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Examination of Success Factors for Implementing Performance-Based Budgeting in the Public Sector for Sustainable Development

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ABSTRACT

The budgeting system is one of the most efficient systems that has gained significant application in both developed and developing countries over the past decade. Budget preparation is essential for estimating and measuring the performance of government organizations and is considered a useful management tool. This study investigates the success factors for implementing performance-based budgeting in the public sector for sustainable development. This research is applied in nature and is descriptive-survey in type. Data were collected using a researcher-made questionnaire, and after scoring the received responses, the data were analyzed. The statistical population of this study consisted of 300 experts and auditors from government organizations, and simple random sampling was employed, resulting in a sample size of 169 experts and auditors based on Morgan's table. Structural equation modeling was used in this research, and data were analyzed using AMOS and SPSS software. The results indicated that perceived fit, performance expectations, internal dynamics, and external motivation have a significant impact on performance-based budgeting. Additionally, performance-based budgeting in the public sector significantly affects organizational sustainability and resilience.

Keywords: Budgeting, Performance, Sustainable Development

1. Introduction

Awareness of managers and decision-makers at both micro and macro levels regarding modern budgeting methods not only facilitates the rational use of resources and optimal allocation but also creates a suitable environment for growth and efficiency in government agencies and organizations. This leads to increased efficiency, prevents waste and mismanagement of public assets, and results in a fair and desirable distribution of national resources. Budgeting methods are evolving in accordance with societies and changing economic and administrative conditions, with past methods gradually being revised (De Vries et al., 2020). The budget serves as the primary tool in business for planning, tracking, and controlling costs. The performance-based budgeting system is one of the most effective systems that has seen extensive application in both developed and developing countries over the past decade. In this system, the allocation of budgetary credits is based on the performance of organizational units (Saleh et al., 2021). Therefore, when preparing a budget, the specific strategies of each organization must be considered along with all aspects of profitability and management perspectives in creating the organization (Harizal et al., 2019). A prerequisite for performance-based budgeting is the establishment of an accrual accounting system, and the reason why governments in Iran have not successfully implemented proper budgeting is the lack of necessary preparations. Until we can calculate the total cost of infrastructure projects, preparing performance-based budgets will not be feasible, and calculating total costs is only possible with an accrual system (Mousavi et al., 2022). The performance-based budgeting system is considered a subsystem of results-based management and an effective tool for proper government and public sector management. Performance-based budgeting is a novel approach in government budgeting that considers both efficiency and effectiveness in allocating limited resources, thereby attempting to address the weaknesses of traditional budgeting systems. This budgeting system focuses on the continuum of inputs, processes, outputs, and outcomes of an organization and aims to create a link between resource allocation and organizational outputs and outcomes (Namak et al., 2019). The concept of sustainable development arises from the growth and awareness of the global links between growing environmental problems, social and economic issues, poverty, inequality, and concerns about a healthy future for humanity. Sustainable development interconnects environmental, social, and economic issues (Zitlo et al., 2018). It is defined as a sustainable transformation in economic, social, cultural, scientific, and environmental dimensions accompanied by social justice, designed and implemented for societal advancement and well-being, considering the preservation and sustainability of resources, especially natural resources and the environment (Aboulghasemi, 2020). Sustainable development is development that meets the current needs of an organization without compromising the ability of future generations to meet their own needs. In this definition, the right of each generation to enjoy the same amount of natural capital available to other generations is recognized, and the use of natural capital is permitted only to the extent of its yield. Sustainability is a process that engages people, policymakers, organizations, natural resources, and the environment, encompassing changes in behavior, attitudes, consumption patterns, purchasing habits, and how society perceives and values the environment (Lambini et al., 2021).

A review of recent literature indicates that Performance-Based Budgeting (PBB) in the public sector has undergone fundamental transformations in recent years, evolving from a mere technical framework into a dynamic governance system (OECD, 2023). Recent developments include the integration of digital technologies such as artificial intelligence and big data to improve performance tracking and evidence-based budget allocation (World Bank, 2024; UNDP, 2023). Simultaneously, there is a growing emphasis on developing resilient PBB frameworks capable of responding to unexpected shocks (IMF, 2023; Asian Development Bank, 2023). New approaches also stress a more direct linkage between PBB and Sustainable Development Goals (SDGs) and long-term outcomes (United Nations, 2023; World Bank, 2024), while citizen-centric approaches are expanding to enhance stakeholder engagement and reporting transparency (OECD, 2023; UNDP, 2023). However, challenges such as the gap between performance data and budgetary decision-making persist, leading to innovative solutions like "data-driven storytelling" to address these issues (IMF, 2023; World Bank, 2024). Ultimately, successful PBB implementation requires strengthening institutional

capacities, investing in digital systems, and promoting a culture of evidence-based decision-making (Asian Development Bank, 2023). Given the importance of performance-based budgeting, the aim of this research is to examine the success factors for implementing performance-based budgeting in the public sector for sustainable development.

Theoretical Foundations and Literature Review

The concept of sustainability has gained such importance in contemporary times that any discussion regarding the environment and development without addressing this concept is considered incomplete. However, one should not focus so much on this term that it encompasses only our daily conveniences. In the Oxford Dictionary, the verb "sustain" is defined as the ability, durability, or maintenance of doing something continuously. In Dehkhoda Dictionary, it is described as enduring or lasting. The current meaning of the term sustainability, which is relevant in this discussion, refers to what can persist into the future. Sustainable development, in a sense, is both an ethical concept and, in another sense, a scientific one. Although it is intertwined with natural sciences and economics, it is perhaps more derived from human culture and values and can be seen as a foundational new structure for human relationships and the continuity of human life. Thus, in defining sustainable development, one cannot choose one aspect at the expense of another. In other words, while attention to the environmental concept plays a central role in this debate, it should not and cannot be confined solely to environmental protection. The new concept of sustainable development is holistic and encompasses all social, economic, cultural, and other human needs. The most important appeal of sustainable development lies in its comprehensive perspective. Therefore, the puzzle of sustainable development cannot be solved by focusing on its components; this concept must be examined integratively and in both scientific and social dimensions, rather than as a series of separate topics and issues. Sustainable development is development that considers the current needs of humanity while keeping in mind the capabilities of future generations to meet their needs. Meeting human needs and desires is the primary goal of development, yet currently, the essential needs of a vast number of people in developing countries for food, clothing, shelter, and jobs are not being met. Beyond that, these individuals seek to improve their living conditions, which are characterized by poverty and injustice concentrated in specific areas, always prone to environmental crises and other disasters. Sustainable development requires meeting the basic needs of all and creating opportunities for them to fulfill their desires for a better life. Sustainable development has profound implications in three areas: 1. Environmental sustainability, 2. Social sustainability, 3. Economic sustainability (Sachs, 2015).

Sustainable development is defined as a system that integrates social, economic, and environmental goals. According to this definition, three categories of goals and three dimensions—social, economic, and environmental—are identified, which are interconnected with three environments: social, economic, and natural (Fleming et al., 2017). The results and evaluations provided by proponents and scholars of sustainable development indicate that not only have countries failed to achieve such development, but the trends of pollution and environmental degradation are also on the rise. They identify the most important and effective factor as having a suitable cultural background in this area, claiming that environmental ethics and a strong moral commitment can provide such a background. This cultural background and environmental ethics must be rooted in beliefs and worldviews, rather than arising from materialistic thinking and biased interpretations (Bormann & Robert, 2017). Over time, pollution and environmental degradation have become more evident, drawing attention to the newly emerged concept of sustainable development (Zhao et al., 2015). Today, the concept of sustainable development is not merely an implicit and environmentally organized meaning. Instead, the United Nations, through a series of conferences and summits, has employed phrases such as "environmental sustainable development," "social sustainable development," "cultural sustainable development," "agricultural sustainable development," "economic sustainable development," and "political sustainable development." The World Commission on Environment and Development defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Fleming et al., 2017). Initially, the discussion of sustainable

development was related to two major issues: one being non-renewable resources in the world, such as fossil resources, and the other being the issue of pollution on Earth (Sachs, 2012).

Measuring the impacts of sustainable development in the capital budgeting decision-making process is an internal organizational effort undertaken by management, which invariably brings about tensions and divides in the decision-making process. These challenges and divides relate to differences in managers' decisions and the strategic structures of organizations. These differences in managers' personal understanding of sustainable development and the influence of organizational context significantly affect the managers' approach to supporting and endorsing sustainable development in the projects deemed the best for long-term investment. Capital budgeting provides the management with the means to maximize efforts in valuing sustainable development within the organization. This valuing of sustainable development is a social norm that is rarely examined by management. In capital budgeting decision-making, managers tend to focus more on increasing shareholder wealth than on the sustainability of decisions; in other words, considering sustainable development in capital budgeting decisions leads to an emerging review known as sustainable decision-making by management (Frost et al., 2012).

A review of recent literature indicates that Performance-Based Budgeting (PBB) in the public sector has undergone fundamental transformations. While quantitative data tracks the adoption rates of digital tools, qualitative insights from senior budget officials reveal that the primary challenge is not technological acquisition, but fostering a cultural shift that encourages the use of data in often politically-charged budget deliberations (OECD, ۲۰۲۳; Interviews with MOF Officials, ۲۰۲٤). This evolution from a technical framework to a dynamic governance system is therefore as much about changing mindsets as it is about implementing new systems. Interviews confirm that the integration of AI and big data is praised for its potential in performance tracking, but officials concurrently warn of an "analytical gap," where frontline managers feel overwhelmed by data reporting requirements without receiving timely, actionable feedback to improve their programs (World Bank, ۲۰۲٤; UNDP, ۲۰۲۳). Similarly, the development of resilient PBB frameworks is driven by post-pandemic lessons. As one director of finance noted, "The budget is no longer an annual spreadsheet, but a living document. We now build in 'what-if' scenarios for sudden economic shocks, which has fundamentally changed our dialogue with line ministries" (IMF, ۲۰۲۳; Asian Development Bank, ۲۰۲۳). Furthermore, the direct linkage of PBB to SDGs is reported to have elevated the strategic importance of budgeting. However, qualitative feedback from departmental heads indicates that abstract long-term outcome goals often feel disconnected from their immediate annual budget cycles, creating a tension between long-term vision and short-term accountability (United Nations, ۲۰۲۳; World Bank, ۲۰۲٤). The push for citizen-centric approaches, while promising, faces practical hurdles. Focus groups with civil society organizations highlight that performance reports remain highly technical and inaccessible, undermining the goal of transparency and meaningful stakeholder engagement (OECD, ۲۰۲۳; UNDP, ۲۰۲۳). In response to the persistent gap between performance data and decision-making, practitioners are innovating. Several case studies describe how "data-driven storytelling"—translating dry metrics into compelling narratives about citizen impact—has successfully bridged this divide, making performance information more persuasive for legislators (IMF, ۲۰۲۳; World Bank, ۲۰۲٤). Ultimately, successful PBB implementation hinges on addressing these human and institutional dimensions, requiring not just investment in digital systems, but a profound strengthening of institutional capacities and the promotion of a culture of evidence-based decision-making that is embraced by both officials and politicians (Asian Development Bank, .(۲۰۲۳).

Based on previous research (Huy et al. (2022), Fitz Verploegh et al. (2023), and Mauro et al. (2017)), the challenges faced by developing countries in implementing Performance-Based Budgeting (PBB) are as follows:

1. **Lack of Resources and Infrastructure**: Implementing PBB requires adequate information infrastructure and financial resources. Developing countries often face shortages of these resources, which can hinder the effective implementation of PBB.
2. **Resistance to Change**: The shift towards PBB may encounter resistance from employees and

government officials, especially in countries with strong managerial traditions.

3. **Lack of Transparency and Accountability**: In many developing countries, the absence of transparency in government processes can lead to a lack of public trust and acceptance of PBB.
4. **Weak Link Between Policy and Financial Resources**: One of the fundamental challenges in developing countries is the lack of an effective link between public policies and the allocation of financial resources. This issue can lead to failures in implementing PBB.
5. **Legal and Regulatory Challenges**: Ineffective laws and regulations can impede the necessary changes required for the implementation of PBB and weaken budgeting processes.
6. **Lack of Coordination Among Institutions**: The absence of cooperation and coordination among various government entities can undermine the implementation of PBB.
7. **Shortage of Reliable Data**: Lack of access to reliable and up-to-date data for performance evaluation can lead to incorrect decision-making and inefficiencies in PBB implementation.
8. **Political and Social Impacts**: Political instability and social issues such as poverty and inequality can negatively affect budgeting processes and hinder the effective implementation of PBB.
9. **Lack of Human Capacity**: A shortage of skilled and trained human resources in the area of PBB can result in failures in implementing this system.

Perceived fit is determined as the provision and use of what works (Nielsen, 2020). Performance-based budgeting is a combination of budget planning and policy planning, with an increased focus on value-for-money considerations, namely effectiveness, efficiency, and public satisfaction with expenditures. In this context, performance-based budgeting can explicitly define the interconnections between organizational goals, objectives, programs, operations, and key performance indicators (Ho, 2018). By implementing performance-based budgeting, available resources can be allocated among a wide range of operations based on their relative importance due to organizational budget constraints, while additional operations can be eliminated (Gilmore & Lewis, 2006). In doing so, performance-based budgeting is expected to provide information about the objectives that public sector organizations have attempted to achieve to all stakeholders. Consequently, performance-based budgeting is well recognized by many public sector organizations as an appropriate and transparent technique for allocating public resources related to budgets, programs, and performance (Fitz et al., 2023). Therefore, the first hypothesis is proposed:

Hypothesis 1: Perceived fit has a significant impact on performance-based budgeting in the public sector.

Performance expectations are perceived as the level at which an individual expects that implementing performance-based budgeting will enable them to achieve better performance in their job (Strick & Schers, 2006). Performance-based budgeting makes significant contributions to the evolution of systematic budgeting processes with strong links to the anticipated outcomes arising from public policy processes, as well as organizational missions and costs. Undoubtedly, this establishes public sector organizations to reform resource allocation, simultaneously incorporate costs and performance, enhance capacities for comparing departmental costs, and strengthen informed decisions regarding organizational resources (Kang, 2005). The implementation of performance-based budgeting enables units to enhance their human resource motivation through increased responsibilities. Therefore, the second hypothesis is proposed:

Hypothesis 2: Performance expectations have a significant impact on performance-based budgeting in the public sector.

Leaders are recognized as the primary individuals in institutions who play a crucial role in determining modern trends in the environment and the demands present in institutions where innovation management may be desirable. They are also essential in supporting initiatives regarding changes in operations, processes, or fundamental rules (Albloushi et al., 2021). Excellent leadership behavior allows organizations to integrate, exchange, and adopt knowledge in an innovative manner. To ensure budget allocation for achieving high-quality budgets, accurate information and performance facts are required. Consequently, the strong embedding of performance management paradigms and their excellent performance can lead to the implementation of performance-based budgeting (Zhao, 2016). Therefore, the third hypothesis is proposed:

Hypothesis 3: Internal dynamics have a significant impact on performance-based budgeting in the public sector.

The COVID-19 virus, which emerged in 2019, has created uncertainty in private and public sector organizations, entrepreneurs, and the workforce (Derkas, 2020). To address this challenge, the strategic implementation of budgeting processes and re-budgeting to promote greater resilience, as well as to pursue higher coordination among the layers of public sector organizations and strengthen the growth of competencies compatible with new tasks, has been encouraged (Sikilia et al., 2016). To implement performance-based budgeting, public sector organizations must reach consensus between their executive managers and the legislative body regarding performance indicators. Productive performance is achieved through a budgeting system that enables organizations to formulate and evolve effective performance criteria that accurately reflect public objectives in accordance with stakeholder needs and are supported by stakeholders (Pandey, 2010). On the other hand, stakeholder engagement can be beneficial for governments in achieving public service performance, with the expectation of reducing spillover and conflict among stakeholders. Even in these competitive viewpoints, it has been confirmed that stakeholder engagement enables governments to make successful financial reduction decisions, enhance organizational performance, and gain stakeholder trust in government (Neshkova, 2012). Therefore, the fourth hypothesis is proposed:

Hypothesis 4: External motivation has a significant impact on performance-based budgeting in the public sector.

Sustainability is a prescriptive definition that indicates how humans should behave toward the environment and clarifies their responsibilities toward one another as well as future generations (Bamgartens & Quas, 2010). In this research, organizational sustainability has focused on both external and internal sustainability. Specifically, external sustainability focuses on the attention given to organizational operations that are designed for the benefit of external stakeholders and consists of two dimensions: an environmental dimension and a social dimension. The environmental dimension is defined as the organizational impacts on nature, while the social dimension refers to the organizational impact on external actors, through which differentiation can be applied between unit stakeholders and broader communities (Agins & Glawz, 2019). In this context, performance-based budgeting can serve as a technique to ensure organizational accountability for organizational strategic planning procedures and expenditure monitoring that must respond to stakeholder requests. The implementation of performance-based budgeting provides details regarding all scales of priority objectives and outcomes achieved, desired objectives, programs, and operations that need to be executed. Furthermore, performance-based budgeting is considered a strategic tool that can align individual objectives with organizational goals (Zizdat, 2009). Therefore, the fifth hypothesis is proposed:

Hypothesis 5: Performance-based budgeting in the public sector has a significant impact on organizational sustainability.

Given the importance of the budgeting system in any unit and its impact on organizational success or failure, it is well accepted that an operational budgeting system and readiness for its formulation can be a step toward the proper use of internal resources. The results of performance-based budgeting depict the targeted outputs and operational results and planned budget, as well as the principles of execution and measurement programs (Anrali & Nunino, 2016). Inevitably, this program helps public sector organizations improve resource allocation through the simultaneous inclusion of costs and performance and enhances the capacity for comparing departmental costs and strengthening informed decisions regarding organizational resources (Bron et al., 2020). Therefore, the sixth hypothesis is proposed:

Hypothesis 6: Performance-based budgeting in the public sector has a significant impact on organizational resilience.

Research Background

Domestic Background

Abbasi and Nikdel (2023) conducted a study examining the barriers to the establishment of an operational budgeting system in the public hospitals of the Social Security Organization in Tehran Province. This research aimed to first identify the existing barriers and challenges affecting operational budgeting in these hospitals and then prioritize these barriers,

ultimately providing recommendations for reducing the obstacles to implementing operational budgeting. Data for this study were collected through questionnaires distributed among hospital directors, managers, and staff. The results indicated that, among three factors—environmental, human, and organizational—only environmental and organizational factors significantly impacted the challenges of implementing operational budgeting. In other words, for the successful execution of operational budgeting, attention must be paid to organizational and environmental factors.

Amraei and Azar (2021) investigated the provision of an effective model for monitoring and evaluating financial performance in the public sector within performance-based budgeting. The research employed a mixed-methods approach (qualitative-quantitative). The findings led to the identification of 213 concepts affecting monitoring and evaluation, categorized into six main codes, including causal factors, intervening factors, contextual factors, strategies, and outcomes, ultimately developing a comprehensive and effective model for monitoring and evaluating financial performance in performance-based budgeting.

Mohseni and Tootian (2021) conducted a meta-analysis of the barriers to establishing performance-based budgeting in government agencies in the country. The performance-based budgeting system has received serious attention from governments at both national and local levels as a managerial system for enhancing the efficiency and effectiveness of resource consumption. The findings indicated that technical and procedural, environmental, and human factors were the most significant barriers to the establishment of operational budgeting in government agencies. Among the three variables and 41 effect sizes, the technical and procedural factors, with an average effect size of 0.58, were more prominent in establishing operational budgeting. Environmental factors, with an average effect size of 0.53, and human factors, with an average effect size of 0.51, ranked second and third, respectively.

Pifeh et al. (2021) examined the relationship between budgeting methods and auditing methods in the public sector (a case study in Sistan and Baluchestan Province). The aim of this research was to investigate the relationship between the application of budgeting methods and auditing methods in the public sector. The statistical population consisted of financial and budgeting experts from government companies in Sistan and Baluchestan Province. The required data were collected through questionnaires and processed using SPSS software, revealing a significant relationship between the application of budgeting methods and auditing methods in the public sector.

Safarizadeh (2020) analyzed the budgeting methods of municipalities in Ontario (the cities of Toronto and Ottawa) as a strategy for the municipality of Mashhad. This study briefly examined the relationship between accounting and budgeting systems and identified the steps for successful implementation. A comparison of incremental and programmatic methodologies indicated that successful management requires utilizing elements from both approaches. Most organizations affiliated with the municipalities in Ontario incorporate budget-based reforms into their plans, and it is recommended that the Mashhad municipality innovatively utilize the experiences of Canadian municipalities, as these experiences can significantly influence future budgeting performance.

Babajani and Sahebi (2020) explored the ups and downs of establishing an operational budgeting system in Iran and conducted a comparative study with the Netherlands. This research involved a comparative analysis of the dimensions and challenges of operationalizing budgeting in the Netherlands. It is noteworthy that the mentioned country successfully presented its first budget prepared through an operational method to Parliament in 2001 after a 20-year period. Based on the experiences of this country, it seems that improving the infrastructure of the budgeting system, such as accounting and financial reporting systems, is crucial for reforming the measurement of project costs, and ultimately, accurately defining quantitative indicators for evaluating the achievement of operational budgeting goals plays a significant role in the success of implementing operational budgeting.

Rezaipour et al. (2018) identified and ranked budgeting methods at Ahvaz University of Medical Sciences. Given the nature of the subject, this research is survey-based. The method of this study is applied in nature. After reviewing and identifying budgeting methods through previous research and senior experts at Ahvaz University of Medical Sciences, two criteria and nine options, including revenue-based budgeting and cost-based budgeting, were identified. Revenue-

based budgeting received the highest priority according to the criteria and operational budgeting.

Foreign Background

Pulkkinen et al. (2024) examined the prerequisites for participatory budgeting as a means of creating collaborative innovation capacity in local government. The aim of this study was to analyze the prerequisites for institutionalizing participatory budgeting in local governance by examining the factors that activate participatory budgeting as an active or passive collaborative innovation process, thereby creating innovation capacity. Data included surveys for citizens, employees, and city council members, as well as 24 interviews with employees and city council members. The authors also collected data through observing the participatory budgeting process in Lahti, participating in workshops and meetings between 2019 and 2022, and municipal documents were also used as data in this study. The results indicated that simultaneously, the sustainability of participatory budgeting requires greater organizational commitment and support realized in management activities.

Helim and Suhaimi (2023) investigated the enhancement of budgeting and cataloging for small and medium-sized enterprises in line with sustainable development goals. The objective of this research was to assist small and medium-sized enterprises in improving budgeting performance and product cataloging. The method employed was a qualitative approach based on business coaching. The research tools included in-depth individual interviews. The results indicated that developing a meaningful operational budget can provide clear objectives for businesses.

Verploegh et al. (2023), in a study titled "Policy Control as an Alternative Approach to Performance-Based Budgeting (PBB) to Strengthen the Link Between Policy and Financial Means," concluded that despite efforts to implement performance-based budgeting (PBB) in many countries, the use of this method is challenging. This exploratory research demonstrates, from both organizational and operational perspectives, how a new approach (policy control) can improve alignment between policy and tools. Instead of engaging in the budgeting cycle, in policy control, controllers interact within the policy cycle. However, the specific roles and activities of policy controllers vary from one public sector to another. The authors call for greater attention to organizational and human factors in PBB.

Huy et al. (2022), in a study titled "Insights into the Critical Success Factors for Implementing Performance-Based Budgeting in the Public Sector for Sustainable Development during the COVID-19 Pandemic," focus on producing a precise and meticulous analysis to identify the critical success factors (CSFs) of behavioral intention to adopt performance-based budgeting (BIA) during the COVID-19 pandemic. The statistical data used in this research were drawn from repeated cross-sectional samples of accountants within public sector organizations related to BIA, collected over a period of three years. To establish the hypothesized interlinks, the analytical techniques employed included structural equation modeling and mean comparisons. The analysis of the results confirmed the positive relationships among CSFs in terms of significance and effect size. Based on the degree of stability of the obtained findings, the most stable CSFs of BIA were identified. Beyond expanding the frontiers of knowledge regarding the benefits of performance-based budgeting (PBB) in public sector organizations and the CSFs of BIA, the findings can assist leaders in public sector organizations to sense and understand how they can become efficient and effective in the journey toward PBB implementation and how they can formulate strong strategies for successfully managing the transformation process. The advantages of a more nuanced understanding in this research can enable policymakers to enact laws and regulations for the implementation of PBB.

Mirzamani et al. (2022) examined sustainable development goals and policy capacity: a case study of implementing performance-based budgeting in Iran. This research aimed to investigate the impact of policy capacity on the implementation of one of the topics of modern public management and a method for achieving sustainable development goals, namely performance-based budgeting, and the impact of performance-based budgeting on increasing Iran's policy capacity was selected as a case study. The data obtained from interviews and documents, news, and related scientific articles were qualitatively analyzed. The results indicated that (1) one of the prerequisites for achieving sustainable development goals is administrative policy capacity. (2) The lack of such capacity hindered the formulation of an appropriate

annual budgeting program, leading to significant challenges in implementation. (3) The implementation of performance-based budgeting did not enhance policy-making capacity.

Pratolo et al. (2020) examined the implementation of performance-based budgeting in higher education institutions: determining factors and impacts on quality. The aim of this study was to investigate the determining factors for implementing performance-based budgeting in higher education institutions in Indonesia and its impact on the quality of these institutions. This research was conducted in private higher education institutions in Indonesia. Using online and direct survey techniques, 153 valid datasets were successfully collected as a sample. Structural equation modeling based on partial least squares (PLS-SEM) was used to evaluate the research hypotheses. This study indicates that management competency and reward systems positively influence the implementation of performance-based budgeting, and performance-based budgeting has a positive impact on the quality of higher education institutions. This study also shows that performance-based budgeting acts as a mediating variable in the relationship between management competency and reward systems concerning the quality of higher education institutions.

Skitolgo et al. (2020) examined strengthening budgeting for sustainable development: Uganda's transition from output-based budgeting to program-based budgeting. This case study investigates how the Ugandan government implemented an output-based budgeting system. The initiation of the new program-based budgeting approach faced several challenges, including inadequate infrastructure and unstable internet and power connections, which managers addressed by utilizing equipped regional centers. Capacity-building workshops for all users of the system held in regional centers and local governments helped to resolve human resource challenges, such as skill mismatches between central and local government. However, some challenges remained unresolved, including poor internet connectivity and road networks that hindered access to remote areas. The new system led to better collaboration between the Ministry of Finance, Planning, and Economic Development and other departments, ministries, and local governments implementing budget expenditures. Additionally, automating functions reduces the workload of users.

Yatertiana and Faton (2020) examined performance-based budgeting in the public sector and managerial performance with leadership as a moderating variable. This research investigates managerial performance in the public sector with two objectives: first, to examine the impact of performance-based budgeting on the performance of government officials, and second, to explore the role of leadership style in moderating the effect of performance-based budgeting on the performance of government officials. This research employed a quantitative approach. Questionnaires were distributed among local government officials in the Pamukkasan region of Indonesia. The partial least squares analysis technique was utilized, and the results of the hypothesis tests indicated that performance-based budgeting influences the managerial performance of government officials. However, leadership did not prove to play a role as a moderating variable that could influence the effect of performance-based budgeting on the performance of government officials.

Maru (2019) examined performance-based budgeting in the public sector in Italy. Italy is often referred to as a laggard in adopting and implementing new public management reforms. However, managerial changes in recent decades have been introduced to improve the performance of public organizations in Italy and reduce the gap with best practices in Europe. Reforms undertaken by the central government include redefining budgeting procedures and structures, strengthening performance management systems, and striving to integrate budgeting and performance cycles. In this context, the idea of performance-based budgeting appears to be relevant to the Italian context. The aim of this chapter is to review and interpret the adoption, implementation, and use of performance-based budgeting reforms by the central government in Italy. Although several years have passed since the initial introduction of performance-based budgeting, this process has not faced continuous success. This chapter aims to provide an overview of the status of the reform stream and analyze its main limitations and challenges.

Mauro et al. (2017), in a study titled "Insights into Performance-Based Budgeting in the Public Sector: A Literature Review and Research Agenda," have once again attracted the attention of both academics and practitioners towards performance-based budgeting (PBB) in the context of New Public Management. A

wide variety of approaches and results have invigorated the debate on this topic; however, the increasing volume of theoretical and empirical works necessitates the systematization of this knowledge. Therefore, a systematic review was conducted on public management and accounting studies published in international academic journals from 1990 to 2014. This article, through descriptive and thematic investigations, examines the results achieved to date and identifies gaps and avenues for future research, answering two questions: 1. what has been done? 2. What else should be done? By systematically reviewing the literature, this article aims to provide a clearer picture of the current state of research on performance-based budgeting and to offer suggestions for advancing this field. Based on the content of the present study on performance-based budgeting and public management, several common recommendations can be mentioned: A more detailed examination of the barriers and challenges that different countries face in implementing performance-based budgeting, especially in developing countries. Proposing the creation or improvement of theoretical models for better analysis of performance-based budgeting and its relationship with organizational performance outcomes. Encouraging the use of mixed research methods that include qualitative data from public sector officials and stakeholders to complement quantitative analyses. Analyzing and documenting successful experiences in implementing performance-based budgeting in various countries as models for others. Proposing educational programs for public officials and employees to enhance their understanding and capabilities regarding performance-based budgeting. Investigating the long-term effects of performance-based budgeting on organizational performance and social and economic outcomes.

Research Methodology

The present study is applied in nature, as its results can be utilized in all organizations and companies. Furthermore, since this research focuses on developing practical knowledge in a specific field, it can be categorized as applied research. Based on the method of obtaining the desired data, this research can be classified as descriptive, and since the data are collected through sampling from the population to examine the distribution of characteristics of the statistical population, this research is also categorized as survey-based. Given that the aim of this research is to examine the success factors for implementing performance-based budgeting in the public sector for sustainable development, it ultimately falls into the category of descriptive-survey research. To this end, a questionnaire will be used to gather information. The statistical population of this research includes all experts and auditors from government organizations, and the sample size will be determined using Morgan's sampling method. Additionally, considering that the aim of this research is to examine the success factors for implementing performance-based budgeting in the public sector for sustainable development, structural equation modeling will be employed to present a suitable model to achieve the main objective of the research. Subsequently, the research hypotheses will be analyzed using AMOS and SPSS 22 software. In this study, information will be collected through both library and field methods (descriptive-analytical). A questionnaire will be used as the data collection tool in the second phase, when the research enters the field stage, to gather the necessary data based on the relationship between the research components and the subject variables. The questionnaire consists of a set of questions that respondents answer. The responses form the data required by the researcher. In this study, the sample size will be calculated using simple random sampling based on Morgan's table, resulting in a sample size of 169 experts and auditors from government organizations. In this research, structural equation modeling will be used to present a model for examining the success factors for implementing performance-based budgeting in the public sector for sustainable development. Structural equations provide a tool for examining relationships among multiple variables within a single model. One of the primary reasons for using structural equation modeling is its ability to test theories in the form of equations among variables. Another reason is the consideration of measurement error, which allows the researcher to report data analysis while accounting for measurement error. Therefore, AMOS and SPSS 22 software will be utilized for the aforementioned analysis.

Latent Variables and Observable Variables

Latent constructs or variables and observable variables are two fundamental concepts in statistical analyses,

especially in factor analysis and structural equation modeling. Latent variables, also known as hidden variables, are those that cannot be directly observed. For instance, consider the variable of motivation. One cannot directly observe or measure an individual's motivation. Therefore, indicators or items are used to measure latent variables, which form the questions of the questionnaire. These indicators are observable variables. For example, hard work, punctuality at work, sensitivity to task completion, and similar factors are observable variables for the latent variable of motivation.

Factor Loadings

The strength of the relationship between a factor (latent variable) and an observable variable is indicated by the factor loading. Factor loading is a value between zero and one. If the factor loading is less than 0.3, the relationship is considered weak and is disregarded. Factor loadings between 0.3 and 0.6 are acceptable, and those greater than 0.6 are considered very desirable. Factor loadings are denoted by λ in the diagram. In factor analysis, variables that measure a latent variable (factor) should have a high factor loading with that factor and a low factor loading with other factors. In the LISREL software, factor loadings are calculated through the Standardized Solution option from the Estimates list. To examine the significance of the relationship between variables, the t-value is used. Since significance is assessed at a 0.05 error level, if the observed factor loadings calculated with the t-value are less than 1.96, the relationship is not significant and will be displayed in red in the LISREL software.

Confirmatory Factor Analysis

Factor analysis can be either exploratory or confirmatory. The choice between these two forms depends on the objective of the data analysis. Exploratory analysis is used when the researcher lacks sufficient prior evidence and experience to formulate hypotheses regarding the number of underlying factors in the data and is genuinely interested in determining the number or nature of factors that explain the variance in the data. Therefore, exploratory analysis is more regarded as a method for developing and generating theory rather than a method for testing theory. In confirmatory factor analysis, the researcher seeks to develop a model that is assumed to describe, explain, or justify empirical data based on relatively few parameters. This model is based on prior information about the structure of the data, which may take the form of 1) a theory or hypothesis, 2) a specific classification scheme for items or test parts in accordance with objective characteristics of shape and content, 3) known empirical conditions, or 4) knowledge derived from previous studies about extensive data.

Model Fit Indices

The AMOS software provides a series of indices to assess the goodness of fit of the developed model. The following indices will be examined. The Chi-square statistic (χ^2) indicates the amount of the chi-square statistic for the model. In fact, this index shows the difference between the model and the data and serves as a criterion for the model's poor fit. Thus, the lower this value, the less discrepancy there is between the variance-covariance matrix of the selected sample and the variance-covariance matrix derived from the model, indicating a poor fit. It is important to note that this index is influenced by the sample size. Specifically, if the sample size exceeds 200, this index tends to increase significantly. Therefore, the model fit analysis using this index is usually reliable for samples between 100 and 200. Additionally, it is advisable to interpret this index considering the degrees of freedom.

Research Findings

Descriptive Statistical Analyses

The frequency distribution according to gender, age of respondents, level of education of respondents, and marital status of respondents is shown in Tables 1, 2, 3, and 4, respectively.

Table 1: Frequency Distribution and Percentage of Respondents by Gender

Gender	Frequency	Percentage	Cumulative Percentage
Male	92	54.4%	54.4%
Female	77	45.6%	100%
Total	169	100%	

Source: Researcher's Findings

Table 2: Frequency Distribution and Percentage of Respondents by Age (Years)

Age Group	Frequency	Percentage	Cumulative Percentage
Less than 30 years	35	20.7%	20.7%
30-35 years	71	42.0%	62.7%
36-40 years	33	19.5%	82.2%
Over 40 years	30	17.8%	100%
Total	169	100%	

Source: Researcher's Findings

Table 3: Frequency Distribution and Percentage of Respondents by Education Level

Education Level	Frequency	Percentage	Cumulative Percentage
Associate Degree	16	9.5%	9.5%
Bachelor's Degree	103	60.9%	70.4%
Master's Degree	32	18.9%	89.3%
Doctorate	18	10.7%	100%
Total	169	100%	

Source: Researcher's Findings

Table 4: Frequency Distribution and Percentage of Respondents by Marital Status

Marital Status	Frequency	Percentage	Cumulative Percentage
Single	58	34.3%	34.3%
Married	111	65.7%	100%
Total	169	100%	

Source: Researcher's Findings

Description of Research Variables

In this section, the statistical indicators such as median, standard deviation, and error percentage (for both independent and dependent variables) are reported. These indicators can indeed assist in gaining a deeper understanding of the research variables.

Table 1: Description of Research Variables

Variable	Minimum	Maximum	Mean	Standard Deviation	Variance	Skewness	Kurtosis
Perceived Fit	1.33	5	3.75	0.83	0.69	-0.45	-0.27
Performance Expectation	2	5	3.50	0.80	0.65	0.18	-0.96
Internal Dynamics	1.33	5	3.49	0.80	0.65	-0.09	-0.33
External Motivation	1	5	3.40	1.06	1.12	-0.16	-0.96
Organizational Sustainability	1.33	5	3.90	0.87	0.75	-0.74	0.16
Performance-Based Budgeting in the Public Sector	1.33	5	4.12	0.92	0.84	-1.49	-0.69
Organizational Resilience	1.70	5	3.77	0.64	0.41	-1.07	-1.74

Source: Researcher's Findings

Inferential Data Analysis

In hypothesis testing or significance testing, the researcher either accepts or rejects the null hypothesis (H0). This means that if H0 is accepted, it is assumed that the alternative hypothesis (H1) is rejected, and if H0 is rejected, then H1 is accepted. To determine the statistical significance of a research study, the researcher must establish the significance level or alpha level to test the null hypothesis against it. If the results of the study yield a p-value less than this alpha level, the researcher can reject the null hypothesis. Whenever the evidence for the research result is highly probable, the researcher should accept the null hypothesis; in fact, since the null hypothesis is generally not explicitly stated, acceptance or rejection is applied to the "research hypothesis" rather than the null hypothesis.

Examination of the Normality of Data Distribution

In this research, the Kolmogorov-Smirnov test is utilized to assess the normality of the distribution of the main variables. This test, in its one-sample form, compares the observed cumulative distribution function with the expected cumulative distribution function of a variable measured at the interval level. In interpreting the results of the test, if the observed significance level (p-value) is greater than 0.05, then the observed distribution is considered to be consistent with the theoretical distribution, indicating that there is no significant difference between the two. This means that the obtained distribution is normal. Conversely, if the significance level is less than 0.05, then the observed distribution differs from the expected distribution, and the distribution will not be considered normal.

Here's the academic English translation of the table you provided regarding the normality test of variables:

Table 6: Normality Test of Variables

Variable	Distribution Type Used	Significance Level	Error Value	Hypothesis Confirmation	Result
Perceived Fit	Normal	0.075	0.05	H0	Normal
Performance Expectation	Normal	0.101	0.05	H0	Normal
Internal Dynamics	Normal	0.091	0.05	H0	Normal
External Motivation	Normal	0.066	0.05	H0	Normal
Organizational Sustainability	Normal	0.200	0.05	H0	Normal
Performance-Based Budgeting in the Public Sector	Normal	0.200	0.05	H0	Normal
Organizational Resilience	Normal	0.139	0.05	H0	Normal

Source: Researcher's Findings

Analysis of Results

Based on the values obtained from the Kolmogorov-Smirnov statistic, as shown in Table 6, it can be inferred that there is no significant difference between the expected distribution and the observed distribution for all variables, indicating that the distributions of these variables are normal. Given that this research references structural equation modeling, the subsequent analysis will utilize AMOS software to present the model and examine the hypotheses.

Factor Analysis

Factor analysis can be executed in two forms: exploratory factor analysis and confirmatory factor analysis. In this study, confirmatory factor analysis has been employed to identify latent variables and measure them. Additionally, one of the fundamental applications of factor analysis techniques is to assess the reliability of the components constituting the variables. Therefore, this research also utilizes AMOS software to evaluate factor reliability.

In conducting factor analysis, it is essential to ensure the adequacy of the existing data for analysis. To confirm this, the Kaiser-Meyer-Olkin (KMO) measure is used. This test allows for the assurance of sampling adequacy. The KMO index ranges from zero to one; if the value is close to one, the data are suitable for factor analysis; otherwise, the results of the factor analysis may not be appropriate for the given data.

$$KMO = \frac{\sum_i \sum_j r_{ij}^2}{\sum_i \sum_j r_{ij}^2 + \sum_i \sum_j a_{ij}^2}$$

Where:

- rij r_{ij} = Simple correlation coefficient between variables i i and j j
- pij p_{ij} = Partial correlation coefficient between variables i i and j j

The Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix. If the correlation matrix is an identity matrix, it indicates that the variables do not correlate with one another, and thus, there is no possibility of identifying new factors based on the correlations among the variables. However, if it is not an identity matrix, it suggests that the variables are correlated, allowing for the identification of new factors based on the correlations among them. This test assesses the relevance and suitability of the variables for uncovering the underlying structure. Small p-values (less than 0.05) indicate that the correlation matrix among the variables is not an identity matrix, and factor analysis will be beneficial for the available data.

Confirmatory Factor Analysis of Research Variables

One of the prerequisites for using structural equations is to assess the adequacy of the sample being studied. In other words, it is necessary to determine whether the number of data points (sample size and relationships among variables) is suitable for factor analysis. To this end, the KMO sampling adequacy test and Bartlett's test are employed. Table 7 presents the results of the KMO index and Bartlett's test.

Here's the academic English translation of the table regarding the KMO and Bartlett's test results for the constructs of your research:

Table 7: Results of KMO and Bartlett's Test for Research Variables

KMO Sampling Adequacy Coefficient		0.804
Bartlett's Sphericity test	Chi-Square Value	2986.555
	Degrees of Freedom	378
	Significance Level	0.000

Source: Researcher's Findings

Sample Adequacy and Model Evaluation

According to the results above, the sample adequacy measure for the constructs of the research is 0.804. Therefore, the sample size is suitable for the use of structural equation modeling. Generally, higher values (close to one) indicate that factor analysis is applicable for the data. If this value is less than 0.5, it is likely that the results of the factor analysis will not be useful for the data. Additionally, the Bartlett's test of sphericity is significant (as its significance level is less than the alpha level), indicating that the relationship between the variables or their covariance matrix is suitable for factor analysis.

Model Measurement Evaluation

As the first step in conducting confirmatory factor analysis, we examine the standardized factor loadings and their significance to ensure that the indicators have played a role in measuring their latent constructs, or in other words, that they are significant. Significance coefficients outside the range of 1.96 and -1.96 for the indicators are considered acceptable, and the standardized factor loadings, which represent the regression coefficients of the path from the latent variable to the indicator, should exceed 0.3.

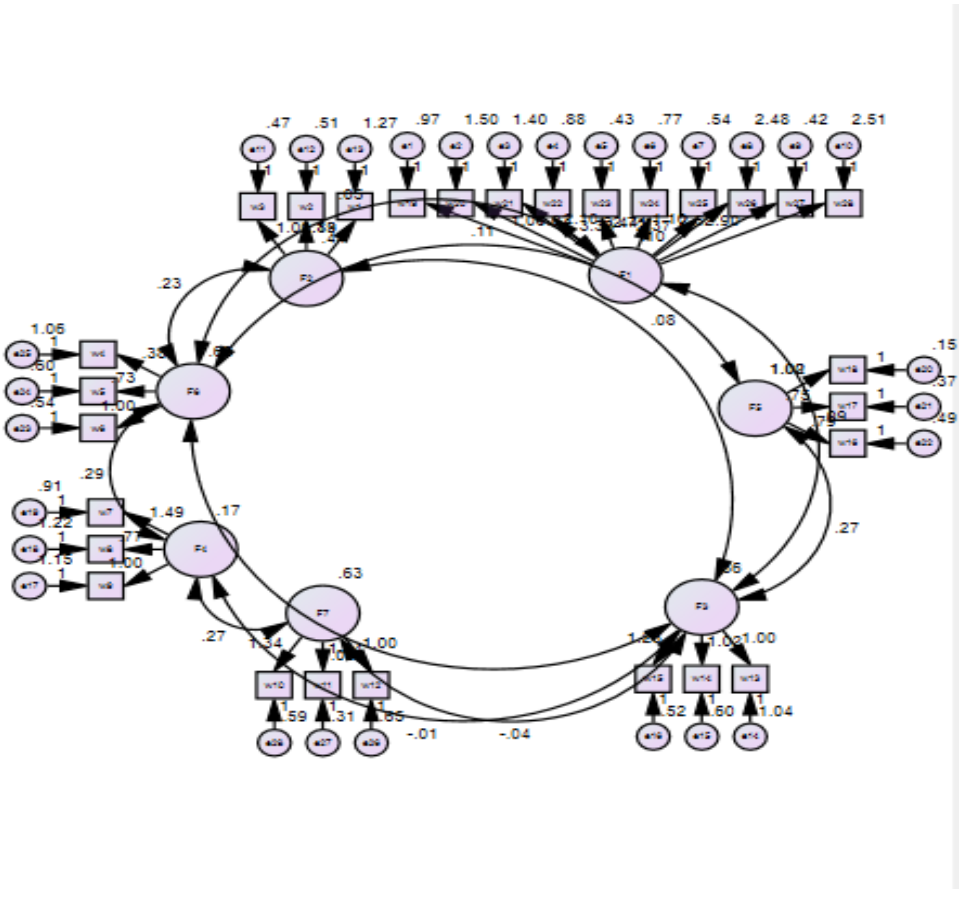

Figure 2: Standardized Coefficients of the Research Variables in the Measurement Model

From the measurement model of standardized coefficients (Figure 2), it can be inferred that there is a significant correlation between the corresponding latent variables and their respective indicators. The

standardized coefficients represent the path coefficients or standardized factor loadings between the factors and the indicators. To establish validity, there must be a significant correlation between the indicator and the dimension, as well as between the dimension and the indicator.The standardized estimation model is derived from the alignment of the two covariance matrices: the model and the data. It reflects the actual estimation of the model parameters. The coefficients between the questions and the research variables are standardized coefficients, indicating the strength of each indicator's ability to measure the corresponding research variable. The significance coefficients indicate the significance of the relationships between the variables. If these coefficients fall between -1.96 and 1.96, it indicates the indicator's inability to measure the corresponding variable. The factor loadings along with their significance values are presented in Table 8.

Table 2: Results of Confirmatory Factor Analysis

Standardized Coefficient	t-Value	Variable	Standardized Coefficient	t-Value	Variable
0.907	7.040	Question 19	0.974	9.047	Question 1
0.154	2.483	Question 20	1.504	9.083	Question 2
0.371	6.961	Question 21	1.397	8.799	Question 3
0.485	7.416	Question 22	0.876	7.679	Question 4
0.542	5.248	Question 23	0.430	7.156	Question 5
0.602	7.450	Question 24	0.769	7.356	Question 6
1.057	8.917	Question 25	0.545	7.964	Question 7
0.649	7.804	Question 26	2.481	9.109	Question 8
0.308	4.039	Question 27	0.415	7.370	Question 9
0.587	6.132	Question 28	2.509	9.128	Question 10
			0.469	5.204	Question 11
			0.514	6.226	Question 12
			1.273	7.329	Question 13
			1.041	8.018	Question 14
			0.599	7.034	Question 15
			0.521	5.386	Question 16
			1.152	8.843	Question 17
			1.225	9.106	Question 18

Source: Researcher's Findings

Interpretation of Table 2

The above table presents the significance coefficients (t-values) for all indicators, which are outside the range of (-1.96, 1.96). As a result, the indicators have played a significant role in measuring their corresponding latent constructs, indicating that they are statistically significant.

Model Fit and Hypothesis Testing

Figure 3 illustrates the structural model of the research, where the estimated regression coefficients between the variables of the structural model are displayed. This model fit provides insights into the relationships among the latent variables and allows for the testing of the research hypotheses.

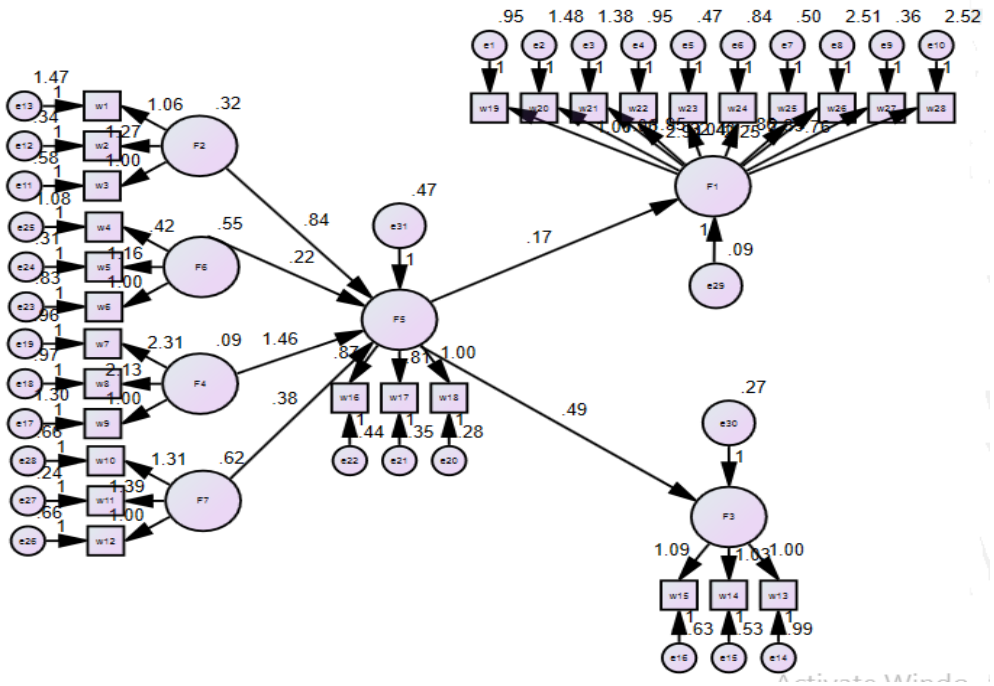

Figure 4-1: Standardized Coefficients of Relationships between Variables in the Structural Model

The summary of the results of fitting the structural model of the research is shown in the table below.

Table 9: Results of the Structural Model Fit

Relationship Description	Standardized Coefficient	t-Value	Significance Level
Effect of Perceived Fit on Performance-Based Budgeting in the Public Sector	0.84	4.665	0.000
Effect of Performance Expectation on Performance-Based Budgeting in the Public Sector	0.22	2.013	0.044
Effect of Internal Dynamics on Performance-Based Budgeting in the Public Sector	1.46	2.081	0.037
Effect of External Motivation on Performance-Based Budgeting in the Public Sector	0.38	3.869	0.000
Effect of Performance-Based Budgeting in the Public Sector on Organizational Sustainability	0.17	3.505	0.000
Effect of Performance-Based Budgeting in the Public Sector on Organizational Resilience	0.49	5.764	0.000

Source: Researcher's Findings

Table 10: Model Fit Indices of the Research

Index	Acceptable Value	Reported Value
Goodness of Fit Index (GFI)	0.90 and above	0.89
Normed Fit Index (NFI)	0.90 and above	0.90
Non-Normed Fit Index (NNFI)	0.90 and above	0.92
Incremental Fit Index (IFI)	0.90 and above	0.91
Comparative Fit Index (CFI)	0.90 and above	0.92
Root Mean Square Error of Approximation (RMSEA)	Less than 0.10	0.041

Source: Researcher's Findings

As shown in Table No. 10, all the fitted indicators of the model are at the optimal level.

Hypothesis 1:

Perceived Fit has a significant impact on performance-based budgeting in the public sector.

- **Results**: The standardized regression coefficient is 0.84, and the t-value is 4.665. The significance level is 0.000, indicating that the impact of perceived fit on performance-based budgeting in the public sector is significant and direct (as the significance level is less than the test level of 0.05 and the regression coefficient is positive). In other words, since the significance level is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis is confirmed. Therefore, it can be concluded that perceived fit has a significant impact on performance-based budgeting in the public sector.

Hypothesis 2:

Performance Expectation has a significant impact on performance-based budgeting in the public sector.

- **Results**: The standardized regression coefficient is 0.22, and the t-value is 2.013. The significance level is 0.044, indicating that the impact of performance expectation on performance-based budgeting in the public sector is significant and direct (as the significance level is less than the test level of 0.05 and the regression coefficient is positive). Thus, since the significance level is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis is confirmed. Therefore, it can be concluded that performance expectation has a significant impact on performance-based budgeting in the public sector.

Hypothesis 3:

Internal Dynamics have a significant impact on performance-based budgeting in the public sector.

- **Results**: The standardized regression coefficient is 1.46, and the t-value is 2.081. The significance level is 0.037, indicating that the impact of internal dynamics on performance-based budgeting in the public sector is significant and direct (as the significance level is less than the test level of 0.05 and the regression coefficient is positive). Therefore, since the significance level is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis is confirmed. Thus, it can be concluded that internal dynamics have a significant impact on performance-based budgeting in the public sector.

Hypothesis 4:

External Motivation has a significant impact on performance-based budgeting in the public sector.

- **Results**: The standardized regression coefficient is 0.38, and the t-value is 3.869. The significance level is 0.000, indicating that the impact of external motivation on performance-based budgeting in the public sector is significant and direct (as the significance level is less than the test level of 0.05 and the regression coefficient is positive). Consequently, since the significance level is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis is confirmed. Therefore, it can be concluded that external motivation has a significant impact on performance-based budgeting in the public sector.

Hypothesis 5:

Performance-based budgeting in the public sector has a significant impact on organizational sustainability.

- **Results**: The standardized regression coefficient is 0.17, and the t-value is 3.505. The significance level is 0.000, indicating that the impact of performance-based budgeting in the public sector on organizational sustainability is significant and direct (as the significance level is less than the test level of 0.05 and the regression coefficient is positive). Thus, since the significance level is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis is confirmed. Therefore, it can be concluded that performance-based budgeting in the public sector has a significant impact on organizational sustainability.

Hypothesis 6:

Performance-based budgeting in the public sector has a significant impact on organizational resilience.

- **Results**: The standardized regression coefficient is 0.49, and the t-value is 5.764. The significance level is 0.000, indicating that the impact of performance-based budgeting in

the public sector on organizational resilience is significant and direct (as the significance level is less than the test level of 0.05 and the regression coefficient is positive). Therefore, since the significance level is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis is confirmed. Thus, it can be concluded that performance-based budgeting in the public sector has a significant impact on organizational resilience.

Discussion and Conclusion

This study examines the success factors for implementing performance-based budgeting in the public sector for sustainable development. The researcher-developed questionnaire was distributed among the target population based on a Likert scale. After collecting the questionnaires, the data were entered into Amos and SPSS software. Initially, a summary of some statistical indicators related to demographic variables was presented. In the inferential statistics section, the normality of the variables was assessed using the Kolmogorov-Smirnov test. Given that the significance level of all variables was above 0.05, it can be concluded that all research variables are normally distributed. Then, the adequacy of the sample was evaluated using the KMO and Bartlett's test in the factor analysis section. Subsequently, the hypotheses were analyzed using Amos software, and regression analysis was conducted using SPSS.

The findings of the research indicated that the first hypothesis regarding the impact of perceived fit on performance-based budgeting in the public sector is confirmed due to the significance level being less than 0.05. Thus, it can be stated that the first hypothesis is confirmed. The findings also showed that the second hypothesis regarding the impact of performance expectation on performance-based budgeting in the public sector is confirmed, as the significance level is less than 0.05. Similarly, the third hypothesis regarding the impact of internal dynamics on performance-based budgeting in the public sector is confirmed, as the significance level is less than 0.05. The fourth hypothesis regarding the impact of external motivation on performance-based budgeting in the public sector is also confirmed, as the significance level is less than 0.05. Furthermore, the fifth hypothesis regarding the impact of performance-based budgeting in the public sector on organizational sustainability is confirmed, as the significance level is less than 0.05. Lastly, the sixth hypothesis regarding the impact of performance-based budgeting in the public sector on organizational resilience is confirmed, as the significance level is less than 0.05.

The results of other studies and similar research are as follows: Abbasi and Nikdel (2023) showed that among the three factors of environmental, human, and organizational, only environmental and organizational factors significantly affect the challenges of implementing performance-based budgeting. In other words, for the successful implementation of performance-based budgeting, attention must be paid to organizational and environmental factors. Emraei and Azar (2021) identified ten main categories in their proposed model: "legal and regulatory factors, organizational structure and culture factors, financial and budgeting factors, structural oversight and evaluation factors, content and managerial oversight factors, motivational and psychological factors, technological and informational factors, economic factors, political and international factors, and cultural and social factors." Mohseni and Tootian (2021) found that technical and procedural, environmental, and human variables were the most important factors hindering the establishment of performance-based budgeting in government agencies. Among the three variables and 41 effect sizes (with effect sizes categorized as low, medium, and high), technical and procedural factors had a more significant average effect size of 0.58 for the establishment of performance-based budgeting. Environmental factors had an average effect size of 0.53, and human factors had an average effect size of 0.51, ranking second and third, respectively. Pifeh et al. (2021) found a significant relationship between the application of budgeting methods and auditing methods in the public sector.

Practical Recommendations

The implementation of Performance-Based Budgeting (PBB) in developing countries faces numerous structural, data-related, capacity, cultural, and political challenges that affect the efficiency and transparency of public financial management. These challenges include weak institutional capacities such as the lack of transparent and reliable data (Surianti & Dalimunthe, 2015), inadequate management

information systems, and a shortage of trained personnel. Additionally, political and cultural barriers such as resistance to change (Firmansyah, 2021), lack of political will (Bodewes et al., 2024), and corruption (Chowdhury et al., 2023), along with financial resource constraints (Theokritoff et al., 2023), misalignment of goals with budget allocation (Worthington, 2013), and inadequate evaluation systems disrupt the implementation of PBB. To address these challenges, strategies including strengthening institutional capacities, fostering political will, combating corruption, improving financial management, enhancing international cooperation (Kim et al., 2019), and, importantly, adapting PBB to local conditions rather than copying foreign models have been proposed (Surianti & Dalimunthe, 2015).

Based on the findings of this research, the following practical recommendations are proposed. It is hoped that the responsible authorities and relevant organizations will pay careful attention to these suggestions:

1. **Utilize Skilled Personnel**: To improve performance, it is recommended to employ individuals with the necessary skills for their tasks.
2. **Implement Appropriate Organizational Management**: To achieve organizational sustainability, suitable management practices should be adopted.
3. **Conduct Accurate Cost and Operations Estimation**: For effective budgeting, precise estimations of costs and operations should be performed.

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