STUDY THE FUNDING MECHANISMS OF HIGHER EDUCATION

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Abstract
One of the most important strategic decisions in higher education is funding mechanism which is studied in this article. To achieve this, first the most important financing systems were extracted. Then, these mechanisms were evaluated based on some criteria such as the efficiency, equity, level of access and private sector’s expansion. In order to compare different mechanism, qualitative meta-analysis was utilized and related articles and researches have been analyzed. Having assessed different modes, we come to this conclusion that the best funding approach can be “market oriented funding” and in this framework “income contingent loan” and “graduate tax” can better provide the objectives of higher education development such as increasing access, enhance equity in access, improving internal and external efficiency and development of private sector.

Keywords
Higher education, financing system, access, efficiency, equity

Introduction
Today, organizations of all types and sizes face increasing pressure to improve efficiency and effectiveness. In almost all countries, organizations such as universities are under the pressure of financial accountability. This pressure has led the organizations' senior managers to change their managerial approaches, especially financial mechanisms, in order to reduce the pressure on the university and provide better educational and research services. Over the past 10 years, economic, social and technological factors have been leading to increasingly change the global business environment and organizations (Marquardt, 2002). Universities and institutions of higher learning are not exempt from this and have been faced with many challenges. This also brings about fundamental changes in the organization's role in the social, economic and political arena. The emergence and development of ICT, globalization and reducing public funding as well as the advent of knowledge based economy and economic
development based on liberal market economy are the most important challenges facing these institutions (Sanyal, 2008). The growth of higher education in the 80s and 90s in many countries, especially developing countries, was remarkable. Between 1980 and 1997, the growth has been reported 34 percent for the total world and 44 percent for the developing countries (UNESCO, 1999). Given the increasing demand for higher education, escalating teaching and research costs per unit and the competing demand for the public funds, universities and institutions have come under a pressure.

Geiger (2010) states that, in future, financial challenges in universities not only will continue but also will face new issues such as higher tuition rates and lower graduation rates. Meeting these challenges requires re-evaluation of the content, structure, delivery methods, financing and resource allocation mechanism in universities and institutes of higher education.

Decision making, as an integral part of the management, has always been referred to in management literature so that Herbert Simon believes that organizational behavior is a complex network of decision’s procedures (Simon, 1960:1). In addition to Simon, other scientists such as Barnard, Newman, and Kuntz Star supposed that decision is the foundation of all the tasks that managers carry out in an organization (Saadat, 1992:5). Furthermore, Hamidizadeh (2003:3) considers decision making as one of the most critical tasks of managers claiming that success or failure of organizations depends on the quality of decisions. Furthermore, Garvin and Roberto (2001) suggest, “Decision-making is arguably the most important job of the senior executive and one of the easiest to get wrong” (p. 108).

Universities are expected to raise the knowledge of society based on quality standards and this is just possible through capable and competent financial mechanisms. Financial decisions can direct the organizational behavior and behavior of the stakeholders of higher education institution. In fact, in developing countries, financial mechanisms play a very important role in management and governance of higher education. In developing countries, on the contrary, this role is not as major and unfortunately, the importance of financial resources as an instrument of policy making has not been appreciated as much as it should. (Naderi, 2009). Financial decisions at the macro and micro-level have a major impact on the behavior of individuals and institutions so the higher education system can be managed and directed effectively by financial mechanisms (Naderi, 2008; entezari & mahjub, 2013; Frolich and Etal, 2010; Liefner, 2003; Geuna And Martin, 2003).

The effective management and governance of higher education is a challenge and a major problem facing managers, leaders, and the board of trustees. Perhaps, overcoming these problems and dealing with these challenges are largely related to the quality of decisions, especially financial decisions. In other words, although the limitations of financial resources is one of the most important challenges facing higher education, there is clear evidence that in most countries modifications or changes in funding system is one of the most significant tools in management and educational policy making (Entezari & Mahjub, 2013). Therefore, more attention must be paid to funding mechanisms in order to improve the performance of the universities and institutions of higher education.

The purpose of this paper is to identify funding mechanisms as one of the most important strategic decisions in higher education and to choose optimal mechanism based on qualitative
meta-analysis of past research. Using these results is expected to improve the quality of financial decisions, hence increasing the quality of education, research and professional services. Strategic decisions are the decisions concerned with the whole environment in which the firm operates the entire resources and the people who form the company as well as the interface between the two. Strategic decision is the decision of the main benefits of organization that may lead to the evolution and effectiveness of long-term changes in organization (Cyert & Williams, 1993:5). Strategic decision-making is the process of decisions that may result in success, failure, or even collapse of an organization.

Ashmos and Colleagues (1998) believe that strategic decisions are unique and important decisions regarding the allocation of resources that make an organization able to gain and maintain its competitive advantage. According to Lee (1999:163) strategic decision making cannot be done in a vacuum environment or independently. These decisions are mainly formed on basis of other factors, particularly environmental ones and depend on the risk run by management. Harrison (1999: 319) states that strategic decisions has an orientation to future and achieve goals in the face of severe uncertainty and to be known primarily as a landmark decision. Mintzberg & et al (1976:250) have enumerated a number of the features such as creativity, complexity and never-ending process that distinguish between ordinary and strategic decisions. Strategic decisions are made under uncertainty, and no factor can be determined simply and clearly. Unlike other decisions, strategic decisions are concerned with the long-term future and have three main characteristics: They are rarely taken; outputs oriented and lead other decisions. In summary, the features of these decisions are as follows:

- They are long term oriented and directed at future and ultimate goals of the organization.
- Due to environmental change and complex nature, they are taken under uncertainty.
- These decisions are often complex, extensive and uncontrolled in a way that senior managers are responsible for them.
- Strategic decisions are unstructured and unconventional, mattering a lot to the organizations; on the other hand, much of the information used for strategic decisions is quantitative and verbal.
- Strategic decisions have major resource propositions for an organization. These decisions deal with harmonizing organizational resource capabilities with the threats and opportunities.
- Strategic decisions are different from administrative and operational decisions.

Administrative decisions are routine decisions which help or rather facilitate strategic decisions or operational decisions. Operational decisions are technical decisions which help execution of strategic decisions. To reduce cost is a strategic decision which is achieved through operational decision of reducing the number of employees and how we carry out these reductions will be administrative decision. Given the above characteristics, the main strategic decisions in higher education are funding system for higher education. There are vast differences in funding systems for HE, and governmental allocation takes place through different mechanisms. A typology of the entire funding system picture has been presented by Salmi and Hauptman (2006). It distinguishes between:

- Direct public funding of institutions, i.e. funding of teaching through negotiated formula, demand-side vouchers, performance-based funding, funding for specific purposes and/or
combined funding for teaching and research, block grant funding and project funding; and

- funding for students via government grants and scholarships, tax benefits and Student loan models.

This study seeks to examine the funding mechanisms provided by the government and determine the best mechanism.

**Method of research**

To carry out this research, a qualitative meta analysis was used and four phases were implemented: Firstly, published literature was reviewed in relation to patterns of financing higher education and the most important financing patterns were extracted. Secondly, the literature was studied in relation to the objectives of higher education policy development and the criteria for selecting an optimal model of financing higher education were extracted. In the third phase, different models were evaluated based on the criteria set. To select between one pattern or another, related articles that compare higher education system and funding mechanisms have been used. After evaluating and ranking models, the best model was chosen as the optimal model.

**Funding mechanism in higher education**

For the purpose of classifying funding arrangements two major questions may arise (Jongbloed & Koelman, 2000): (a) ‘what is funded by the government’ and (b) ‘how is it funded’?

Question (a) concerns the funding base for the government allocations to higher education institutions: Are the funds tied to educational outputs and performance, or rather to inputs? Question (b) relates to the issue of the degree of market orientation in the funding arrangements. Whose decisions actually underlie the observed flow of government funds to higher education institutions, or to put it another way: “what drives the system?” The answer to this question may be found by focusing on such issues as "To what extent are funded numbers or funded (research and degree) programs regulated (or planned) by central authorities?" Do higher education institutions compete for funds (i.e. students, research programs)? "Do they have the right to determine the level of tuition fees by themselves?" And "Can they choose their students?"

Question (b) relates to the issue of market orientation in the funding arrangements. One of the characteristics of market orientation is the degree of competition implied by the funding decisions or stated differently “are funded student numbers or funded (research, degree) programs regulated (or planned) by central authorities or are the funding flows driven by the decisions of the clients (students, private firms, research councils/foundations) themselves?” The answer to this question may be translated into a measure for the degree of centralization, from a highly regulated situation in which the government determines the funding centrally (for instance by prescribing the exact numbers of students for different programs) to a situation in which consumer sovereignty (individual client decisions) drives the system. In practical situations, the degree of centralization (or market orientation) will lie somewhere in between the two extremes.

In the graph below, the vertical axis is used for depicting the degree of (de-) centralization and a horizontal axis also displays the degree to which governments are paying for the results
(outcomes) instead of the efforts (inputs). We can distinguish four quadrants (Q1, Q2, Q3, Q4) to classify funding arrangements.

**Figure.1: Funding approach in higher education**

![Diagram of funding approaches]

Q1: traditional system of budgeting

The top-left-hand portion of the diagram represents a centralized system of funding. It shows a more traditional type of budgeting, where allocations are based on requests (activity plans; budget proposals) submitted to budgetary authorities. This is known as negotiated funding. In this mechanism, the budget allocation is often based on the previous year’s allocation of specific budget items.

In this approach, 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 and Funding formulas (Salmi and Hauptman, 2006). Pranivicene and Puraite (2010) called this system bureaucratic system in which all activities and resources are planned by central government.

Q2: 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 where research is funded in proportion to a measure of research quality.
According to Salmi and Hauptman (2006) 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.

- This system can be funded based on student performance or institution performance. For example, the mechanisms by which students' scores will be calculated student performance and the Mechanism that calculates the rate of graduate, consider the institution performance. Performance-based funding uses four methods: 1 - performance contracts, 2 – Performance set asides 3 - Competitive funds, 4 - payment by results.

Q3: Quasi-market funding system

In this example of a market-oriented funding system, higher education institutions are invited to submit tenders for a given supply of graduates or research activities. The tenders that are selected by the funding agency are the ones that are the most price-competitive. In this tendering process, higher education institutions are encouraged to compete with one another to provide education, training and research to meet national needs. Another example is research funds awarded by research councils. The system will make use of contracts that are signed up between the funding agency and higher education institutions, with the latter agreeing to deliver graduates for targeted labor market needs, or research outputs targeted at strengthening the innovative capacity of the country. Pranivicene and Puraite (2010) called this system "collegial system" which finance a portion of the funds by the government and partly by the customers of products and services provided by the university. In this model, states fund the services which have priority in scientific, economic and social programs.

Q4: market funding system
This funding system makes use of vouchers. The core funds of higher education institutions are supplied through the clients of higher education institutions. Students obtain vouchers, which can be traded for educational services (i.e. educational consumption), at the higher education institution of their own choice. In this funding system, it is the consumer that drives the system - the system is demand-driven. Pranivicene and Puraite (2010) called this system "market funding system" in which demand is important and public organizations are also the clients of educational and research services.

Considering the issues mentioned, mechanisms of financing higher education by the states can be classified into ten patterns as follows:
Assessing the effectiveness of allocation mechanisms

Appropriate allocation mechanism in higher education should consider economic and social criteria (Jongbloed, 2007). Most economists believe that in any funding mechanism of higher education, equity and efficiency must be considered (Stiglitz, 2000). Salmi and Hauptman (2006) mention the following criteria for assessing the effectiveness of allocation mechanisms:

- increasing access to, and equity in, tertiary education
- increasing the external efficiency of tertiary education systems
- improving the internal efficiency and sustainability of tertiary education systems

Nowadays, due to the emergence of a global knowledge economy and the development of concepts such as learning economy (Lundvall and Johnson, 1994), social learning (OECD, 2000), knowledge-based development (Knight, 1995), public education, learning for all and lifelong learning, governments are trying to encourage greater participation and greater investment in higher education. Thus, one goal of government policy is to increase access to higher education (Long, 2008).

In addition, according to the side-benefits theory (Weisbrod, 1968), increasing access to higher education provides a utility for others (Johnson, 1986). Besides, higher education contributes to long-term economic growth (Creedy and Francois, 1990) and raises social desirability. Furthermore, based on the idea of merit goods (Tilak, 2004), higher education in the long term cause social (Windham, 1976) as well as cultural, political, environmental, and health development providing instantaneous and future utility for other people and society as a whole.

Centralized system of financing inputs

Due to the lack of learning motivation and university autonomy, centralized management and absence of competition among universities and higher education institutions, internal and external efficiency of this approach is very low. Due to limited public resources, access to higher education in this approach is very low. Accordingly, most studies have been criticized this mechanism. Today, we can hardly find a research which supports this approach.
However, (Bloom and Sevilla, 2004) suggests that the majority of developing countries still subsidized universities and institutions of higher education. Based on neoclassical economic theory three conditions for efficient funding higher education should be considered. 1-The net social benefits of investment should be positive. 2-The private sector doesn’t have the ability or incentive for the optimal level of investment in the public sector and 3-The net social benefits of investment in higher education should be more than competitive sectors.

On the other hand, direct funding of universities and higher education institution by government, because of the creation of monopoly, has a negative impact on private sector development. However, the effectiveness of this approach to increase access to higher education, improve equality of access and lifelong learning is dependent on the method of financing.

**Negotiation and bargaining mechanisms**

Much of the research carried out in this field explicitly and implicitly have shown the negative effects of this method on access to higher education, equal access to higher education, learning, individual performance, internal efficiency and effectiveness of institutes of higher education.Penalosa and Waddle (2000) are of the opinion that the traditional system of subsidies - tax (a tax receipt from all and payment of subsidies to all) that currently prevails in most developing countries cannot simultaneously achieved equality and efficiency. Indeed, in the condition that the average-income of taxpayers is less than the net income of graduates of higher education (Subsidies paid for the education of future well income get from the lower –income people) the mechanism of financing higher education in the future will worsen income distribution and welfare.

Bloom and Seville (2004) study the impact of financing of higher education on efficiency and equity. Their study shows that the public paying of subsidies to higher education will not necessarily improve equality and its impact on the efficiency of the allocation of social resources is not clear. In spite of this, some existing mechanisms in this system, such as planned financing, can improve the access to higher education in certain areas.

**Table 1. Assessment negotiation and bargaining Mechanisms**

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Private sector expansion</th>
<th>Increase level of access</th>
<th>Improve equity of access</th>
<th>Individual efficiency</th>
<th>Organizational efficiency</th>
<th>National efficiency</th>
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<td>Penalosa and Waddle, 2000</td>
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<td>Bloom and Sevilla, 2004</td>
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<td>Toutkoushian and Shafiq, 2009</td>
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<td>McKeown, 1999</td>
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52
Formula funding

Many governments have over time 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 inputs such as staff or students, costs per student, priority-based funding, and performance-based formula components (Salmi and Hauptman, 2006).

In a good formula for financing the supply side, limiting and adjusting the costs are considered. The mechanisms that use average cost or normative cost will help more to offset the costs compared to the mechanisms using actual costs. Using the actual costs, increase institution costs beside that to raising per capita cost, institutions try to reduce enrollment and not operate efficiently.

Specific formula for funding universities and higher education institutions have advantages and disadvantages (McKeown, 1999). The effect of formula-based funding to increase access, improve efficiency, increase effectiveness and improve equality depends on the variables included in the allocation formula. Since the use of quality indicators in the formula is very difficult, they are not appropriate mechanisms for ensuring and improving the quality and effectiveness.

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Increase level of access</th>
<th>Improve equity of access</th>
<th>Individual efficiency</th>
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+ = positive impact  - = negative  +/- = depends on specific program , n: not given

Performance-based budgeting

Over the last three decades, public pressure has forced governments in many western countries to look for ways to meet society’s needs without spending too much tax payer-generated money. One way to respond to these pressures is to link funding to performance (Williams, 1997).

In contrast to negotiated budgets, earmarked funds or funding formulas which 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. Four types of allocation mechanisms might be considered performance-based funding: Performance contracts, Performance set asides, Competitive funds and Payments for results (Salmi and Hauptman, 2006).

Liefner (2003) has demonstrated that there is obviously not a priori superior approach to successful resource allocation in education and research. Furthermore, the culture and tradition of universities and national HES have only limited influence on the peoples’ reactions towards performance-based budgeting. Therefore, governments should allow universities to look for different and individual ways of managing their institutions. Performance-based budgeting, encouraging more production in universities and improved access to higher education and increase internal efficiency. However, it does not necessarily improve quality, increase external efficiency, and effectiveness of higher education. In this system the effects of different financing mechanisms for the purposes of higher education are not the same. However, its impact on the development of higher education is much better than traditional mechanisms such as negotiation and bargaining ones.

Effects of performance-based funding on access, equality of access and lifelong learning depend on the definition and measurement of performance criteria. If the indicators are defined and measured based on objectives, these will have the potential to be an effective instrument for the allocation of public resources. Thorn et al (2004) have analyzed the necessary reforms in the financial system of higher education in Chile. Their study shows that instead of allocating based on past practices, political bargaining and cost inputs, it would be to allocate based on the results.

The quasi-market financing

The most important method of financing higher education in the quasi-market financing, is performance contracts. The effectiveness of this method depends on the ability to design and implement the contracts. In addition, it is important to set the bias.

A key issue of design and implementation is whether the contracts should be established as incentives for good performance or penalties for under achievement. Another key implementation issue is that the contracts tend to be difficult to enforce or to use for incentives.

A recent assessment (Schenker-Wicki, 2006) shows that if the institution doesn’t make necessary reforms the effectiveness of this method wouldn’t be significant. It is expected that the forms of quasi market financing, influence the behavior of academics and managers in higher education, particularly their levels of activity as well as the kinds of activities they engage in and their ways of dealing with risks. Empirical analyses partly confirm these hypotheses. It can be shown that changes in resource allocation have an impact on the level and type of activity academics concentrate on but not on the long-term success of universities (Liefner, 2003).

In contrast to performance-based budgeting, the market-quasi mechanisms can optimize utilization of resources and reduce costs. In addition, it takes into consideration the
quality of product and universities offer their teaching and research services in accordance with national and international standards.

In quasi-market financing, if the only client is state, the access to higher education will not be much different from performance-based budgeting. Yet, if along with the government, the private sector is also able to demand products and services of universities, access to higher education will increase considerably. This mechanism may worsen the equality of access to higher education. Given the fact that in this system of financing universities have relative financial and management autonomy, the organizational efficiency here is more than that of traditional and performance base-budgeting.

### Table 3. Assessment The quasi-market financing mechanism

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Increase level of access</th>
<th>Improve equity of access</th>
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+ = positive impact  - = negative  +/- = depends on specific program design  N: not impact

### Market-oriented systems

Clark (1983) classified higher education systems (HES) into systems that are primarily coordinated by market interactions, “market-oriented systems”, and systems that are coordinated by governmental planning, “state-oriented systems” (Clark 1983, p. 143). Lack of government intervention is the most important principle in the market-oriented system and higher education institutions are financed solely through tuition. Because of the inability to pay all fees by the students and the lack of a proper market for private loans, participation in higher education will decrease. This so-called ‘cost sharing’ has always been plagued with controversy, with fears that it would lower participation, particularly among youths from low income backgrounds. Since the financial ability of families and students are not the same, access to higher education will be unequal. Unequal distribution of education at the present time, will lead to the unequal distribution of income and wealth in the future. Due to the fact that the students pay a lot of money for their education, the demand for higher education is more logical and students are trying to learn better. As a result, the demand for applied courses such as engineering with employment opportunities and higher private returns will increase. In contrast, the demand for courses in humanities and social sciences and low private returns (even with high social returns) will decrease. The growing competition between universities to attract more and better students and get more profit will, in turn, result in efficiency improvement (Dearden and et al, 2010).

Dearden and et (2010) estimate the participation rate in higher education claiming that a £1,000 increase in up front tuition fees reduces degree participation 4.4 percentage
points, while a £1,000 increase in loans increases participation by 3.2 Percentage points and an increase in maintenance grants increases participation by 2.1 Percentage points (though after further testing they find that the impact of loans is not significantly different from the impact of grants). These results are in line with, but of a slightly lower magnitude, than those estimated in the US as shown in a number of studies such as Kane (1995), Dynarksi (1999) and Helemt and Marcotte (2008).

**Subsidies student**

Asonuma (2002) reiterates that when governments subsidize demand side (students), Faculty and university management will try more to absorb government grants and outside sources (donations and contracts with industry). In this situation, private universities will compete not only with each other but also with public institutions in order to attract public funds. As a matter of fact, competition between universities and higher education institutions will promote their efficiency and effectiveness.

According to Psacharopoulous (2008), subsidizing the demand side will enhance efficiency and equity. In such a system first of all, inefficient universities would be closed; secondly, the students would strongly request the quality of teaching and educational services so that the teachers will have to be more accountable; thirdly, paying direct subsidies to poor students will expand equality of access and improving revenues distribution in the future.

Bevia and Ormaetxe (2002) study the subsidies in higher education. They take the view that those who attend institutions of higher education will earn more income in the future and will pay more taxes. People whose children do not receive higher education, however, should agree to help pay the cost of such education, providing that taxes are sufficiently high to ensure an adequate redistribution in favor of their own children at some time in the future.

Toutkoushian and Shafiq (2010) showed that if the government wants to pursue the following goals a) Increasing youth participation in higher education, b) Promoting competition between universities and higher education institutions and c) Improving the efficiency of universities, it should support needy students. In other words, instead of direct allocation of funds to universities, the government should offer financial aid to needy students.

Research carried out in most countries has shown that, compared to direct allocation, the financial support of the families and students would lead to more equality. International experience also suggests scholarships need-based are the best policy of promoting equality and justice. It is expected that student scholarships will help students overcome the obstacles of education. Scholarships need-based will actually raise participation rates and bridge the gap between social groups in access to higher education (Toutkoushian and Shafiq, 2010).

**Demand side vouchers**

Based on the existing evidence, it is argued that the most efficient and equitable way of
Financing higher education today is to allocate public funds to the universities in an indirect way. This is to let the students decide which universities will get funds, and what ones may close because of lack of funds. The strong incentives introduced by such a system would ensure efficiency and accountability among students and professors, without resorting to petty regulations. And when more money is put in the hands of the poorer students, equity would be redressed. Over two centuries ago, Adam Smith (1776) proposed a variant of this scheme to make Oxford dons more responsible in their teaching. But today, regardless of its merits, the system invokes the keyword ‘voucher’ that is an anathema among politicians (Psacharopoulos, 2008).

Subsidizing students can be done through cash contributions and vouchers. These two methods have different effects on access, equity and efficiency. Vouchers that the government offers to students for tuition or other expenses will have positive and negative impacts. Strengthening the student's choice, boosting the accountability to clients, increasing diversity of educational services (both delivery methods and scope of application), reinforcing learning styles, increasing cost efficiency in higher education institutions, improving the quality of services, raising private sector participation in financing higher education and promoting access to higher education for low-income families are a number of the benefits of this technique (Jongbloed & Koelman, 2000).

The advantage of this method over traditional methods is that this method widens the student's choice and thereby increases competition among institutions and will ultimately enhance access to education. If the voucher is also provided for private institutions, it can help to develop the private sector in higher education. These processes ultimately lead to economic growth (Cardak, 2005).

If we take income differences into consideration in demand side vouchers, this method can also improve social and economic equity (Cardak, 2005). In this regard, a suitable way can be the replacement of targeted vouchers for the needy and low income families rather than paying to all students equally.

Comparing different 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, for example, allow institutions to compete for students and provide students with a much wider 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 (Salmi and Hauptman, 2006).

Demand-side mechanisms that directly fund students would seem to have a better chance of promoting lifelong learning than those which fund institutions, especially student aid programs that are portable and could be better tailored to meet the needs of older students. 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 (Salmi and Hauptman, 2006).

Table 4. Assessment the need–base aid

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Increase level of access</th>
<th>Improve equity of access</th>
<th>Individual efficiency</th>
<th>Internal efficiency</th>
<th>External efficiency</th>
<th>Comment</th>
</tr>
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<tbody>
<tr>
<td>Theoretical reasoning</td>
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<td>+</td>
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<td></td>
</tr>
<tr>
<td>Dur &amp; et al,2004</td>
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<td>+</td>
<td>+</td>
<td>+</td>
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<td>Income tax</td>
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<tr>
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</tr>
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<td>+</td>
<td>+</td>
<td>N</td>
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<tr>
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<td>+</td>
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<td>+</td>
<td>+</td>
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<td>+</td>
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</tr>
<tr>
<td>Kusumawati, 2010</td>
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<td>N</td>
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<td>+</td>
<td>+</td>
<td>N</td>
</tr>
<tr>
<td>John et al, 2006</td>
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<td>+</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>McPherson,1996</td>
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<td>+</td>
<td>+</td>
<td>+</td>
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</tr>
<tr>
<td>Jongbloed and Koelman,2000</td>
<td>+</td>
<td>+</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>Coupon</td>
</tr>
</tbody>
</table>

+= positive impact  - = negative  +/- = depends on specific program design  N:not impact

Student loan

A number of different models exist in the more than 60 countries around the world where student loan programs have been developed. 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. 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 (Salmi and Hauptman, 2006).

There are three possible policy targets that governments may wish to attain: efficiency, equality of lifetime incomes and equality of opportunity. The traditional system cannot simultaneously achieve all these targets. Three alternative systems can be used: a pure loan scheme provided by the government, a graduate tax and an income–contingent loan system. These systems are identical when the outcome of the education process is certain. When there is uncertainty, however, the systems differ in a way in which education costs have to be repaid. Whereas under a pure loan scheme a student pays in full his/her education costs, a graduate tax system makes the payment of education costs contingent on whether or not individual succeeds in education. The graduate tax increases the payoff to an agent who studies and fails and decreases the payoff to one who succeeds, thus reducing the risk associated with education investment without changing its expected payoff. Such a system provides partial insurance; therefore, if agents are risk-averse, insurance would induce more individuals with low wealth to invest in education hence increasing efficiency. An income-contingent loan system is similar to graduate tax system. Although graduate tax implies reverse redistribution, income contingent loan is not necessarily more efficient. In fact, a graduate tax system can be advocated as an improvement of systems currently in place (Penalosa and Waddle, 2000).

An income-contingent loan scheme can at best replicate the allocation brought about by a scholarships scheme financed by a graduate tax, and only on condition that there is nothing to stop the policy maker from using tuition fees as if they were taxes. If that is not possible, even the best loan scheme will exclude some well-qualified school leavers from university. Even if individual study effort is observable, but more so if not, it is not socially desirable that all students should specialize in the subjects that promise the highest graduate earnings (Cigno and Luporini, 2009).

Table 5. Assessment the loan instead of subsidies

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Private sector expansion</th>
<th>Increase level of access</th>
<th>Improve equity of access</th>
<th>Individual efficiency</th>
<th>Internal efficiency</th>
<th>external efficiency</th>
<th>comment</th>
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<tr>
<td>Callender, 2006</td>
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<td>-</td>
<td>N</td>
<td>+</td>
<td>+</td>
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</tr>
<tr>
<td>Johnstone, 2006</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Rani, 2006</td>
<td>+</td>
<td>+</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Penalosa and Walde, 2000</td>
<td>N</td>
<td>N</td>
<td>+</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>Certainty</td>
</tr>
<tr>
<td>Dearden and et al, 2010</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N</td>
<td>+</td>
<td>N</td>
<td>Loan contingent</td>
</tr>
<tr>
<td>Jhonstone, 2004</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>Loan contingent</td>
</tr>
<tr>
<td>Dur et al, 2004</td>
<td>+</td>
<td>+</td>
<td>N</td>
<td>N</td>
<td>+</td>
<td>+</td>
<td>Loan contingent</td>
</tr>
</tbody>
</table>

+ = positive impact   - = negative   +/- = depends on specific program design N: not given
Tax
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. This kind of tax benefits is typically provided for one of two purposes: Tuition offsets: students or their families receive a tax benefit that offsets a portion of tuition fees paid, and 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.

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. Nevertheless, 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 (Salmi and Hauptman, 2006).

Another mode of paying for education is graduate tax. In this method, 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.

Some governments to promote justice and equity in private higher education institutions have enacted donations and mandatory grants. These grants are directly set by government. In Mexico, universities and private higher education institutions to increase access must pay scholarships to 5% of require students. It has a long history in private universities of Philippines.

Caucutt and Kumar (2003) develop a simple dynamic general equilibrium framework to address the effects of increasing higher education subsidies in the US, from their already substantial levels, on inequality, welfare, and efficiency. They focus on three policies. The first is a tax and subsidy scheme that ensures that the parental decision to send a child to college is independent of income. Such a policy decreases the efficiency of the utilization of education resources, while the welfare gain is minimal. The second policy maximizes the fraction of college educated labor. This results in a large drop in the above-mentioned efficiency with little or no welfare gain. The third is the provision of merit-based aid to the poor as opposed to purely need-based aid. This policy can enhance education efficiency with little decrease in welfare. Based on these experiments, they draw the conclusion that the case for further increases in higher education subsidies might have been overstated.

Table 6. Assessment the graduate tax

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Private sector expansion</th>
<th>Increase level of access</th>
<th>Improve equity of access</th>
<th>Individual efficiency</th>
<th>Internal efficiency</th>
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60
Theoretical reasoning

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
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<tbody>
<tr>
<td>N</td>
<td>N</td>
<td>+</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>+</td>
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<tr>
<td>++</td>
<td>++</td>
<td>+</td>
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</tbody>
</table>

+ = positive impact  - = negative  +/- = depends on specific program design  N: not given

Conclusion

Socio-economic restructuring, internationalization and globalization of education markets, together with the emergence of the knowledge-based society, have influenced the governance, management, finances and general development of HEIs (Frolich et al., 2010).

Carrying out this research, we have observed some common tendencies including the movement toward output or performance-based funding; continuing interest in setting objectives and priorities at the international level; use of performance assessments; sharper focus on efficiency, quality and accountability. Furthermore, the countries seem to be using mixed models in an effort to achieve balance by combining mechanisms such as basic, performance and competitive funding (Morgan, 2006)

Moreover, funding systems and their impacts do not come in neat packages. The previous studies show a mixed pattern of advantages and disadvantages. The impacts of the funding systems may have the same result, even when different mechanisms are adopted. There are no clear cut differences in the perceived strengths, weaknesses and impacts of the two main types of funding systems: input-based funding and output-based funding presented and discussed in this paper. According to Salmi and Hauptman (2006) we should rely on a combination of resource mobilization and allocation mechanisms to achieve the desired policy objectives and try to choose the most appropriate mix of allocation instruments to meet the policy objectives sought.

We should also avoid linking allocation mechanisms and systems of quality assurance and performance too rigidly. We need to guarantee stable funding over the medium terms and 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 and finally make anticipating the unforeseen consequences of policies a key component of the implementation process.

Jongbloed (2004, p. 9) argues that “We can't find a desired funding system. It all Depends on the goals that policy-makers would like to achieve on behalf of students and society in general”. According to our findings in this study, different mechanisms may generate similar effects. We have come to this conclusion after having analyzed the different mechanism based on the discussed criteria. The best funding mechanism can be
“market oriented funding” and in this framework “income contingent loan” and “graduate tax” can better provide the objectives of higher education development such as:

- increasing access to, and equity in, tertiary education
- increasing the external efficiency of tertiary education systems
- improving the internal efficiency and sustainability of tertiary education systems
- Development of private sector.

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Penalosa, Cecilia and Walde, klaus.e, (2000). Efficiency and equity effects of subsidies higher education.oxford economic papers(52).702-722


