

THE STRATEGY OF ADOPTING PERFORMANCE-BASED BUDGETING IN THE PUBLIC SECTOR: A CONCEPTUAL FRAMEWORK

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Abstract

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The intention of the employees who are involved in the adoption process is very crucial for the success of performance-based budgeting (PBB) adoption innovation in Iraq as an alternative to the limitations of the traditional budgeting implemented currently in Iraq. This study aims to provide a conceptual framework for PBB intention adoption in the Iraqi public sector by combining two theories which are diffusion innovation theory, and the theory of planned behavior and assembling factors that affect the intention to adopt PBB in the Iraqi public sector ministries. The framework includes factors such as awareness of PBB, innovation characteristics including complexity, compatibility, and relative advantage, in addition to perceived behavioral control, and attitude towards innovation that are important to influence the employee's intention to adopt PBB in Iraq. The conceptual approach reviews innovation theories and literature to identify innovation components within the literature, then it synthesizes the components into independent concepts, where every concept contains characteristic meanings and symbolizes close thoughts on innovation. The findings from the study indicated the establishment of six concepts that form together the theoretical framework of "PBB intention adoption" and every concept contains characteristic meanings of the theoretical framework.

Keywords: Performance-Based Budgeting, Intention to Adopt, Public Sector, Innovation

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1. INTRODUCTION

Public budgets play a critical role in the field of public financial management (PFM) as they enable governments to exercise financial accountability by strategically planning and closely monitoring the distribution of public resources (Miller, 2001; Pratolo et al., 2020; Ruppel, 2017). There are various

classifications of budgets and the traditional budget is one of these classifications. With the traditional budgeting system, the process of budget planning supposes that the allocations of the current year equal the minimum needed for the next year's expenditures and that additional resources will be added to meet possible next year's increase. Various limitations are related to the traditional budget

including inflexible handling of opportunities (Liyanage & Gooneratne, 2021), ineffective planning, tracking, and implementation stage (Tabaqchali et al., 2021), an inadequate degree of transparency (Al-Hashimi, 2019) and serious deficit (Al-Husayney, 2021). In addition, the Iraqi budget is intensively reliant on oil revenue (Naama & Jassim, 2020), which poses challenges in terms of preparation, surveillance, and execution.

On the other hand, performance-based budgeting (PBB) is a budget management model that assigns funds according to the program performance efficiency (Marti, 2019), promotes transparency and citizen support (Hijal-Moghrabi, 2017), and prohibits extravagant costs (Park, 2019). Unlike traditional budget practices, accurate information on the performance of institutions and the efficacy of the implementation is vital for a successful implementation.

A review of the literature on PBB in Iraq shows a lack of a comprehensive conceptual framework that includes and involves innovation dimensions and aspects. There have been various studies that examined and investigated PBB in Iraq from different perspectives, but none of the studies examined PBB as an innovation or involved innovation theories in their investigation. A study by Aidi et al. (2023) for instance investigated PBB in its relation to the availability of material and non-material requirements in Iraqi governmental companies. Another study by Hussin et al. (2023) was performed at Samarra University in Iraq. The study assumed that PBB can be applied by providing financial and administrative infrastructure and support. In addition, most of the international literature on diffusion innovation theory was done in the private sector (Lapsley & Wright, 2004) and literature on diffusion still applies the theory mostly in the private sector. Hence, the current study aims to provide a conceptual framework which can be used for a future empirical study for PBB adoption in the Iraqi public sector ministries.

The conceptual framework of the current study merges two theories which are the diffusion innovation theory and the theory of planned behavior. The proposed framework components are awareness, innovation characteristics including relative advantage, compatibility, and complexity which are constructs of diffusion innovation theory in addition to perceived behavioral control, and attitude towards innovation which are constructs of planned behavioral theory.

By applying the conceptual framework empirically, the following research questions can be situated:

RQ1: What is the relationship between awareness and the intention to adopt performance-based budgeting?

RQ2: What is the relationship between characteristics of innovation and the intention to adopt performance-based budgeting?

RQ3: What is the relationship between perceived behavioral control and the intention to adopt performance-based budgeting?

RQ4: What is the relationship between attitude towards innovation and the intention to adopt performance-based budgeting?

The research objectives will be to examine the effect of the above-mentioned constructs on the intention to adopt PBB.

The main purpose of the current study is to provide an illustrated conceptual framework that deals with the adoption of PBB in Iraq as an innovation and which can be applied empirically in a future research study. The main concentration of the study is to explain the concepts and constructs of the conceptual framework. The conceptual framework includes potential research questions, objectives, and hypotheses.

Several contributions are related to the study. First, the study deals with budget reforms as an innovation and such a process has not been addressed before by examining Iraqi literature about the public budget. The study introduces and elaborates on the crucial role of innovation characteristics and constructs in relation to the intention to adopt the innovation. There is a gap in the Iraqi literature about the public budget which did not include the introduction of innovation theories. Second, the application of innovation theory was mostly focused on the private sector while the current study intends to apply the innovation conceptual framework to the public accounting sector in Iraq. Third, applying theories of innovation to public budget topics will be another contribution of the study for it assists in understanding and interpreting the new innovative system of budget which is the introduction of PBB.

PBB as a new budget system can substitute the traditional budget and theories of innovation can assist in understanding its diffusion among units through communication channels proposed by diffusion innovation theory where the perception of units' members about innovation factors and constructs is essential in its impact on the intention to adopt the new system. On the other hand, people's intentions to adopt innovation or to do a certain behavior refer to their willingness or how hard they try to achieve a behavior. This willingness can be predicted and impacted by attitude towards behavior or innovation and by perceived behavioral control according to the theory of planned behavior by Ajzen (1991).

The structure of this paper is as follows. Section 2 reviews the relevant literature that shows the differences between PBB, and the traditional budget, and displays constructs of diffusion innovation theory, and planned behavior theory. Section 3 analyzes the methodology part of the study. Section 4 explains the results and discussion. Finally, Section 5 includes the conclusion inferred from the paper.

2. LITERATURE REVIEW AND HYPOTHESES DESIGN

2.1. Performance-based budgeting and the traditional budget

In 1950, the notion of PBB was first introduced in the United States (US) (Marti, 2019), and it has since been adopted and utilized globally. Australia, The United Kingdom (UK), and New Zealand have executed PBB to progress the performance efficacy of the public sector (Clark et al., 2018). The increasing global preference for PBB can be attributed to the necessity of fostering economic development and improving the public sector's efficiency and effectiveness. Academics and practitioners are becoming increasingly interested in the concept of PBB, which has garnered significant traction in the era of performance

management (Mauro et al., 2020). PBB is a systematic strategy that improves the link between public sector finances and intended outcomes by merging formal data on performance into the decision-making of resource allocation (Robinson & Brumby, 2005). The fundamental goal of this project is to increase openness and accountability by disseminating information to lawmakers and the public about budget allocation and outcomes (Organisation for Economic Co-operation and Development [OECD], 2018). According to Melkers and Willoughby (2001), implementing PBB needs strategic planning, the incorporation of quantifiable data, and an assessment of the agency's progress toward established targets.

PBB differs from traditional budgeting in several ways. The traditional budget follows input classification orientation where expenditures are not related directly to outputs. On the other hand, PBB prioritizes linking expenditures to the outcomes of the services and programs listed in the budget (Boyle, 2011). Next, PBB acts as a management model that manages funds in relation to program performance and effectiveness while the traditional budget is an expenditure tool that allocates resources to the individual items (Emerling et al., 2018). In addition, performance information in PBB helps link funding to results while the conventional budgeting method lacks complete data about expenditure efficacy (Grossi et al., 2016). Moreover, there is a constant evaluation of the services efficiency while with items-based budgeting the concentration is mainly on the evaluation of the financial side. Finally, a traditional budget is related to financial measures like costs and incomes while PBB is related to performance measures to trace advancement about achieved outcomes and objectives.

2.2. The background of the Iraqi public budget

The Iraqi budget has a rich history dating back to the Ottoman era including the first modern budget law created in 1921. Law of Public Accounts No. 28 in 1940 established the accounting system and the governmental budget of Iraq. The unified Law of Public Budget No. 107 was released in 1985 and modified in 1990. The law was a significant event in systemizing the public budget of Iraq. However, after the 2003 invasion, American administrator Bremer issued Order 95, which suspended the 1985 law. The 2019 financial federal management law, approved by the Iraqi parliament, defines the annual budget as a financial plan for projects and programs, containing predicted investment, public expenditure, and revenue for a year. The Iraqi line-items budget reveals limitations and defects due to its dependence on crude oil production and sale. In 2008, for instance, 98.97% of the national income of Iraq came from oil exports (Al-Kassar, 2011). This dependence on oil revenue poses risks and has devastating effects due to possible decreases in international oil prices.

The International Monetary Fund (IMF, 2019) highlights the need to strengthen the Iraqi budget and PFM to address infrastructure gaps, low development, and social conditions. The report also recommends strengthening the state of the Iraqi budget and improving PFM. Additionally, the total dependence on oil revenue results in an imbalance in the economy, as non-oil economic sectors and

ministries do not contribute to the required revenue. Transparency is also crucial for successful budgeting measures and operations, as it indicates responsibility and accountability within government units. Lack of transparency in Iraq's financial reports can lead to corruption and devastation of the budget system (Al-Hashimi, 2019). Iraq is ranked 3/100 in the Open Budget Index rankings, 2015 which classifies the country as a minimal budget-transparent country (International Budget Partnership, 2015). Fiscal transparency is essential for fiscal reform, as it enables openness in government functions, intentions, and public sector accounts, ultimately improving the efficiency of public sector spending (de Simone et al., 2019).

Since 2003, the budget of Iraq has prioritized immediate and short-term requirements, particularly wages, which have led to budget deficiency. Between 2003–2018, oil revenue exceeded 850 billion dollars but was not utilized for infrastructure investment (IMF, 2019). The Iraqi budget lacks a medium-term expenditure plan, which is crucial for good governance and a healthy financial system. The European Union (EU) states have established a medium-term budgetary framework to improve financial discipline, consistency, accountability, and transparency. This framework is applied in countries facing financial deficits, debt ratios, and economic crises (Tița et al., 2014). The current Iraqi budget practices do not apply a three-year medium-term expenditure framework, resulting in poor budgetary output and vulnerability to unstable oil prices. It is recommended that the Iraqi government adopts a three-year medium-term expenditure framework to protect oil revenue from fluctuations and ensure sustainable spending, preventing economic destabilization.

2.3. Diffusion of innovation theory

The theory of diffusion of innovation by Rogers (1983, 2003) is related to the adoption and implementation of new ideas and innovations where communication is a hugely important element in the process of spreading the new idea or technology. Diffusion innovation theory has been applied by researchers to examine the adoption and implementation of technologies and innovations where these studies targeted to explore whether the perception of the adopter of the innovation affects their adoption process (Alhashem et al., 2023). Diffusion innovation theory posits that five characteristics of innovation (relative advantage, complexity, compatibility, trialability, and observability) are the most important determinants of the adoption rate of innovation. In addition, the theory has stressed that the adoption of innovation begins with awareness. Researchers have added awareness as an additional construct and variable of innovation which affect significantly on the rate of adoption (Demissie, 2019).

The theory of diffusion innovation is built on the idea that there is an innovation or a new idea, product, or service. That idea is spread through communication and social systems over time among individuals in the unit. The successful communication and usefulness of the social system interaction will participate in forming the perception of the members about the innovation. Therefore, innovation is considered a social process where innovation characteristics are shared and communicated over time among the individuals of

the unit. Consequently, the recognized characteristics of innovation will determine the adoption of the innovation.

In his theory, Rogers (2003) clarified that an innovation or technology that is introduced for the first time to a unit or a group of individuals can be considered as new even if it has been implemented in other units or spots because the perceptions of the unit members could be different from the perceptions of members in other fields or specialties. An innovation is what has been realized by a certain unit as being new. When people realize and evaluate a technology or behavior as innovative and new, then it can be diffused.

Awareness is the first step toward the adoption of innovation (Rogers, 2003). According to Rogers (2003), innovation is a five-phase operation that comprises knowledge, persuasion, decision, implementation, and confirmation. When it comes to successful adoption, awareness is critical. According to Ali et al. (2019), diffusion innovation theory traits, consumer awareness, and religion all have a substantial impact on takaful product adoption in Pakistan. Similarly, Jamshidi and Kazemi (2020) discovered that many factors such as relative advantage, compatibility, consumer awareness, contentment, and attitude influence Malaysian banks' intention toward Islamic credit cards. Shahzad et al. (2024) studied the effect of awareness on the adoption of cryptocurrency and the authors revealed that awareness had a positive direct effect on the adoption process. Additionally, Mahmoodabad et al. (2020) discovered that awareness has a significant impact on the adoption process.

Relative advantage is a concept that highlights the superiority of an innovation compared to its predecessor. It is crucial for innovations to be beneficial for adoption, as people are more likely to accept them if they improve their social position. Consumers' perceptions of the benefits of innovation depend on its traits and qualities, contributing to its relative advantage (Flight et al., 2011).

Okour et al. (2021) studied Jordanian financial institutions' knowledge management system (KMS) adoption, finding no significant correlation between compatibility and complexity and KMS adoption, while relative advantage and information quality did. A positive correlation between relative advantage, compatibility, trialability, simplicity, and sustainability was discovered by Menzli et al. (2022) in Saudi Arabia, while similar results were discovered by Chaudhary and Kumar (2021) in hospitals across the state of Bihar. Hsiao (2017) found relative advantage as the most important factor in Taiwanese smartwatch adoption, highlighting the significance of this factor in influencing adoption. Rogers' (2003) innovation diffusion model highlights the significance of relative advantage in the spread of innovations within organizations. The influence is further highlighted by Wang et al. (2024) in their research about the intentions of consumers to purchase categories of innovative alternative proteins.

PBB is driven by relative advantage, as employees are more likely to adopt it when they understand its advantages over traditional budgeting practices and realize that it could lead to improved social standing and international connections. PBB was supported by the Iraqi parliament in 2019, and understanding how different budgeting players perceive the relative merits of this approach is crucial.

Compatibility indicates the degree to which an innovation suits the values, habits, and needs of probable users. The synchronization of innovation with the demands, lifestyles, and values of potential adopters is referred to as innovation compatibility (Gao et al., 2014). Amini and Javid (2023) examined the impact of relative advantage, compatibility, security concerns, cost savings, technology readiness, top manager support, competitive pressure, and regulatory support on the adoption of cloud computing-based supply chains. The study involved 22 small and medium enterprises (SMEs) and 77 experts from department technology. The findings showed that compatibility significantly influences supply chain management adoption. Ntsiful et al. (2023) conducted a study on Ghanaian faculty adoption of online pedagogy. A positive relationship between compatibility, complexity, and observability, with the intention to engage in online teaching was found. Hirpo and Thakkar (2022) emphasized the significant importance of compatibility in influencing the adoption of interest-free banking services. In summary, the positive effect of compatibility on the adoption process was confirmed by all the above-mentioned studies.

Complexity refers to the perceived difficulty in comprehending and utilizing an invention, influenced by the adopter's ability and competence (Rogers, 2003). It hinders innovation adoption and can lead to resistance when implementing new practices. PBB is a result of this complexity, a method that allocates resources based on expected program performance and outcomes, requiring significant changes to existing budgeting procedures. Lingenfelter (2021) highlights the challenges in implementing PBB, including lack of political will, insufficient government officials' skills, resistance to change, bureaucratic inertia, and insufficient data systems. The complexity of performance measurements and targets necessitates the resolution of these concerns for effective PBB implementation.

The relationship between complexity and the adoption of innovations has been examined by the previous literature. Qader et al. (2023) study, for example, investigated factors that influence halal meat supply chain adoption in associations in Pakistan by introducing diffusion innovation theory. Findings showed that there has been a negative relationship between complexity and halal meat supply chain.

PBB is a multifaceted methodology that necessitates the establishment of performance indicators, the alignment of objectives, the acquisition of leadership commitment, and the successful communication of the proposed change. Kuntadi and Livrianti (2022) research revealed that PBB policies are affected by factors such as communication, resources, and bureaucratic structure. Consequently, it is important for the Iraqi government to explore potential complexities in PBB adoption process and how those complexities affect the intention to adopt PBB.

2.4. Theory of planned behavior

The theory of planned behavior by Ajzen (1991) assumes that attitude towards behavior, subjective norms, and perceived behavioral control can predict intentions to do a certain behavior. The individuals'

intention to do a certain behavior refers to the willingness of people and how hard they are desirous to plan to achieve a certain behavior. In this respect, the intention to perform a behavior can be expressed in a real situation only if that behavior is under one's volition or will. Perceived behavioral control is applied in the theory to achieve a certain behavior. The needed resources and opportunities should be available and here clear control over behavior is available eventually there will be an obvious impact of behavioral control on the intentions and actions.

Another factor in the theory of planned behavior which acts as a determinant of intention is the attitude towards behavior. Attitude towards behavior is applied in the theory to understand the intention of individuals to perform a certain behavior. Attitude towards behavior indicates that the individual evaluates a certain behavior either favorably or unfavorably. The intention of an individual to do a behavior will be increased if he has a positive attitude towards that behavior. This factor is considered as a volitional factor. Moreover, the subjective norms factor of the theory refers to the individuals' social surroundings. The theory defines social norms as the perceived social pressure to take part in a behavior which declares that the intentions of the individual are impacted by the estimations and attitudes of other individuals. It refers to the social pressure to do or not to do a certain behavior, consequently. It is a non-volitional factor.

Perceived behavioral control is a discrete factor that exerts influence on behavioral intention. It pertains to the perceived level of ease or difficulty related to performing a specific conduct. The present investigation delves into the influence of perceived behavioral control on behavioral intention, a pivotal component in ascertaining an actual behavior.

Ali et al. (2023) discovered that attitude, perceived behavioral control, and subjective norms considerably affect the intention of individuals to utilize public transportation in Kanazawa, Japan. Zulu et al. (2021) determined that attitude, subjective norms, and perceived behavioral control positively impact the adoption of solar energy. Savari and Khaleghi (2023) detected a positive correlation between attitude, perceived behavioral control, subjective norms, and the intentions for forest conservation in Arasbaran, Iran, utilizing the planned behavior theory.

Attitude towards behavior influences the organizational inclination to embrace new practices. In addition, positive attitudes can foster a willingness to engage in the exploration of novel ideas and the ability to acknowledge their potential advantages. Zulu et al. (2021) found a strong correlation between attitude and the desire to adopt solar energy solutions, suggesting a positive influence. The study conducted by Zheng et al. (2022) examined the relationship between visitors' intentions to conserve resources in rural tourism and the mediating role of attitude. In their study, Kaakeh et al. (2019) examined the many elements that influence the intentions of bank customers in the United Arab Emirates (UAE) to adopt Islamic banking. The researchers discovered that both awareness and attitude had a direct impact on

the intention of individuals to use Islamic banking services. According to the study conducted by Delshab et al. (2022), it was observed that management systems have a significant impact on the performance of nonprofit sports clubs in Iran. However, this influence is mediated by certain variables, with attitude towards innovation playing a crucial role as a mediator.

2.5. Research hypotheses

Examining the hypotheses related to the study's conceptual framework, the following hypotheses will be regarded:

H1: Awareness positively affects the intention to adopt performance-based budgeting.

H2: Innovation characteristics including relative advantage, compatibility positively affect the intention to adopt performance-based budgeting while complexity as an innovation characteristic negatively affects the intention to adopt performance-based budgeting.

H3: Perceived behavioral control positively affects the intention to adopt performance-based budgeting.

H4: Attitude towards innovation positively affects the intention to adopt performance-based budgeting.

3. RESEARCH METHODOLOGY

This article aims to establish an innovation framework that can be applied to make an empirical study about the intention to adopt PBB in Iraqi public ministries. Relevant literature about PBB has been displayed. In addition, background information about the traditional Iraqi budget has been narrated. After that, the focus was narrowed down to identify variables of the conceptual framework that are important to be considered to affect the intention to adopt PBB in the public sectors in Iraq. Discussion was provided about the reason why those factors are important to influence the intention of the employees who are involved in the adoption process. In summary, the research applied diffusion innovation theory, planned behavior theory, and relevant literature as the methodological means to establish the conceptual framework.

The current study provides a research framework that will be applied to conduct an empirical study about the PBB adoption process in Iraq in the next research work. The questionnaire methodology will be applied to collect data about the perceptions of government officials about factors which affect the intention to adopt PBB in the Iraqi public sector. The questionnaire will be applied in the near future through the next research. It is intended to include officials from the Ministry of Finance and Ministry of Planning to take part in the study. The officials are accountants, auditors, and managers working in these two ministries. The quantitative approach will be conducted because it enables researchers to have major knowledge and grasp of the social world and it helps them to observe cases and incidents that influence people (Hossan, 2022).

Another alternative approach to conducting the study can occur by applying the qualitative method. Hence interviews can be made with financial managers

and non-managers in the ministries which means that data can be collected in the form of words instead of numbers as it does with the quantitative approach. A qualitative approach can be made use of to better comprehend a phenomenon, its quality, details, and nature or the context it exists in which could generate novel research thoughts (Ugwu & Eze, 2023).

To achieve the empirical part of the conceptual framework, a survey questionnaire was developed and adapted to contain a larger population in a short period of time to perform hypotheses testing. However, the questionnaire will not be applied to collect data for analysis in the current study, instead, it will be applied to collect data in the next and separate research work (see Appendix). The quantitative data collection procedure involves investigating the influence of awareness on the intention to adopt PBB (RQ1), the influence of innovation characteristics including relative advantage, compatibility, and complexity on the intention to adopt PBB (RQ2), the influence of perceived behavioral control on the intention to adopt PBB (RQ3), and the influence of attitude towards innovation on the intention to adopt PBB.

The measurement variables developed under each construct will be measured by applying a five-point Likert scale which will be used to measure the degree of perception regarding each measurement variable where a range of 5 will be given for “strongly agree”, 4 for “agree”, 3 for

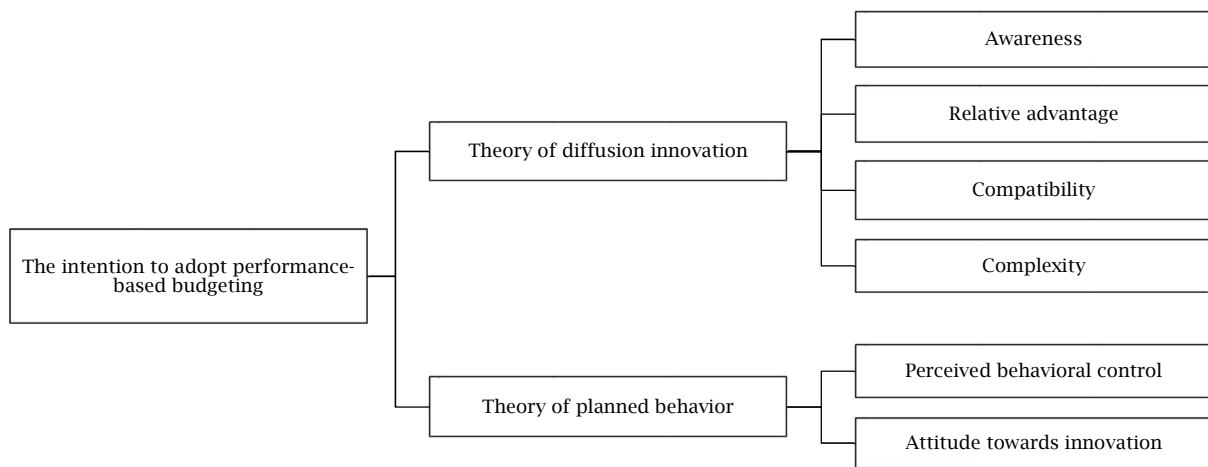
“neutral”, 2 for “disagree”, and 1 for “strongly disagree”. Demographic variables including gender, age, level of education, work site, and years of service will be also included to show the demographic aspect of the respondents.

4. RESULTS AND DISCUSSIONS

The analysis of the conceptual framework includes six concepts which together form and establish the theoretical framework of PBB adoption intention. Each concept symbolizes the innovation aspects of the theoretical framework of PBB adoption intention. In addition, they have interrelated relations as shown in Figure 1.

The *concept of awareness* is mentioned in Rogers' (2003) diffusion innovation theory where it is mentioned that awareness is the first stage of the adoption process. The existence of an intention to adopt PBB as an innovation among members of the units cannot be started without the establishment and existence of an awareness construct. On the contrary, restricted awareness could be a relevant variable that diminishes the process of adoption. Hence, awareness represents the foundational stage in the theoretical framework of PBB adoption intention and it is the initial and necessary stage for the coming stages of innovation adoption.

Figure 1. Represents the research framework for the empirical investigation



The *concept of relative advantage* represents the benefits and merits of PBB in comparison to traditional budgeting. In the theoretical framework, the relative advantage of PBB will be a strong motif for the members of the organizations in the public sector persuading them to create the intention to adopt the new system due to better social status resulting from the adoption process.

The *compatibility concept* is related to the increase or decrease in the rate of adoption intention and it has an impact on the intentions and behaviors of the adopters. It is assumed that if the adoption of innovation creates a shortage in compatibility with the values, needs, and experience of the adopters, this shortage will decrease the adoption process rate. On the contrary, the *complexity concept* of the theoretical framework refers to the difficulty accompanying the adoption

of the new system. The complexity of an innovation will be an obstacle affecting the rate of adoption negatively. The adopters of PBB have to get skillfulness to face and defy the complexity dimension.

The *concept of behavioral control* refers to the individuals' perceptions of the ease and difficulty of adopting PBB which consequently affect their intention to make actual behavior of adoption. Perceived behavioral control represents the existence or non-existence of obstacles and barriers that shape the perception of individuals about the degree of ease or difficulty of doing the behavior which is the adoption of innovation.

Finally, the *concept of attitude towards behavior* refers to the positive or negative attitude or position the individuals have towards the PBB. Attitude towards behavior in the theoretical framework is referred to as attitude towards innovation which

represents the beliefs the individuals have and hold. These beliefs have a direct impact on the steps taken by the members to adopt PBB.

5. CONCLUSION

Because of the drawbacks of traditional budgeting, the governments of Iraq plan to adopt PBB to enhance the efficiency of government budgeting and implementation process. The intentions of the employees who will execute the adoption of PBB in Iraq are important in this regard. However, this intention depends on some factors which need to be considered to accelerate the adoption process. From the review of the existing literature, the current study finds some factors that affect the adoption process such as awareness, relative advantage, compatibility, complexity, perceived behavioral control, and attitude towards innovation which are very crucial to influencing the intention to adopt PBB in Iraq. To make PBB fully functional, the government need to explore the current situation of these factors and the intention to adopt PBB, to measure how all those factors affect the intention to adopt PBB in Iraq and resolve unfavorable issues in this regard.

For future research, the authors intend to involve the current framework of the paper empirically to make future research in Iraqi public

ministries to test the framework experimentally on the field. The research framework will be performed experimentally in the next research project which the authors intend to perform in the near future.

The study displays new insights into the current gap in grasping the impact of innovation characteristics on the adoption of PBB as an innovative system in the public sector. The results of the future empirical study have chances to assist policymakers in public accounting reform in creating effective strategies and conditions to succeed in the adoption of the PBB system of budget.

While the current study establishes an innovation theoretical framework by combining variables of two innovation theories to be applied for the first time in the Iraqi public sector for PBB studies, it has certain limitations. One of these limitations is that there are other innovation factors of innovation theories which were not included in the theoretical framework of the current study. In addition, the main purpose of this study is to establish the theoretical framework of PBB adoption intention by identifying innovation components and displaying their characteristic meanings and thoughts. The study did not set hypotheses or collect data from individuals. However, the researchers intend to test the framework in future research by applying a quantitative approach and collecting data from participants operating at the public sector ministries.

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APPENDIX

Table A.1. The questionnaire items

Construct	Measurement items	Source
Awareness (AWR)	I have an awareness of the PBB system.	Demissie (2019)
	I am aware of the usefulness of the PBB system.	
	I am aware that the PBB system is a planning tool which requires transparency and accountability.	
	I know that the PBB system links fund allocations to program efficiency by using performance information.	
	I get enough information about the benefits of the PBB system.	
	I get enough information about PBB requirements and processes.	
Relative advantage (RA)	PBB is a strategic system which acts as a management, control, and planning tool.	Ntsiful et al. (2023)
	PBB enables budget makers to set the purpose and the objective of fund allocations.	
	PBB makes it easier to improve the performance of units in a progressive way.	
	PBB enhances the efficiency of agencies and public expenditure.	
	PBB classifies expenditure into programs and services which have specific objectives.	
	PBB provides better decision-making by using performance information.	
Compatibility (COM)	PBB adoption is compatible with the current situation of my institution.	Qader et al. (2023), Okour et al. (2020)
	PBB adoption is compatible with the institution's experiences.	
	PBB adoption is compatible with my institution's needs.	
	PBB adoption fits into my work style.	
	PBB adoption is consistent with the way I think the budget process should be conducted.	
	PBB adoption is compatible with my experience with budget implementation.	
Complexity (COMP)	PBB adoption involves complex procedures.	Qader et al. (2023), Ntsiful et al. (2023)
	Analyzing performance includes complex processes during the application of PBB.	
	Measurement of performance includes complex methods during the application of PBB.	
	Adopting PBB requires more knowledge and experience.	
	PBB adoption requires technical capacity.	
	PBB adoption requires skillful personnel.	
Attitude towards innovation (ATT)	Adopting PBB by the government is a wise idea.	Savari and Khaleghi (2023), Zheng et al. (2023)
	Adopting PBB by the government is important.	
	Adopting PBB by the government is necessary.	
	I think Adopting PBB is a positive behavior.	
	I think Adopting PBB is a valuable behavior.	
	Adopting PBB by the government is useful.	
Perceived behavioral control (PBC)	I can participate in the implementation of PBB.	Al Breiki (2023)
	There are enough human resources in my unit to apply PBB.	
	There are enough financial resources to apply PBB.	
	I have the knowledge to apply PBB.	
	I have the skill to apply PBB.	
	There will be sufficient support from my unit to apply PBB.	
Intention to adopt PBB (INT)	I have the intention to adopt PBB.	Savari and Khaleghi (2023)
	There is a willingness to adopt PBB.	
	I intend to adopt PBB because it requires the efficiency of the funded programs and services.	
	There is an intention to apply PBB because of its big benefits.	
	Having clearer objectives will be a strong motif in adopting PBB.	
	The positive impact of PBB on society will boost its adoption.	