency. One way to deal with these unanticipated consequences is to build models and other analytic techniques that might predict the direction and the magnitude of these consequences, and to rely on monitoring systems that allow policy makers to identify problems early on and make the necessary adjustments.

6. Annex 1 – Typology of Allocation Mechanisms

Type of Allocation Mechanism	Examples of Where Practiced
I. Direct Public Funding of Institutions – Countries typically provide public support of institutions to finance: their instruction, operations and investment expenses, including recurrent expenses and for a variety of specific purposes; and university-based research.	
1. Funding instruction, operations and investment – Countries use a number of different approaches to help institutions pay for expenses related to instruction and operations as well as financing capital investment. These payments of public funds generally apply only to public institutions, although in a few countries private institutions also are eligible for this type of support.	
1.1. Negotiated or ad hoc budgets – Allocations of public funds are negotiated between government and institutions and thus are largely a function of historical or political factors, either the amount received the year before or the political power of the institution. Negotiated budgets typically are allocated to institutions either as:	The most traditional form of funding recurrent expenses, still in effect in many countries
i) Line-item budgets – Negotiated budgets often are implemented through line-item allocations to institutions.	Nepal
ii) Block grants – Providing a single block grant to each institution is another way that negotiated budgets can be implemented.	Malaysia
1.2. Categorical or earmarked funds – More traditional form of funding in which categories of institutions are designated as eligible for funds for a specific set of purposes; these funds may often be distributed on a formula basis among the designated institutions	Title III program in US, funds for predominantly black institutions in S. Africa
1.3. Funding formulas – Many countries now use some type of formula to allocate funds to institutions for their recurrent expenses. These formulas vary on the basis of what factors are used in the development of the formula and what type of organization develops it. The factors used in determining funding formulas include:	
i) inputs such as staff or students – Most funding formulas contain a component based on inputs such as number of staff or students	
- *staff* - Once the most typical funding formula, based on inputs such as the number of staff or staff salaries at each institution, and occasionally other more sophisticated measures such as number of professors with a PhD.	No longer the most frequently formula, still used in some countries, especially in Eastern Europe
- *number of students* – More typical formula, based on the number of students rather than the number or qualifications of staff. Enrollment figures used can be retrospective (actual) or projected	Countries with formulas use some measure of number of students as a key component for making allocations

Type of Allocation Mechanism	Examples of Where Practiced
ii) costs per student – Most funding formulas now are based on the number of students enrolled multiplied by one of the cost per student calculations described below:	
- *actual costs per student* – The most traditional way to allocate funds to institutions based on actual costs per student as reported by the institution	Actual costs are used in funding formulas in most countries
- *average costs per student* – Allocations to institutions based on system-wide average costs per student, usually calculated from aggregate statistics on spending and enrollments	Some countries use average costs per student in their funding formulas
- *normative costs per student* – Allocations are based on the calculation of normative costs, using optimal staff/student ratios and other standardized efficiency measures	Bulgaria, Czech Republic, England, Hungary
• *benchmarking* – One form of normative costs in which the cost figures and structure are pegged to a 'benchmark' inst or set of institutions	Kentucky (US)
• *Charge back arrangements* – In cases where funding is based on prospective estimates of student numbers and/or costs, allocations are reviewed mid-year to reflect reality and funding levels are then adjusted	Most countries w/ formulas based on prospective enrollments use charge-backs
iii) Priority-based funding – Formulas where adjustments are made to reflect national and regional priorities such as critical labor force needs; also referred to as funding for relevance, e.g., a price higher than full cost might be paid to institutions for seats determined to be in high priority fields of study.	England inserts priorities into part of its funding formula; selected US states also make similar adjustments
• *Student-based allocations* – One form of priority funding, funds could be distributed to institutions based primarily on the characteristics of the students who enroll instead of the more traditional institutional characteristics such as costs/student; this kind of formula could be referred to as 'Supply side' vouchers	England and Ireland pay institutions more for low-income students they enroll. Jordan and Palestinian Authority have proposed student-based allocations.
iv) Performance-based formula components – Performance measures are built into funding formula, e.g., institutional allocations are based on the number of year-end completers or degree recipients rather than the number of students enrolled.	Denmark, England, Israel, and the Netherlands base all or some formula on end-of year completers or graduates
Organizations developing formulas. Another important consideration in describing the use of formulas is what kind of group develops the particulars of the formula. Two basic options include*:*	
• *political entities* – Entities run by politically elected officials design and operate formula and allocate funds.	This is the approach in most countries around the world
• *buffer bodies* – Groups known as buffer bodies develop refine the formula and allocate funds. These buffer bodies represent the link between governments and institutions and are intended to insulate the funding process from excessive political pressures	Pakistan, England, India and Sri Lanka have higher education buffer bodies. New Zealand and now Ireland have tertiary education agencies.

Type of Allocation Mechanism	Examples of Where Practiced
1.4. Performance-based funding - A number of countries in recent years have adopted performance-based funding mechanisms to fund all or a part of operating budgets or capital investment. Four types of performance-based funding are:	
i) Performance set asides- A percentage of funds outside of the basic funding formula are distributed based on a set of performance measures. Typically only a small portion of funds for recurrent expenses are distributed on this basis; although in a few cases most funds are allocated based on performance measures.	South Africa; more than a dozen states in US, including Missouri, New Jersey Tennessee, South Carolina, and Ohio
ii) Performance contracts – Regulatory agreements between governments and systems of institutions or individual institutions in which various performance measures are used to benchmark progress. These contracts are typically more punitive than incentives as institutions would be penalized for not meeting the agreed upon performance-based standards.	France, Finland, Denmark, and Austria now have contracts. Colorado and Virginia in the US are also implementing contracts.
iii) Competitive Funds – These are usually funded on a project-by-project basis, typically for the purposes of improving quality, promoting innovation, and fostering better management – objectives that are difficult to achieve through funding formula or categorical funds	Argentina, Bolivia, Bulgaria, Chile, Ghana, Hungary, Indonesia, Mozambique, Sri Lanka, US (FIPSE)
iv) Payment for results – A small number of countries now pay for performance results in one of the two ways:	
• *Performance-based formula components* – discussed above in1.3.iv	Denmark, England, Israel & the Netherlands
• *Fees for services*- Institutions enter into contracts with governments to produce certain numbers of graduates and are paid based on whether they meet the contract specifications	Colorado implementing system to pay for each post-baccalaureate student enrolled
2. Funding of Research – A number of arrangements exist around the world for allocating funds to support the conduct of university-based research including overhead costs. These arrangements include: funding instruction and research together, block grant funding, and project funding.	
2.1. Instruction and research funded together – Perhaps the most common approach for funding research, some of the funds that governments provide to institutions are used to pay for research rather than for instruction and operations	Many countries fund research and instruction together via negotiated budgets or formulas
2.2 Research Project funding – faculty or other staff receive funding for research for proposed projects, usually based on peer reviews	US federal funding of research
• Matching funds – governments provide funds for specific purposes if matched by institution or private sources	Singapore, New York (US)
2.2. Block grant funding for research – Institutions receive a block grant allocation specifically for research activities but typically not differentiated or specified by project; institutions or faculties set priorities. The size of the block grant may be based on:	

Type of Allocation Mechanism	Examples of Where Practiced
- *Institutional demonstrated capacity* – Block grants in which the amount of funding provided to each university is based on an assessment of its collective faculty's capacity to conduct research – 'blue skies' approach	England, Scotland, Australia (proposed)
- *Centers of research excellence* – Block grants to particular institutions that specialize in certain fields of research	Chile, China, New Zealand, Netherlands, South Korea, Venezuela

Type of Allocation	Examples of Where Practiced
II. Support of Students / Indirect Funding of Institutions While most public support of tertiary education around the world is directly provided to institutions, in many countries a growing share of public funds are provided to students and their families in the form of grants and scholarships, tax benefits, and various types of student loans. Students may also be the vehicle for indirect support of institutions in the form of demand side vouchers.	
1. 'Demand Side' Vouchers – Public funds in support of the operating expenses of institutions are distributed to students in the form of vouchers; institutions then are reimbursed by government based on number and/or amount of vouchers they submit	Colorado (US) now uses vouchers to pay recurrent expenses of undergraduate students. The Republic of Georgia is considering a similar system.
2. Government Grants and Scholarships – Most countries provide non-repayable aid to their students, but how this aid is provided varies on a number of dimensions, including: how the programs are administered, which students are eligible, and which expenses are covered.	
2.1. Program administration – A key policy variable in describing grant and scholarship programs is how they are administered:	
i) administered by institutions – Public funds are provided to institutions who are then responsible for distributing funds to students, often according to rules set forth by government	Hungary, Lithuania, Poland, Portugal (merit-based)
• matching funds – Govts may require institutions to match public funds by providing waivers or discounts to targeted groups of students	US (institution-based program)
ii) student aid vouchers – Students and families apply to a centralized source and are provided vouchers based on an assessment of their financial need and/or merit. In some cases institutions receive government payments to reflect vouchers they receive from students or students may receive the money directly.	Denmark; France & other Francophone African countries; US (GI Bill, Pell grant), Chile (merit-based vouchers for best secondary school graduates)
2.2. Eligibility and Coverage – Grants and scholarships vary greatly in the criteria for how eligibility for non-repayable aid is determined and which expenses are covered:	
i) Means-tested (Grants) – In most countries, eligibility for grants is based primarily on assessments of the financial need of the student and/or family. This form of non-repayable aid may be used:	
• solely or primarily for tuition fees	U.K. (until 2006)
• solely or primarily stipends for living expenses	Austria, Belgium, Estonia, France, Finland, Germany, Ireland, Italy, N. Zealand, Norway, Poland, Slovenia
• available for both tuition and living expenses	Portugal, US

Type of Allocation	Examples of Where Practiced
ii) Merit-based (Scholarships) – In a number of countries, eligibility for scholarships is based primarily or partially on the academic merit or other accomplishments of the student. This form of non repayable aid may be:	
• primarily for tuition fees	US (in a number of states)
• primarily stipends for living expenses	Austria, Estonia, France, Hungary, Poland
• available for both tuition fees and living expenses	Netherlands
iii) Need-based and merit-based – Eligibility is based on both financial need and the academic merit of student	Czech Republic, France, Malta, Slovakia (stipends)
3. Tax Benefits – Families or students receive a tax benefit either as a credit against tax or a deduction from income for either tuition fees or living expenses:	
3.1. Current tuition fees – Students and/or families receive tax benefits to offset all or portion of tuition fees	Ireland, US, New Brunswick (Canada)
3.2. Family allowances – Provided through the tax system, these provisions help parents offset the expenses of supporting children while they are enrolled in higher education	Austria, Belgium, Czech Republic, France, Germany, Latvia, Netherlands, Slovenia
4. Student Loan Models – Student loans are now provided in more than 50 countries around the world. A key difference in these models is the type of repayment schedule employed. Approaches also vary according to the source of capital; type of expenses covered; and eligibility and level of subsidy provided:	
4.1. Repayment plans. Student loans generally are repaid as mortgage-type loans and income contingent repayments.	
i) Mortgage-type loans. The most traditional type of student loan repayment plan, loans are repaid on an amortized (equal) basis over a fixed period of time.	In most countries with student loans, repayment is on an amortized basis, usually lasting 7 to 10 years
- *Graduated and Extended Repayment Plans* – fixed amortized repayments are graduated (smaller earlier payments and larger later payments) and/or extended beyond the normal fixed term	US (option), Sonora (Mexico), Venezuela
ii) Income Contingent Repayments. A more innovative financing approach for student loans occurs when repayment is based on the amount borrowed and a percentage of the income of borrowers once they complete their education	
Mandatory Income Contingent Repayment – All borrowers repay based on their income after graduation and amount borrowed; plans vary depending on who pays fees initially:	
• Fees initially paid by students and families – Income contingent repayment is combined with traditional fees in which students or their parents pay fees to insts while borrowing to pay those fees	South Africa, Sweden, New Zealand
• Fees initially paid by government – More innovative approach in which govts pay the fees for students initially which are then repaid through the tax system once students complete education	Australia, Scotland, Thailand (in 2006), U.K. (in 2006),

Type of Allocation	Examples of Where Practiced
Optional Income Contingent Repayment – Borrowers who have amortized repayment obligations are provided the option of repaying on the basis of their income after graduation. This may also entail moving borrowers who are having trouble meeting their repayment obligations in an amortized system into a tax-based repayment system.	US since 1994 has provided income contingent repayment option for borrowers; in Chile, student loan defaulters are moved into tax system
iii) Graduate Tax – students pay for their education as a percentage of their income through taxes once they complete their education. Income contingency differs from graduate tax in that repayment is not required for lifetime or until retirement, just until loan has been fully repaid	No country really has an operating graduate tax
iv) Human Capital Contracts – Student participants agree to repay a portion of their incomes to investors who have an 'equity stake' in the student's post graduation income. Under some versions, investors able to depreciate the economic value of the students on their taxes.	Pilots in Colombia, Chile, Germany, and US
4.2 Sources of Funds. Student loans can be financed through a variety of sources including:	
i) Private sources – commercial banks and other private sources of capital provide the capital in most mortgage-type student loan programs around the world:	Canada, Chile, China, (comercial), Korea, US (guaranteed)
ii) Public sources – One recent trend is for countries to shift from private to public funding of mortgage-type loans	Canada, China (sub), Hong Kong, Thailand, US (direct)
iii) Internally-Financed Student Loans – A less utilized way to finance and structure student loans, institutions use the fees paid by some students to finance loans to help other students pay their fees. These loans, which can entail little or no government involvement allow more innovative repayments including:	
• *Deferred Payment Plans* – fee payments spread out over a period of time that begins while borrower is still in school	Philippines
• *Privately financed and serviced* – Institutions sell loans or contract with servicers when borrowers begin repayment	US (Sallie Mae and other entities), Colombia
iv) Creative Financing – A number of creative financing mechanisms have been considered to facilitate the provision and expansion of mortgage-type student loans, including:	
• *Secondary markets* - existing student loans are sold or used as collateral to create new loan capital	US (Sallie Mae and other entities), Colombia
• *"Securitization"* – Bonds are secured by the projected flow of funds from student loan repayments	US, Chile
4.3 Expenses Covered – Like grants, student loan programs also vary in terms of whether they cover tuition fees only, living expenses only, or both tuition fees and living expenses:	
i) tuition fees only – students can borrow only for tuition fees	Lithuania, Korea, Japan, Philippines
ii) primarily for living expenses only – loans are available to students to cover their living expenses	Denmark, England, Finland, Germany, Hong Kong, Poland, Slovakia,
iii) cover both tuition fees and living expenses – In a number of	Canada, China, Estonia, Hong

Type of Allocation	Examples of Where Practiced
countries student loans are available to cover both tuition fees and living expenses of students while enrolled	Kong, Malta, Netherlands, Thailand, US
4.4 Eligibility to borrow – Mortgage-type loans vary in terms of which groups of students are eligible to borrow including by:	
- *Means testing* - Some countries limit borrowing to students who meet a means test, although more often means tests are used to determine whether the loan will be subsidized (see below)	Austria, Italy, Poland
- *Course load* – Most countries limit borrowing to full-time students but some countries extend borrowing to students who are enrolled on less than a full time basis	England, Poland, and US
- *Level of study* – Most countries allow borrowing by both undergraduate and graduate students but some countries limit borrowing to certain groups of students such as:	
- Undergraduates only	Scotland
- *Private sector eligibility* – In a number of countries public sector and private sector students are both eligible to borrow.	Norway, Philippines, Poland, South Korea, Thailand, US
4.5 Level of Subsidy - There is also considerable variation in whether student loans are subsidized relative to market terms and conditions	
i) Means tested and more highly subsidized – Countries in which eligibility for subsidies is means-tested and interest subsidies and default costs exceed 10% of loan value	Canada, China (subsidized), Germany, New Zealand, Philippines (study now pay later), Thailand, US (sub)
ii) Little or no subsidy – In loan programs where eligibility is broad-based and subsidies are less than 10% of loan value	China (commercial), US (non subsidized)
5. Part Grant/Part Loan – In some countries student financial aid is provided partially as grants and partially as loans, including:	
5.1. Loans that become grants – Loans that students initially borrow are converted to grants if students demonstrate satisfactory academic practice	Netherlands (Basic Grant), Norway, Sweden
5.2. Loan Forgiveness – Another form of Grant/Loan is to forgive all or a portion of repayments for borrowers likely to earn less in public service positions such as those entering certain employment fields particularly in underserved geographic areas such as rural settings or inner cities.	US – forgives portion of loan repayments for teachers or doctors who agree to practice in underserved areas

7. Annex 2 – Assessing the Effectiveness of Allocation Mechanisms

A. Possible effects by policy objective

	Access and Equity				External Efficiency	Internal Efficiency	
Type of Allocation Mechanism	**Increase Level of Access**	**Improve Equity of Access**	**Promote Lifelong Learning**	**Private Sector Expansion**	**Improve Quality & Relevance**	**Contain Cost Growth**	**Increase Thruput**
I. Direct Public Funding of Institutions							
1. Funding Instruction, Operations, and Investment							
1.1. Negotiated Budgets	-	-		-		+	-
1.2. Categorical/Earmarked	-				+		
1.3. Formula Funding							
i)Input-based					-	+	
ii)Cost Based							
- Actual Costs/student			-	-	-	--	
- Average costs/student						+	
- Normative costs/student					+	++	
iii)Priority-based			+		++		
iv)Performance components				+			++
1.4. Performance-Based Funding							
i) Performance set-asides							
ii) Performance Contracts							
iii) Competitive Funds					++		
iv) Payment for Results		+				+	++
2. Public Funding of University-Based Research							
- Funded w/ instruction					-		
- Block grants					+	+	
- Projects peer reviewed			+		+	-	
II. Public Funding of Students and Families/ Indirect Funding of Institutions							
1. Demand Side Vouchers	+	-	-	++		+	-
2. Grants and Scholarships							
-administered by insts				+/-			
-student aid vouchers		+		++		+/-	
- means-tested	+	+					
- merit-based		-			+		
- need and merit-based	+	+			+		
3. Tax Benefits							
- tuition fee offsets	+	-	+	+	-	-	-
- family allowances	+	+/-					
4. Student Loans							
i) Mortgage-type	+					-	
ii) Income Contingent	+	++	+			+/-	
5. Grant/Loan Arrangements							

+ = positive impact - = negative =/- = depends on specific program design

B. Which allocation mechanism is more effective?

Policy objectives pursued

- improving access and equity
- improving external efficiency (quality and relevance)
- improving internal efficiency (cost moderation and throughput) and sustainability

Improving access and equity

- traditional age students
  - increased cost sharing with more student grants, scholarships and/or loans to offset adverse effects of higher fees
  - income contingent student loan repayments
  - enrollment-based funding formula
- disadvantaged students
  - expanded need-based grants and scholarships
  - pay institutions premiums for enrolling and graduating disadvantaged students
- lifelong learning opportunities
  - needs-based grants and merit-based scholarships
  - student loans
  - tax benefits for workers enrolled in tertiary programs
  - lifelong learning vouchers
  - savings accounts

Improving external efficiency

- improving quality
  - competitive funds
  - merit-based scholarships
- increasing relevance
  - formula with differential weights for high priority fields
  - competitive funds with priority for relevance
  - grants and scholarships in priority fields
  - student loans in priority fields
  - loan forgiveness for employment in high priority fields or public service

Improving internal efficiency and sustainability

- cost containment
  - funding formula based on normative costs
- improving throughput
  - output-based formula
  - pay for results
  - performance contracts

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This paper examines a range of recent experiences with both traditional and more innovative allocation mechanisms in tertiary education worldwide. The objective of the paper is to survey the landscape of innovation and highlight lessons that can help policy makers in developing and transition countries formulate strategies for increasing the effectiveness of their public policies for tertiary education. The paper begins by proposing a typology that describes both traditional and innovative approaches to resource allocation that are being used or considered in various countries. This typology includes approaches that fund institutions directly and indirectly through students as well as those that fund students and their families. Chapter 3 of the paper analyzes how well these various allocation mechanisms meet important policy objectives such as expanded access and improved equity, increased internal efficiency and cost containment, and outcome measures related to enhanced quality and relevance. Chapter 4 of the paper discusses necessary conditions for effective implementation of innovative allocation mechanisms, including the need to strengthen adminitrative capacity, foster transparency, address the political dimensions of financing reforms, and anticipate unintended consequences. The paper concludes by drawing some lessons from international experience with both traditional and innovative allocation mechanisms.

The findings, interpretations and conclusions expressed in this paper are entirely those of the authors and should not be attributed in any manner to the World Bank, its affiliated organizations or to the members of its board of executive directors or the countries they represent.

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