



Optimization Model of Economic Management in Iran's Higher Education System

Mohammad Mehdi Mazaheri^{1*} and Soheila Parastegari²

¹Department of Management, Science and Research Branch, Islamic Azad University, Isfahan, Iran.

²Department of Human Science, Science and Research Branch, Islamic Azad University, Isfahan, Iran.

ARTICLE INFO

Article history:

Received: 12 December 2013;

Received in revised form:

3 January 2014;

Accepted: 7 January 2014;

Keywords

Higher education,
Operational economy,
Functional indicators.

ABSTRACT

By the approval of the law of higher education's structure, the necessity of making fundamental changes in the system of management in Iranian universities has become obvious. The most important part of these changes is related to the financial system of the universities. By considering the transformation of economic system into operational economic classification, changes in economic situations of higher educations are more than ever essential. The methodology used in this study is descriptive-analytical and attempt was made to describe and elaborate on the economic management based on the data obtained from libraries and Iran's higher education programs.

© 2014 Elixir All rights reserved

Introduction

Universities and higher education institutions are responsible for discovering, publishing knowledge and providing higher education and teaching to train professional workforce and to help the development of the societies. A university, as a system, is composed of several sub-systems, and its most fundamental management system, is its financial or economic system. The economic system of a university itself is under the influence of some internal and external systems. Any minor change, outside or inside the university might affect the efficiency and performance of economic system of higher education (Saketi & Saeedi, 2007).

With the ratification of the Law of Structure of the Ministry of Science, Research and Technology, and the Fourth Socio-Economic and Cultural Development Program, the necessity of making basic changes in the system of management in Iranian universities have become obvious.

The most important part of these changes is concerned with the university's economic system. A quick glance at the content of the above mentioned legal provisions indicates the fact that a fundamental change in the economic system of higher education is an inevitable necessity. In the Fourth Development Program, universities, in line with government policies, not only are responsible for changing their economic planning system into operational economic system, but also are required to prepare an operational economic system to get access to final costs of educational activities and determining the expenses for each student, in order to receive governmental financial contributions from public economy. Therefore, by considering the above-mentioned points and also the general policies of the country's 5th development program, changes in the economic system of higher education and a revision of the current economic system seems to be essential. The main challenge in these reforms is that prior to the formation of appropriate economic management structures and preparation of academic units, structural changes have started at various higher education levels (Gharoun, 2004).

Operational Budgeting

Operational budgeting (based on the function) is estimated and calculated according to operational classifications of the current costs of organizations, and based on the functions and activities in the form of workload in every organizational department, and by measuring the costs of possible activities for effective production, or services, by participation of all the executive managers. The most important characteristic of operational budgeting is that it shows the relationship between amount of funds allocated to each program and the achieved results of performing that program. Furthermore, operational budgeting adds savings and efficiency factors to ???dimensions of budgeting. This type of budgeting identifies and lists all the needed direct and indirect activities in each program, and provides an accurate estimation of the costs of every activity. Also, this type of budgeting seeks to create a link between performance indicators and allocation of resources based on achievement of specific and measurable results. Establishing a rational and technical link between performance indicators and allocation of resources is compulsory in this budgeting method. Via managing the value in operational budgeting, the allocation of resources is done based on the real value of each unit of provided services, and in fact, the cost-benefit equation will be clearly understandable in this method. In operational budgeting, budget is essentially allocated according to the output and expected results and that is why operational budgeting is also referred to as "expense management or results management". In the higher education system, operational budgeting is based on "cost-benefit evaluation" meaning credits given to universities for their current costs should be spent for educational, research, services, and supporting activities of the universities, which are financially and economically justified. In this respect, university programs such as educational, research, social services, and knowledge-based entrepreneurship must be prioritized. Operational budgeting of universities requires that all functions and activities, which some of them are qualitative, be quantified and measurable (Yusefzadeh, 2003).

Functional Indicators in Higher Education

Indicators are the tools which are normally utilized for measuring the educational performance. Functional indicators used in the higher education system, have the same functions as the indicators in other fields such as economy or social systems. Indicators are valuable in that besides providing current information, they analyze the procedures and predict changes and developments. Indicators are used to describe the nature of a system, through which it is identified how components of a system are related and interact with each other, and how they are changed (Spitz, 2004). Functional indicators express the issues and problems of higher education systems through collection of clear and objective documentation, and are used as a basis for accountability of the education system. Furthermore, indicators can be used to discover factors that cause failure of the educational system (Ogawa, 2000). These indicators also provide the basis for budgeting in various budgets according to internal performance of the universities. Codification of indicators to evaluate performance of universities enables the management to increase level of productivity of university systems through comparing performances using these indicators, and also to control process of growth and decline of performances in terms of these indicators (Shams & Mablaq, 1999). Comparative studies and analytical review of the world's higher education indicate that there are three main reasons for paying attention to performance indicators and their roles in quality of higher education, which are as follows: 1) development of universities and higher education institutes and increased number of students and courses, 2) increasing financial resources and budgetary limitations, 3) the issue of knowledge-based transfer procedure (Khorshidi & Ghorchian, 2000).

Some scholars have mentioned the advantages of incorporating performance indicators. Burden & Banta (1994) consider use of indicators as an appropriate tool in higher education economy. They believe indicators specify the grounds for functional activities, and the direction of educational economic system and higher education institutes can identify their needs in areas of student admission, educational programs, faculty members, and costs. Through indicators, functional processes such as education, research, and services can be assessed, and they can pave the way for enhancing quality in every higher education institute. Kels (1990) claims that functional indicators can be regarded as keys for future strategic decisions of universities, which lead to proper arrangement of activities and improved performance of higher education. Furthermore, development and application of functional indicators can cause internal autonomy of the university. Dutch et al. (2001) also believe that functional indicators assess performance of higher education institutes on the basis of process of action, objectives of the system, and efficiency. Recently, theorists like Grosgen (2000) have acknowledged that functional indicators cause better management of financial affairs of the universities. Educational input indicators include human resources and financial and physical resources (Hosaininasab, 1993). Educational process indicators include teaching, management, research monitoring and support, and quality control procedures (Altaraki & Dufova, 2003). Also, educational output indicators include graduates, basic researches, and provision of community services such as, educational workshops to the society (Hosaininasab, 1993).

Methodology

The methodology used in this study is descriptive-analytical, in which attempt has been made to describe and

explain economic management based on library information and higher education programs in Iran.

Financial Resources of Higher Education

Financial security of the universities is becoming increasingly difficult due to the following reasons: 1) the public sector is under tremendous pressure of duties associated with allocation of funds (such as caring for the elderly, health, poverty, and foreign aid), as well as security issues and maintenance of public infrastructures. As a result, reducing percentage of share allocated to higher education section is obvious. 2) Private sector is less willing to transfer funds to universities without receiving services in return, or exert influence in their activities. 3) Increasing cost of providing university education services and conducting research is considerably more than the increasing costs of living. Therefore, higher education institutes should take serious actions on both sides of the budget. In other words, preserve and even increase their own incomes on the one hand, and reduce costs of production unit and transfer of new knowledge on the other hand. Any institute that ignores these issues will inevitably face reduction in its range and also its quality. Many factors can be considered as the cause of current financial problems in Western Europe and North American universities. One of the most important factors is the decrease in governments' support, but this is not the only reason. Postgraduate education and research, especially in the area of basic sciences with much more needed expensive equipment than other areas of science, has increasingly become costly. In addition, government regulations and request for necessary equipment have become more difficult (Verner & Weber, 2004).

Development of the new financial resources of universities has caused making use of private donations which counts for millions of dollars, which actually is not a recent issue, but has rapidly increased in recent years in the United States in order to compensate for decreased government support and increased operational costs. Currently some universities manage to collect funds exceeding one billion dollars in every 5-7 years course of activity. However, in European countries, universities have always relied on government funds, but they also consider the financial aids of private sector (Hit, 2003). Although the amount of donations has increased, they are not sufficient for the growing costs of universities and colleges. Thus, institutes are seeking new financial resources, which require huge entrepreneurship that generally directs them toward an outside domain which has its unique dynamics. These resources include: A) Financial sponsorship of university research, invention copyrights (patent), licensing, and commercialization. B) commercial institutions owned by universities. C) University and private sector business partnership (Yusefzadeh, 2003).

Economic Management Based on Operational Economy

Operational economy is estimated and calculated, based on operational classification of the current costs of organizations and in terms of functions and activities in the form of workload of the organization unit, and with cost assessment of every operable activity for the efficient production of commodities or services, which involves all the executive managers. The most important characteristic of operational economy is that it shows the relationship between amount of funds allocated to each program and results achieved from implementation of that program. This type of economic program identifies and lists all the direct and indirect activities necessary in each program, and provides an accurate estimation of the costs of each activity. This type of economic system also seeks to create a link between functional indicators and allocation of resources based

on achievement of specific and measurable results. In university systems, operational economy is based on "cost-benefit analysis", which implies credits given to universities for their current costs should be spent on educational, research, services, and supporting activities of the university, which must be financially and economically justified.

Financial Resources of Higher Education in America and Europe

Considering the fact that performance indicators which are related to higher education financial resources vary in different countries, identifying performance-related budgeting funds in different countries should be analyzed. In seven states of the United States of America, factors such as economic and workforce development, research studies of graduation, and ... are considered as performance criteria. These indicators explain the change of direction in performance-based provision of funding resources from needed sources into the results obtained from higher education system. In terms of financial resources supplying level, the observed difference during 1996-1997 varied from 1% of state tax in Florida, Minnesota, and Ohio, to 5.45% in Tennessee (Austinson, 2003). The Pennsylvania State Board of Higher Education (2000) also considers some of the performance criteria associated with financial resources measurement as follows: students' success, earning academic benefits, provision of public welfare services, monitoring and development of resources. Kaz & Tensolli (2005) describe the three components of system accountability program for distribution of performance-based funds as: organizational progress, comparative successes, and achievement of performance goals. In some European countries, such as England, since mid-1980's, universities have been advised to develop clear and vivid objectives, and to increase efficiency in line with priorities and determined performance indicators, in order to obtain their required financial resources. Accordingly, since early 1990's, universities in Britain implemented educational and research evaluations. Today, in England, performance efficiency indicators and efficacy of educational institutes are used for public sector investment and distribution of funds among education and research sections (Dutch et al., 2001). In Germany, the approach to provision of funds is performance-based, and is known as Rhineland-Patatinat, which was first published in 1993, and revised in 1998. The general objective in this model is achievement of a financial resources system characterized by vividness, fairness, competitiveness, and reward. In Australia, the use of performance indicators in university modern system in allocating funds relates to a special committee established in 1986. As a result, university chancellors were requested to prepare university performance indicators. Therefore, the use of performance indicators such as academic courses, and results of educational assessments became the criterion for allocation of funds to universities. In the early 1980's, University Union was established in the Netherlands, and began its coherent use of performance indicators in higher education, and in 1993 created a new financial system. Some of these indicators, through direct allocation of funds to universities are involved in policy making in higher education. In addition, the allocated funds are distributed according to internal criteria and indicators within the university. Recently, more attention has been drawn to indicators in financing evaluation of funds. In France, use of performance indicators began in 1910, and indicators in the areas of teaching, research and services of universities were used (Clark, 1997).

Problems in the Country's Higher Education System Mismatch of trained manpower with the country's need

A major problem of the country's higher education system is the mismatch between university trained manpower and community's needs. In other words, universities do not train manpower in accordance to the needs of the community, but according to availability of professors and capabilities in the presented educational courses.

Inefficiency of higher education system High cost of education in public sector per-capita

A major proportion of the annual public budget (2.44%) is allocated to universities in our country to provide the manpower required by the country, and the most talented young people enter universities for education. The budget of higher education system from our country's public resources in 2008 equals 25,962 billion Rials, compared to the government's public budget expenditure of 939,123 billion Rials in the same year (the overall higher education budget from public and private sectors in 2008 was 30,848 billion Rials) (The Higher Education National Report, 2008). By dividing the higher education budget by the number of students in higher education, annual cost per-capita would be 3,880,000 Rials, and if average duration of education courses is considered to be 4 years, then the direct cost of education of every student would be approximately 155,000,000 Rials. In comparison, the expenses paid by each Islamic Azad University student for a Bachelor's degree course is 45,000,000 million Rials, which is partially spent on development of new units of the university. Contrary to the above-mentioned analysis, it is believed that the structure governing the university complex does not create the incentive to change into intended path, and until these structures are not reformed, these problems will continue to exist. Improvement of the existing financial system of universities and their evaluation and ranking methods, along with authorities that are gradually given to universities, can provide a solution to this problem. Institutions, like people, have different incentives to movement and change. In addition to their spiritual and personal motives, their motivation can also be classified as financial and credit motives. Financial motives are associated with the institute's incomes such as higher budgets, or incentives rewarded to managers, and credit motives is related to higher social status, or ranking of the institute. By paying careful attention of the current structure of higher education of the country, it can be seen that these structures have been designed in such a way that the efficiency of the university has no effect on the facilities and credits allocated to that university and this has led to improvement of universities through personal motives only. Given this problem, one of the most important issues that require reform is the method of providing budget and evaluation and ranking of universities. These reforms must be implemented in such a way that the more a specific university meets community needs and the more efficient it is, the more budget, or financial benefits and credits are awarded to that university.

A Proposed Model for Managing the Budget of Education

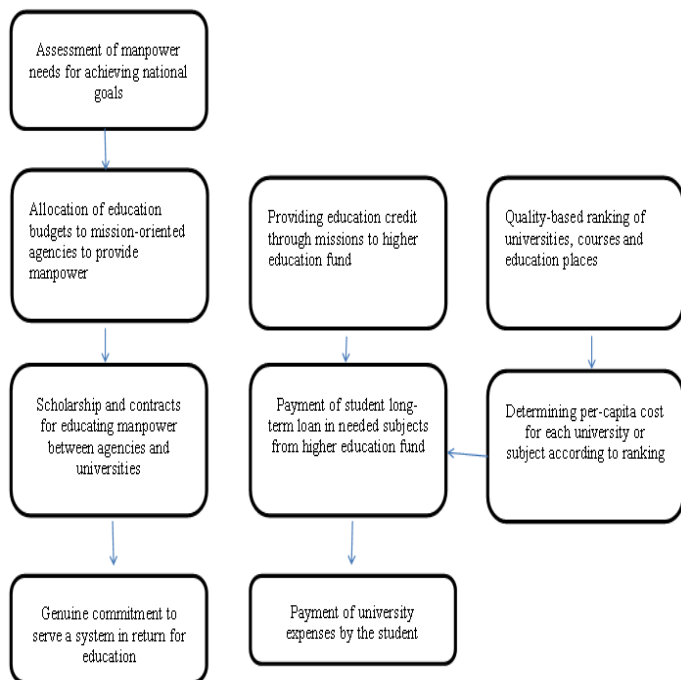
In this model, the specific proposal is that allocation of education budgets should be targeted and need-based, and the current method in which the budget is directly paid out to the Ministry of Science, and then through to the universities, must be eliminated. Education budgets are determined based on national objectives and level of manpower required in the proposed structure. Then, these budgets are allocated to educating the students by two means:

1. The major part of the budget is allocated to the education funds, and support it according to the country's manpower needs

and educational quality, placements, capacity and location of each educational field of study, the fund will undertake education costs for these capacities in the form of subsidized loans. Also, the fund will be determined based on placements and the educational quality of the field, and accordingly the universities will register students according to the lawful tariffs. By the end of their education, the subsidized loans received by students will be returned, in a way not to prevent them from getting married and having children.

2. Part of this budget will be made available to mission-oriented agencies to sign contracts with some universities for manpower education. Applicants of these trainings can apply through entrance examinations, or related test system. In return for free education, these students will be committed to serve the system after graduation, and this will be applicable in PhD courses.

3. For postgraduate courses, research contracts can be signed, and it can include the payment for education expenses. If government budgets are not sufficient for achieving national goals, and the government cannot meet necessary budgets for all government-needed students, then talented students (not supported by the fund) can continue their education by paying themselves. In this model, it is recommended that a fund be created under the name of "higher education fund" and the cost of country's higher education and related financial operations be paid out of this fund. Considering the importance of university efficiency in financial entries, in order to help effectiveness of the university, it should have the authority to select faculty members, to determine the capacity in different majors, and to select its own staff.



Investigating the Proposed Model

In the proposed model credibility of higher education is dependent on employment of students; thus universities should be directed toward setting the capacity according to community needs. Also, because the students have to pay their own education costs in future, they must choose their field of study according to the available job opportunities. In this mechanism, if students are more empowered in acquiring skills needed by the society, university's qualifications will be more credible, and would be more prestigious and credible qualification can demand more funds for educating a student, and consequently, such a university is better and more funded. In such a structure,

the university has financial incentives for educating more empowered students. Considering the reform of students' assessment system, if a university gives certificates to students without acquiring adequate scientific capabilities, its ranking by the Ministry of Science will decline, and thus, its funds will be reduced. In this regard, cost of corruption will be high.

Methods of Financing Higher Education

Different higher education financing, based on stakeholders, can be classified into 4 general categories. In the first group, sources of providing finances are the students and their parents. In the second category, it is usually employers, different organizations and research institutions that provide part of resources required by the university. The third category is the tax payers (Government); and fourth one, are beneficent people. On the other hand, there are two main methods for transferring the above-mentioned resources to high education institutes; financing student, or financing institutes directly (Verner & Weber, 2004).

Administration strategies for application of indicators in higher education of Iran

University management requires the following investigations in order to conduct scientific reforms and adjust financial management system, and also to prepare operational budget, to access educational and service activities: preparing measurement tools for the university's goals and accomplishments, determining the performance indicators and allocating standard budgets to universities according to their objectives, calculating costs per-capita in terms of existing university courses and subjects, designing a model of credit allocation to universities, preparing and requesting annual university budget from the management and planning organization, and planning transition to desired status from present status. The combination of the six cases mentioned above is transformed into a comprehensive financial management system. In fact, there are six types of functional indicators for operational economy of higher education; 1. Inputs (what are the financial resources of those programs?), 2. Processes (what are the operational methods of those activities?), 3. Organizational levels, 4. Results, 5. Efficiency of financial resources, 6. Efficacy.

Conclusion

Management of operational economy is a system based on performance indicators and standards for producing present and future information, in order to achieve and provide desirable educational and service outcomes in the universities. Design of operational economy system is faced with various challenges, which include limitations in concentrated financial and budgetary system that allow little opportunity for scientific approaches, lack of preparation of university management, lack of internal university data-bases, and lack of university strategic plans.

References:

- Gharoon M (2004); analysis and estimate of higher education entrance application. Translation by project executive, higher education research and planning institution; Tehran
- Hosaininasab D (1993); center for development of efficiency of science faculty members of universities, Tehran: higher education planning institute publication
- Khorshidi, Abbassi, Ghorchian, Nadergholi (2000), performance indicators in improving qualitative management of higher education. Tehran, Fara-shenakhti, Andisheh

Saketi P, Saeedi A (2007). A proposal for performance-based university budgeting. 1st operational budgeting conference, Tehran

Verner Z L, Weber (2004): challenges facing higher education in the third millennium. Translated by Reza Yuseffian Amelshi, Tehran: University of Imam Hussein (A)

Yusefzadeh MR (2003), role of standards in educational reforms; Tehran, Ministry of Education, office of promotion of quality and standards, National Conference of Standards, Tehran University