



USE OF COST-BENEFIT ANALYSIS IN CAPITAL BUDGETING OPTIMIZATION IN PUBLIC SECTOR

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ABSTRACT

As a public servant, the government has obligations and responsibilities to use every available resource effectively and efficiently. Therefore, using a capital budget is necessary to measure the extent to which the costs incurred can support the expected outputs and results. One of the methods that can be chosen in applying capital budgeting in the public sector is Cost-Benefit Analysis. This method will measure whether the results (benefits) obtained exceed the resources (costs) incurred. This paper aims to identify the use of the Cost-Benefit Analysis method in the public sector and the optimization of capital budgeting through its use. The results of the study indicate that there are several government programs and activities that apply the Cost-Benefit Analysis method in their implementation. Furthermore, it was also found that optimization resulted from implementing capital budgeting in the public sector.

Keywords: Capital budgeting, Cost-Benefit Analysis, public sector

INTRODUCTION

Every organization, institution, or corporation in this world has limitations in terms of the resources they have, both human, financial, and other resources. Those limitations lead to the need for optimization in the use of available resources so that every usage of those resources will provide maximal and optimal benefits. Planning an investment, especially one with large amounts, requires careful consideration of the advantages and disadvantages of the investment. An investment that will be made must provide added value or benefits that the investor or others can feel. Investment is also closely related to risk when the investment made does not produce the expected benefits or returns. In the realm of private organizations or institutions, the activity of determining investment feasibility is commonly known as capital budgeting. The term capital budgeting is used to describe the act of planning and spending capital expenditures. Mowen et al. (2012) defined capital budgeting as a process of planning, setting priorities and outputs or outcomes, setting budgets, and using specific criteria to select investments or long-term assets. Therefore, the expenditure of significant resources over a long time requires careful planning to minimize the risk of failure. Capital budgeting is a valuable concept in optimizing resource use and generating benefits to achieving organizational goals.

Capital budgeting is also used in some activities within the public sector. One method that can be used in capital budgeting in the public sector is Cost-Benefit Analysis (CBA). CBA is one of the techniques used to evaluate the use of economic resources so that those resources can be used efficiently. CBA is a tool in the decision-making process that considers the extent to which the resources (costs) expended can optimally provide the expected outputs and outcomes (benefits). CBA is an appropriate method when accurate and rational efficiency is the primary consideration for investment activities (Kawuluan, 2016). Roy Simbel (2003) argued that CBA is a tool that can be used for quick decision-making. According to his statement, the costs that must be incurred and the benefits that can be obtained in the decision-making process should be used as a guide in capital budgeting. CBA is used while still referring to the goals or results set. CBA aims to provide and choose alternatives that can support achieving the goals with the most significant benefits and tolerable risks.

This paper aims to identify the application of the CBA method in capital budgeting in the public sector area. Furthermore, the analysis and discussion in this paper will identify the features, benefits, measurement mechanisms, and challenges of implementing CBA in optimizing capital budgeting in the public sector. Thus, applying capital budgeting in the public sector can help the government maximize benefit production through community welfare, as mandated by the UUD 1945.

METHODS

The analysis done in this paper is carried out in the form of a literature review using scoping review technique. A scoping review is a review used to map the concepts underlying the research area, sources of evidence, and types of evidence available (Tricco et al., 2016). Information and data search activities are done through several databases and search engines such as Pubmed, Scribd, Google Scholar, and ResearchGate. The information and data searching process begins with entering a combination of relevant keywords into the search engine. The literature search strategy uses a database developed from research questions (Pham et al., 2014). The literature found is then further examined regarding titles, research samples, abstracts, and conclusions to ensure compatibility between the discussion topics and the literature found (Langlois et al., 2017). Eligible research will be included if it broadly describes the methodology appropriate to the scope. The literature or evidence obtained is then identified and classified based on broad topics (Nuzuliana & Wati, 2021).

RESULTS AND DISCUSSIONS

A. Definition of Capital Budgeting

According to Sutrisno (2003), capital budgeting is decision-making to determine appropriate capital budgeting in the long term horizon. In addition, Bambang Riyanto (1995) defined capital budgeting as the entire planning and decision-making process related to the expenditure of economic resources where the return period for these resources is predicted to be more than one year. The one-year time limit is not absolute. These economic resources include expenditures made to acquire assets, such as land, buildings, machinery, and other equipment. Meanwhile, Harshita (2017) stated that capital budgeting is a process in which entities determine and evaluate potential expenditures or investments that are large in terms of size and amount. These expenses and investments include projects such as building a new factory or investing in a long-term venture. A future lifetime project's cash inflows and outflows are often assessed to determine whether the resulting potential returns meet adequate target benchmarks. Thus, capital budgeting is also known as "investment appraisal." So, with the statements above, it can be concluded

that capital budgeting is the whole process of planning, evaluating, and determining in making decisions regarding whether an investment project that is of great value and occurs over a long period is feasible by considering all the necessary costs and benefits that can potentially be obtained.

B. Characteristics of Capital Budgeting

According to Sartono (2000), the characteristics of capital budgeting can be seen from a large amount of investment, the financing period of more than a year, and the long-term benefits generated. Anugrah (2016) states that capital budgeting is required in every investment in the form of fixed assets because the investment involves several things as follows:

The funds issued will be bound for an extended period, which means that the entity must wait for a long time until the company can recover all of the investment funds invested. This will undoubtedly affect the availability of funds for other purposes.

Investment in fixed assets involves the expectation of sales results in the future. Errors in making predictions and assessments can result in overinvestment and underinvestment in investment activities if the investment in fixed assets is too significant, more than necessary. This will also cause a significant fixed expense for the entity. On the other hand, if the amount of investment in fixed assets is too tiny, errors in making predictions and assessments will result in equipment shortages, which lead to high production costs, thereby reducing the entity's competitiveness and causing the loss of its market share.

Spending funds for investment purposes usually includes large amounts. Those large amounts of funds may not be disbursed all at one time. This is why the planning process in investment decisions must be done carefully.

Errors in making decisions regarding capital expenditures will lead to extensive and massive consequences. Errors in decision-making in this area cannot be fixed without causing any loss.

C. Differences in the Application of Capital Budgeting in the Public Sector and the Private Sector

According to Halim and Kusufi (2014), capital budgeting in the public sector has a different orientation from the private sector, which focuses on obtaining material benefits. Capital budgeting in the public sector is oriented towards economic and social benefits for the community, which are produced after several stages, namely collection, evaluation, and selection, to produce the best alternative in determining long-term investment (Syamsudin, 2004). In the long term, capital budgeting in the public sector impacts the provision of good public services to improve the community's economic and social life following the mandate of the UUD 1945.

D. Processes of Capital Budgeting in Public Sector

According to Blakely and Bradshaw (2002), the activity or project planning stage is carried out by completing the following:

1. Planning details
Planning must be done in detail to observe interesting ideas and determine the components needed precisely. According to Malizia (in Blakely and Bradshaw, 2002), the sustainability of an activity or project is also determined by the planning process with considerations in the form of four connected feasibility as follows:
 - a. Society/Community
 - b. Locational
 - c. Commercial
 - d. Implementation
2. Institutional Design
The purpose of preparing an institutional design is to determine the objectives of the activity or project development, develop development controls, management capacities, potential impacts, and management of capital resources.
3. Program Monitoring and Evaluation
The purpose of monitoring and evaluation is to systematically assess the efficiency and effectiveness of the costs used to fund activities or projects.

E. Advantages of Capital Budgeting Usage in Public Sector

Capital budgeting in the public sector is closely related to government capital expenditure. However, capital budgeting is different from capital expenditure. This confusion in understanding the term capital budgeting may be due to the absence of explicit disclosure in standard government budget documents (Murdiyanto et al., 2015). Capital budgeting in the public sector connects the resources owned by the government (APBN and APBD) with achieving the desired outputs and outcomes through various

programs and activities. Public sector budgeting is related to allocating financial resources for each program and activity as outlined in monetary units. In government projects, such an evaluation is also necessary to ensure that every financial resource expended can provide more excellent added value, which benefits can be obtained in the long term, especially in terms of public services. According to Sutrisno (1982), the main objective of government development programs focuses on activities or projects that can potentially optimize benefits from using economic resources. The main objectives are then detailed in operational objectives (Soekartawi, 1996). Thus, achieving the goals generated by capital budgeting in the public sector plays an essential role in the growth of the government's economic and social performance.

F. Measurement of Capital Budgeting in Public Sector

Wahyudin (2018) stated that one of the measurement methods that can be used in capital budgeting in the public sector is sensitivity analysis. The purpose of such a method is to measure the sensitivity of project acceptance limits according to changes or errors in financial criteria. Variables used as objects of observation for changing behavior are Net Present Value (NPV) and Internal Rate of Return (IRR) values. However, sensitivity analysis does not describe a public orientation that focuses on the community's interests because the NPV and IRR describe more projected future profits as the primary goal of the private sector.

Futurum (2013) stated that capital budgeting in the public sector could be measured using CBA in making choices from several budget options more accurately, namely through the Economic Evaluation method. There are other methodologies considered as a complement or substitute for temporary CBA under certain conditions, such as Cost Effectiveness Analysis (CEA) and Multi-Criteria Analysis (MCA) for infrastructure projects that are manageable in terms of scale. In this case, the government has added a prerequisite to the CBA approach to provide support for selecting priority projects, namely the inclusion of an economic feasibility analysis conducted by the project owner or Penanggung Jawab Proyek Kerjasama (PJPK) to ensure the realization of economic benefits in a value greater than economic costs incurred under the principles of economic democracy. The economic benefits calculated in CBA are considered to be able to describe an increase in community welfare, both economically and socially.

G. Use of CBA in Public Sector

Hafidh (2010) suggested that the modern welfare economic analysis of CBA was initiated by Hicks (1939, 1943) and Kaldor (1939). Hicks-Kaldor put forward the principle of compensation in which project beneficiaries can compensate sufferers of losses caused by the project through an exchange mechanism of income distribution to achieve potential Pareto improvement. This indicates that the existence of a project always has a different impact on conditions prior to the existence of the project, especially for the lives of people living in the project area who consider CBA as the most effective method of capital budgeting in the public sector.

CBA is a government budgeting decision-making method that compares the costs and benefits of regulations, activities, or government projects in a certain period (Ward, 2006). According to Waluya (2011), the benefits analyzed in CBA are related to the impact of utilization on the environment. A project measured using CBA utilizes the target outcome determined at the planning stage to measure benefits (Surya, 2016). All of these benefits are measured in monetary value in the form of economic benefits to be subsequently adjusted for market inefficiencies by taking into account external factors that have the potential to cause uncertainty, such as social, environmental, efficiency, and impact impacts. In addition, calculating the economic benefits generated also needs to consider the additional benefits from the success of other projects or a combination of several non-government projects.

Suharto (1999) explained that costs are expenses that must be sacrificed to operate and maintain activities or projects. This is complemented by the understanding, according to Gittinger (1986), who stated that costs are anything that reduces the essence of goals. Cost calculation problems can occur when project construction uses pre-existing facilities (Hafidh, 2010).

Purba (1997) explains that benefits are results obtained from productive activities, including direct and indirect benefits. According to Istari (2014), direct and indirect benefits from regulations, activities or government projects, as well as costs incurred consisting of direct and indirect costs, can be described as follows:

1. Direct benefits, such as absorption of labor and the efficiency of the use of technology.
2. Indirect benefits, such as community participation and welfare of workers from poor households.
3. Direct costs, such as pre-project costs and post-project costs (operational, maintenance and transaction).
4. Indirect costs, such as support costs obtained from non-governmental organizations.

The use of CBA measurements in the public sector, especially in projects that involve cooperation with the private sector, includes five stages, namely determining critical risk factors, determining the form of influence on cash flow components, identifying financial benefits and costs, determining the function of the probability distribution of benefit components and costs, as well as calculating the value of the project's FNPV and FIRR through monte carlo simulation (Wahyudin, 2018). According to Direktorat Pengelolaan Dukungan Pemerintah dan Pembiayaan Infrastruktur (PDPPPI) of the Indonesia Ministry of Finance, the results of implementing CBA in the public sector can be demonstrated through Economic Net Present Value (ENPV) and Economic Rate of Return (ERR). ENPV calculates the value of economic and social improvements, while ERR calculates the return on society for the economic costs incurred. In practice, CBA calculations in the form of ENPV and ERR must be carried out for government infrastructure projects with a minimum value of two hundred billion Rupiah due to consideration of the need for time, expertise, and budget in compiling a CBA analysis.

H. Challenges of Implementing CBA in Public Sector

According to Hafidh (2010), applying CBA experiences more significant difficulties in selecting economic development projects because it has to add social welfare functions and environmental considerations. In addition, other considerations that need to be used in using CBA include direct and indirect impacts on society, externalities generated, uncertainty factors, risks, and shadow prices. On the other hand, this requirement brings advantages in measuring capital budgeting in the public sector using CBA because it involves calculating social benefits and costs without considering individual interests.

Hafidh (2010) also explained that CBA's weaknesses are a loophole for executive power holders not to make the CBA the only tool in capital budgeting and the basis for public decision-making but to add consideration of other factors that are potentially less objective. This confuses assumptions and public trust due to political issues that benefit certain parties. For this reason, the government has added prerequisites for projects providing public infrastructure in obtaining government support, namely in economic feasibility, which is discussed in more detail in the economic analysis guide compiled by the Directorate PDPPPI of Indonesia's Ministry of Finance.

CBA also has challenges in measuring economic costs and benefits as the values to be compared. It is difficult to measure economic costs due to differences in economic and financial prices that occur in the market due to government intervention in the form of subsidies, taxes, and other levies. In addition, measuring economic costs and benefits is also tricky because they are not always reflected in the project's cash flow. Thus, measuring economic costs and benefits requires thoroughness and in-depth review to obtain the value of the economic costs and benefits as a whole.

CONCLUSION

Government budgeting requires analysis with the concept of capital budgeting as a basis for decision-making in determining the priority of project development or programs oriented to the community's welfare. The capital budgeting method often used in the public sector is CBA, by focusing on the efficient use of resources to produce optimal economic and social benefits for the benefit of society with several measurement challenges that require careful adjustments and a more in-depth review. CBA tool measures economic valuation in the corridor of the principles of economic democracy with the results in the form of ENPV and ERR values. The achievement of the goals generated by the CBA plays a vital role in the growth of the government's economic and social performance. In the long term, capital budgeting in the public sector impacts the provision of good public services to improve the community's economic and social life under the mandate of UUD 1945.

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