

Exploring the effect of implementing accrual accounting system on performance-based budgeting of organizations

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Abstract

Enterprise resource planning is among the concepts aiming at recognition, planning, allocation and measurement of organizational resources and demands, specification of aims focusing on results by applying cost management to reduce expenses and enhance quality of services. This matter require the application of an appropriate budgeting method for optimal allocation of organizational resources that regarding positive results obtained from implementing performance-based budgeting in different organizations, this kind of budgeting can be a suitable method for managing organizational resources, budget allocation and purpose achievements. Therefore, this article by document mining and review of the literature, explores the effect of implementing accrual accounting system on performance-based budgeting of organizations. Focusing on different studies and their results, it can be concluded that performance-based budgeting focused on performance results and optimal allocation of organizational resources in accrual accounting system can bring not only transparency in financial reports through exact and controlled resource allocations, but also draw the attention of authorities and managers to the economy effectiveness, efficiency of organizational resources to enhance the satisfaction of people and offer services with high quality and low cost.

Keywords: performance-based budgeting, enterprise resource planning, accrual accounting.

Introduction

Budget is considered one of the most important aspects in building an organization. An organization usually makes its decisions and future expectations based on its resources. These resources can be effective in strategic decisions and increased incomes. Nowadays, because of complexity and different developments, planning in organizational resources become crucially important. Planning based on optimal use of resources, reduction of loss and obtaining competitive advantage in organization can be influential in their developing trend. With regard to the aim of enhancing effectiveness and reaching the highest performance in organizations, it can be said that budgeting based on applying new methods in planning can contribute to their performance. Budget as the most significant financial document of government operations plays an important role in achieving long-term programs of development in the country. Therefore, attempts to make it better is always called for (Foroghi, et al.2012).

Performance-based budgeting is actually defined as an effective approach in budgeting system based on output cost. In this planning system, a hierarchy of programs, designs, projects and activities are defined in such a way that the cost of each program can be determined based on its standards and procedures. Some indicators are defined for each activity or decision that is measurable qualitatively or quantitatively. All activities regardless of retrospective system must be prioritized based on aims and indicators and limited organizational resources would be allocated to defined and prioritized purposes to achieve intended goals. In performance-based budgeting, it is necessary to have a comprehensive system of information with a technological approach to associate different programs with approaches based on optimal programming. Therefore, a significant saving results from recognition of waste activities and reworks. (Azar, 2007).

Promotion of performance and activity levels and gaining appropriate return are among the most significant achievements in each organization affected by several factors like enterprise resource planning and choosing appropriate method of budgeting (Rahnavard, 2008).

Crucial indicator in performance-based budgeting is the control and guide of organizational outcomes. Accordingly, activities are considered based on their costs in budget calculation. Organizations are required to specify their transparent goals, perspectives and values by effective and informed managers to achieve the best model of budgeting. As it was mentioned, the advantage of accrual accounting is precise and controlled allocations of budgeting results in reduction of cost. This advantage returns to the organization itself that under this condition, credits will be devoted to their certain costs.

Statement of the problem

Beyond information, knowledge and technology, today's world needs wisdom. Nowadays, most activities and human life affairs are conducted by organizations and if organizations are supposed to serve in the growth and excellence of physical, mental and spiritual aspects of human and contribute to promotion of social justice, it is obligatory to explore the outcomes of organizational decisions and their effects on societies and human life in long term. Accordingly, enterprise resource planning is presented that for its sound management, we need innovative methodology in financial capital, knowledge and information, structure, human resources, intellectual and mental credits (Rezaei Baghalzade, 2014). On the other hand, performance-based budgeting involves all managers from head to individual program managers and subsidiary managers. This process includes feedback cycle that provide top managers with correct information for their activity managements. Finally, performance-based budgeting leads to more efficient

exploitation of organizational resources. Managers would be able to exploit the available resources to obtain intended goals in budget more effectively (Ansari and Zeinali, 2008).

Since enterprise resource planning plays a crucial role in achieving organization goals by using cost management to reduce costs and enhance quality of services, in this article we are supposed to answer this question that “what is the role of accrual accounting system in performance-based budgeting in organizations?”

Review of the literature

Ranani (2001) in his article “*Budgeting System and Reforms*” concludes that governments resort to guidelines for the optimal allocation of limited resources to satisfy their needs and develop balance between demands and resources. Budgeting is one of the most significant financial systems in every society that without its reform there is no hope for reform in other social systems and this action is possible only through performance-based budgeting.

Namazi (2006) in the study “*Exploring the Method of Allocation of Budget Credits by Using Ideal Programming Model*” stresses that attempts toward budget codification and resource allocation should maximize the using of available resources to obtain desirable goals. Moreover, government that has the financial resources of the society and aims to develop the society, is obliged to allocate these limited resources in an optimal way with no deficit or surplus. This aim is obtained through an appropriate budgeting system.

Raeesi (2006) in his study “*Performance-Based Budgeting*” stresses that in this budgeting, resources are allocated based on the priorities and measurable results. Performance-based budgeting is the product of strategic planning in which decisions relevant to optimal allocation of resources based on results are accepted and organizational measures are related to the overall and specific goals and operational programs of each organization.

Khodamipoor and Zeinali (2007) in “*Budgeting System Based on Performance and its Effect on Performance and Accountability of Government*” stress that performance-based budgeting through using total quality management and reducing costs and enhancing customers’ satisfaction results in performance promotion and more effective exploitation of organization resources and managers would be able to utilize available resources to achieve intended goals formulated in budget.

Fultin (1999) in the study “*Measurement of State and Local Performance from Past to Present*” concludes that performance-based budgeting by correct decisions about how to use resources causes enhancement of organization performance and based on targeting and ability of measuring financial resources of organization can be effective in organization performance through achieving visions and goals and enhancing productivity.

Yung (2003) in the article “*Performance-Based Budgeting System*” concluded that using performance information and performance based on budgeting result in better decisions in credit and budget allocation in the assembly. But political, social and financial factors may also intervene in this process. However, overall result is that using performance-based budgeting increases effectiveness of government consumed resources.

Tugen (2008) in “*Analysis of Critical Control Points of alternative Decisions on the Choice of Performance -Based Budgeting System*” classified effective factors on performance-based budgeting into

4 groups: quality of communication across the organization, quality of the organization's employees, identifying strategic priorities in the organization and performance-based resource allocation.

Sayel Ramadhan(2008) in the study “*Budgetary Accounting and Reporting Practices in Bahraini Governmental Units*” concludes that for developing important management changes and major reforms aiming at improving efficiency and effectiveness, transparency, performance and accountability and proper management of resources we need an appropriate budgeting.

Theoretical principles

1. Performance-based budgeting

Performance-based budgeting or operational budgeting is the budget formulated based on functions, operations and projects that government agencies are responsible for. In performance-based budgeting formulation instead of commodities and services purchased by organization, or in the other word, instead of considering commodities or services that are the means for implementing activities, activities themselves and the costs of the works to be done are considered (Diamond,2002). In performance-based budgeting not only credit separation to responsibilities, programs, activities, designs but also operating costs of government and governmental organs are calculated and measured according to scientific methods like cost accounting, work measurement. Expected figures in performance budgeting must be subjected to detailed analysis of programs, activities and also their cost. Performance budgeting specify cost of a hospital bed and also the costs of a 100-bed hospital or time and cost spent in construction of a 5-class school (Farajvand,2004).

Performance-based budgeting is a tool that facilitate more accurate anticipation of the acquisition and consumption of resources and calculation of correct cost and improve competitive condition between organizations. In this budgeting resources are allocated based on priorities and results are measured. A performance-based budgeting in addition to allocation of government costs define and determine all activities for supporting a program. In formulation of performance-based budgeting, the extent and amount of activity is specified and the cost of each unit of activity is determined based on activity (Hadinia and Mohammadi,2008).

Performance-based budgeting reflects annual program and annual budget that shows relationship between fee allocation for each program and obtained results of that program. This means that regarding the amount of cost in each program, some given goals should be obtained (Kordbache, 2006). This kind of budgeting is a mechanism aiming at strengthening the relationship between budget spent on public institutions and the results of using official performance data in decision making regarding resource allocation (Mahdavi,2006).

Performance-based budgeting is a kind of budgeting system that utilizes systematically performance indicators in allocation of scarce general resources (Ghahramani, 2013).

2. Enterprise resource planning

Enterprise resource planning is among the concepts developed along the strategy of “focusing at the same time of distribution” aims at recognition, planning, allocation and measurement of organization resources. In the past many activities of supply chain were traditionally conducted through paper, phone and fax which was very inefficient, costly, slow and full of faults. Therefore, when using computer was started in business, many people called for automate supply chain processes. The philosophy of enterprise resource planning can be explained in these human needs and demands because nowadays by increasingly

complex organizations and incredible volume of data, using computerized systems to automate the flow of information at all levels and layers of the organization become inevitable (Rezaei Baghalzadeh, 2014). Enterprise resource planning, customer relationship management and supply chain management are the most prominent integrated information systems that are formed by their combinations with trade activities organizational structures based on integrated information system (Saedi and Yazdani, 2009). Enterprise resource planning aims at covering all activities from supply chain management, inventory control, manufacturing, financial and cost accounting, human resources and almost any other process based on other data (O'Leary, 2000).

Enterprise resource planning is developed for supporting development of integrated information in different units of organization including different parts of it, such as production, national and human resources. It is also a system circulating the information of important processes of organization in an integrated database platform and offer them to all stakeholders inside and outside the organization (Mohaghar, Mehrgan and Rahmati, 2012).

Enterprise resource planning include 4 groups of resources in organization: financial, physical, human and strategies and procedures. Tangible resources are called physical like equipment and raw materials. Financial resources are used as cash or credit or other financial instrument used by organizations. Resources that create value and are resulted from organization interactions and executive activities are mentioned as strategies and procedures of organization that cover e-organizations and other relevant abilities (Hunger, 2003).

3 .Accrual accounting and performance-based budgeting

Codification and implementation of performance-based budgeting in governmental agencies require the application of accrual accounting to determine the real costs of programs and activities. In performance-based budgeting not only separation of credits based on duties, programs, activities and projects but also the extent of operations and administrative costs of government operations and relevant agencies are calculated and determined based on cost accounting methods that these issues make more visible the requirement of accrual accounting (Kordestan and Iranshahi, 2009).

To ensure the successful adoption of accrual accounting, all government departments must implement, support and encourage accrual accounting. Therefore, any proposal to change the system of government accounting should meet the needs of existing and emerging information needs (Mahdavi, 2000). Of course, notifying all government departments of benefits of accrual accounting system is essential (Mohammadipour and Ahmadi, 2013).

4-Purposes of performance-based budgeting

The Purpose of performance-based budgeting is looking for a connection between Performance indicators and resource allocation. Therefore, it revolves around two points of relationship of budget with results and performance indicator with measurement. According to this method, budgeting is a program consisted of annual performance and annual budget that reflects the association between the level of program funding and expected results. It also emphasizes that one specific aim or a group of aims should be obtained by a given amount of credits. A performance-based budgeting in addition to allocation of activity costs, determines and defines required (direct or indirect) activities for supporting a program (Farzib, 2002).

Generally we can define

1. Presenting an appropriate basis for decision making on the budget.
2. Determining measurable and expected results obtainable from a specific budget allocation.
3. Decision-making focused on the main issues and challenges facing the organ.
4. Developing a logical process for decision- making on budget that is directly associated with budgeting process, implementing, controlling and performance reporting.
5. Improvement of program planning and formulating.
6. Proposing the best possible tools based on results for assessing society regarding consumption of the country resources for satisfying essential requirements.
7. Establishing a relationship between budget and performance results.
8. Presenting measurable information for the Judiciary, Legislative and Executive to control the achievement and success of program with respect to budget allocation.
9. Providing incentives for performance management based on continuous improvement.
10. Possibility of effective monitoring on operations.
11. Facilitation and improvement of revised budget in all administrative steps specially in legislative level.
12. Transparency of budgeting process.
13. Performance improvement through association between budget and performance program.
14. Strengthening the sense of responsibility in managers regarding effective decision-making based on budgeting process (Borzoozade ,2011).

5. Advantages of performance-based budgeting

1. Increased accountability based on results.
2. Improvement of performance management.
3. Improvement of allocation method.
4. Presenting a valuable diagnostic model.
5. Contributing to budget justification: an effective performance budgeting is more transparent in comparison to traditional budgeting. By using obvious scales performance budgeting can measure overall cost of the activity as a basis for outcomes of programs and purposes and is a valuable tool for exploring the effect of changes in expenses on results.
6. A basis for performance management system.
7. Allows mutual goals in programs.
8. Protection of informed and more tangible decisions.

6. Requirements of performance-based budgeting

Requirements of performance budgeting in Iran can be divided into two groups of technical and logical requirements.

6.1. Technical requirements

1. Planning and operation control: basis for cost estimation in budget formulation focused on performance is action plan. Therefore, a close relationship is developed between budget formulation and budget implementation. Action plan is the basis of credits and by establishing comprehensive and detailed

reporting systems periodically, we can compare the amount of performance actions with anticipated actions and determine deviation of action results from action plan (based on expenses and credits). Therefore, preparing an action plan and establishing reporting systems that require budget formulation based on performance, is an effective tool for controlling actions and preventing from occurrence or repetitions of deviations. Thus, central monitoring of top authorities of organization is facilitated.

2. Review and approval of budget estimations: budget formulation based on performance creates better quality and review in budget estimations (especially legislative step). Budget formulation based on performance results prevents legislator from playing a significant role in the final revision. The main reason is that budget is formulated according to specific methods and approaches based on expert reviews. Furthermore, study of performance budgeting require much spent time and intervention. Thus budget formulation based on performance obliged legislator not to reduce credits without strong logic and reason. Yet, this matter concerns those people in parliament that consider parliament intervention as a necessity for democracy. There is no doubt that budget formulation-based on performance strengthens the practical power of executive branch in budget formulation and implementation.

3. Decentralization of cost estimation: another advantage considered for budgeting-based formulation based on performance is decentralization created apparently by cost estimation. Cost estimation in performance budgeting is performed based on different actions and programs of the organization, so cost estimation initially is conducted by those people who have direct supervision on the actions, like heads of department and branches of organization. Then cost estimation starts from lower classes of an organization. Thus, administrative hierarchy is revised and changed by higher authorities. It is obvious that this action is useful when heads of lower classes estimate the cost honestly and correctly in such a way that justify their proposed credits regardless of real costs of actions. Under this condition budget formulation based on performance does not obtain desirable results. The first requirement in budget formulation is classification of operation conducted by governmental organization. All similar operations required for implementation of a specific purpose should be assigned to a single agency as a comprehensive plan. Currently, many similar actions with single goal are conducted with different executive organs. Even labor division among offices of an organization is in such a way that do not prevent from repetition and sharing of duties. So limit of duties and accountability of governmental institutions are not specified exactly and it is not possible to determine action costs that cover a single goal. Therefore, basic condition is the implementation of a new theory, cost estimation for each program and action of governmental agencies and for achieving this purpose all similar actions conducted for a single goal should be focused in an organization and avoid a similar action in various organs (Ghahramani,2013). Asgari Azad also refers to some technical requirements of performance budgeting:

1. Setting quantitative and measurable goals in the way of achieving idealistic purposes.
2. Determining different methods for achieving goals like service production, service purchase and so on.
3. Prioritization of goals with respect with limited resources.
4. Classification and definition of programs and activities of organizational units in form of strategic goals and organizational missions.
5. Determining costs of programs and activities according to their quality and geographical place using relevant methods.

6. Formulation of budget bill with a targeted and performance approach based on determination of programs, activities and their cost.
7. Distribution of resources based on these figures in budget laws among smallest units of organization according to quantity, quality and the place of a given activity.
8. Setting up a management agreement among higher managers with managers of operational units for doing activities based on cost.
9. Granting necessary authority to executive managers for codification of processes and conducting administrative, financial and recruitment reforms in achieving determined goals according to cost.
10. Defining regulatory systems and performance assessment aiming at result and product control instead of controlling the process of duty conduction.
11. Allocation of resources according to achieving determined goals in the agreement.
12. Change of cash accounting system to systemic and scientific management.
13. Receiving performance reports and compliance with idealistic and strategic goals and decision making for next programs.
14. Belief of authorities and stakeholders to scientific and systemic management.
15. Establishing an integrated management information system (Asgari Azad, 2007).

6.2. Legal requirements

Islamic Consultative Assembly in paragraph “z” note 1 of budget law 2002 and paragraph 2 paragraph “B”, note 4 of budget law 2003 and 2004 and article 138 and 144 of the fourth developmental plan obliged the government to transform the current method to a targeted and performance approach based on cost of services.

7. Enterprise resource planning (ERP)

In managing resources of organization, enterprise resource planning is one of the latest software system considered by most organizations and is under implementation. It is a large system consists of several integrated sub-systems that assists organizations in promoting performance and enhancing profitability and efficiency. This system based on organization type, has different sub-systems but financial management and human resource management is among the most important sub-systems.

Advantages of applying this system include:

- Integrating all the parts, sections and resources
- integrating personnel and management processes
- A huge increase in efficiency and effectiveness across the organization
- increasing the transparency of processes and executive affairs of customer
- increasing in work sharing in market due to a huge increase in efficiency.
- integrated management in all organization resources including financial, human, manufacturing ones.
- A sharp decline in transportation costs and resource maintenance.
- Sharp reduction in maintenance costs and equipment upgrades.
- Lower production costs, ordering, implementation and sales
- Removing the paper from the process cycle and speed up the performance of various sectors
- Increasing customer turnover and higher business yields increased number of customers.
- Very high flexibility in improving organization's software system with much lower costs

- Information management, warehousing, accounting, human resources and distribution (Rezaei Baghalzadh, 2014).

8. Advantages of accrual accounting

Among the advantages of accrual accounting we can refer to:

- Quick access to comprehensive, accurate and complete information of organization's status quo.
- Ability to recognize the need for spending on accurate information of sources and requirements.
- specifying accrued revenues in each fiscal period and possibility of planning for their collection.
- access to more complete and accurate information of incomes and expenses for each period (including cash and non-cash).
- The possibility of linking cost and their performance, thereby laying the groundwork for entering the discussion of performance-based budgeting.
- Ability to assess the accountability of officials and managers and evaluating their performance at the end of each period and at different organizational levels.

Conclusion

Undoubtedly, the role of enterprise resources planning in integrating management and personnel processes, drastic reduction of costs in all units of organizations, sustainable development and achieving competitive advantage is not hidden to anyone. Accordingly, in this regard there are a lot of factors that each of them cause somehow optimal allocation of organization resources to promote and develop organization in this world of severe competition and lack of governmental and non-governmental credits that performance-based budgeting by its advantages like promotion of performance and improvement of resource allocation is among the effective factors in enterprise resource management. This conclusion is completely consistent with the results of Khodamipour and Zeinali's study "performance-based budgeting and its effect on the performance and accountability of government" in which it is stated that performance-based budgeting results in improvement in government performance through using total quality management, reducing costs and increasing consumers' satisfaction. In fact it leads to more effective utilization of resources and managers would be able to use the available resources to achieve expected goals in budget more effectively.

Important factors in achievement of enterprise resource planning include initial incorrect assessment of the organization resources and inaccuracy in calculating the correct cost price of items, activities, programs and resources. In order to overcome this shortcoming, organization must resort to performance-based budgeting that can measure the results of all aspects of any organization, including programs, projects and activities to transparently.

In this respect, performance-based budgeting regarding the obtained results from its implementation in different organizations, is an instrument that facilitate more accurately the anticipation of acquisition and consumption of resources, control of financial resources and also facilitate the correct calculation of cost and of course improve the competitive conditions between organizations. In performance-based budgeting resources are allocated based on priorities and results are measured. Therefore, it is concluded that this system play an important role in enterprise resource planning to improve and promote organizations in this rapidly changing and competitive world. This corresponds with the results of Fultin (1999) study "State and Local Government Performance: It's Time to Measure Up" because it is

mentioned that performance-based budgeting can promote organization performance by correct decisions about how to use resources. This system also contributes to achieving visions and goals and enhancing productivity in promotion of organization performance.

Regarding today's economic conditions in governmental organizations, by assigning correct and optimal allocation of scarce resources, we can approach the results of measuring performance and productivity to improve the ability of governmental agencies and upgrade them. For this purpose, enterprise resource planning as well as performance-based budgeting are influential steps because by evaluation of inputs and outputs and controlling the proper use of resources this goals are attainable.

Due to the increasing performance assessment methods for controlling the proper control of use and optimal allocation of resources, governmental organizations would be able to contribute to increased program performances and continuous improvement through targeting and measuring of their performance and consequently they play an effective role in achievement and development of future programs of organizations. This statements are consistent with Yung' study" performance-based budgeting" because he declares that utilizing information based on performance leads to better decisions in budget and credit allocation. However, political, social and economic factors may also be involved. Anyway, general conclusion is that applying performance-based budgeting results in enhancement of consumed resources.

Finally it is worth mentioning that the optimal program structure and management and scientific leadership in the organization are the basis for budget reform in performance-based budgeting. Because this system leads to enhanced efficiency and effectiveness in public expenditure management and conservation of resources. More than 100 countries in the world have experienced the use of performance-based budgeting and reported positive results in cost savings.

In our country this system seems necessary to prevent from losing available resources and managing them in obtaining maximum efficiency. Of course the prerequisite of this budgeting is having software and hardware infrastructure as well as expert education to create a national determination for deploying this system in the sixth development plan policies that require special consideration of government officials and stakeholders in this field.

Suggested solutions

With respect to the present research on performance-based budgeting on expertise resources planning emphasizing on accrual accounting, some suggestions are provided by researcher that are presented below:

1. Implementing and applying performance-based budgeting focused on enterprise resource planning in the first place requires understanding of its role and importance. Therefore, it is suggested that officials and organization executives invite certified Professionals in the budget and accrual accounting and hold different meetings and workshops relevant to importance and significance of this budgeting in accrual accounting to justify them to implement this method.
2. Regarding increased amount of information and introduction of advanced information technologies in programs and goals of organization it is suggested that relevant authorities for correct and optimal management of scarce resources resort to up-to-date information systems with high speed and accuracy in all organization levels. It is also recommended to use financial software that is capable of simultaneous record of accrual and cash accounting.

3. Due to the need of enterprise resource planning to budgeting method that explicitly determine visions and ultimate goals of organization in using resources and expenditures, with respect to positive results of implementing and applying performance-based budgeting it is proposed that managers utilize this system in their organization.
4. One of the most influential factors in enterprise resource planning and implementation of performance-based budgeting approach in organizations is the accurate measurement of program and activity performance. Thus, is recommended that organizations pay more attention to modern approaches in performance measurement and apply them.
5. As in the conclusion we referred to positive role of performance-based budgeting in correct and optimal management of scarce resources of organizations, it is suggested that top officials of the Islamic Republic of Iran take more consideration into factors like : the lack of experienced and qualified staff and experts holding degrees relevant to budgeting , lack of strategic planning, lack of budgeting indicator, The lack of budgeting validity ,no change in the flaws of accounting and reporting systems. This factors lead to failure in implementation of performance-based budgeting in governmental and nongovernmental organizations and removing them can facilitate achieving to goals of 20-years vision plan of Islamic Republic of Iran in 2025.
6. since one of the basic needs of implementing performance-based budgeting is the cost of activities that is also requires the application of appropriate accounting basis, ministry of economic affairs and finance should consider the codification of government accounting standards in its agenda and by cooperation with other competent agencies create necessary ground for calculating accurate cost and finally implementation of performance-based budgeting that requires more attention of authorities to accrual accounting in budgeting and also codification of public sector accounting standards with cooperation of audit organization.

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