

Albassam, Bassam A.

Article

A model for assessing the efficiency of government expenditure

Cogent Economics & Finance

Provided in Cooperation with:

Taylor & Francis Group

Suggested Citation: Albassam, Bassam A. (2020) : A model for assessing the efficiency of government expenditure, Cogent Economics & Finance, ISSN 2332-2039, Taylor & Francis, Abingdon, Vol. 8, Iss. 1, pp. 1-12,
<https://doi.org/10.1080/23322039.2020.1823065>

This Version is available at:

<https://hdl.handle.net/10419/269982>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

A model for assessing the efficiency of government expenditure

Bassam A. Albassam |

To cite this article: Bassam A. Albassam | (2020) A model for assessing the efficiency of government expenditure, Cogent Economics & Finance, 8:1, 1823065, DOI: [10.1080/23322039.2020.1823065](https://doi.org/10.1080/23322039.2020.1823065)

To link to this article: <https://doi.org/10.1080/23322039.2020.1823065>



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.



Published online: 25 Sep 2020.



Submit your article to this journal [↗](#)



Article views: 6645



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 5 View citing articles [↗](#)



Received: 03 June 2020
Accepted: 27 August 2020

*Corresponding author: Bassam A. Albassam, Department of Public Administration, College of Business Administration, King Saud University, P.O. Box 71115, Riyadh 11587, Saudi Arabia
E-mail: Balbassam1@ksu.edu.sa

Reviewing editor:
Mariam Camarero, Universitat Jaume I, Avenida Sos Baynat sn, Castellon, SPAIN

Additional information is available at the end of the article

GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

A model for assessing the efficiency of government expenditure

Bassam A. Albassam^{1*}

Abstract: It is challenging for governments to transfer public spending into successful public programs and projects. Additionally, good governance of the public financial system is essential for economic and human development. The author suggested a model to evaluate the efficiency of public spending using data from 71 countries during the period 1996–2017. The model addresses the ability of public allocations to reach government's objectives (e.g., controlling unemployment and enhancing economic growth) in addition to including factors related to sustainable development. Thus, econometric and statistical tests are carried out to validate the model and to measure its stability and accuracy. Building on the current model, we could therefore apply the model to individual countries to better understand each country's public spending system and to help decision makers efficiently execute their national strategic plans.

Subjects: Social Sciences; Economics, Finance, Business & Industry; Political Economy; Economics; Development Studies; Environment; Social Work; Urban Studies; Political Studies

Keywords: public spending; efficiency; economic development; budgeting system

Good governance of the public financial system is essential for economic development, since the government sector controls and supervises public economic activities. The private sector, especially in developing and transitioning economies consequently relies on public programs and projects that are funded by the public budget. Thus, regardless of the existing economic system (e.g., open or closed

ABOUT THE AUTHOR

Bassam A. Albassam is an associate professor in the Department of Public Administration at King Saud University, Saudi Arabia. He received Ph.D. degree in public administration with concentration in governance and public finance. He published books, articles, and book reviews on different subjects such as public administration, public finance, governance.

PUBLIC INTEREST STATEMENT

One of the issues governments encounter is how to translate government spending into economic and sustainable development. Thus, testing how the efficiency of budget allocation helps when assessing the effectiveness of a country's budgeting system, public programs' outcomes, and fiscal policies. Countries seek loans and issue bonds during crises and when facing a public budget deficit. Therefore, the model introduced here could be applied by countries to evaluate their options for building long-term economic growth and adopting high-quality public policies that help maximize the returns from such spending. Running the model presented in the paper gives decision makers in a country an idea of which factors are more connected to public spending; based on that, government can adjust spending plan and direct it to the most significant dimensions and review the spending plans on nonsignificant factors.

economy) and the country's political system (e.g., democratic or no democratic), the role of government is important for directing and maintaining a country's sustainable development.

Public budget allocations (current and capital expenditures) are the main engine of people's economic growth and well-being through funding the public programs and projects that contribute to providing them with services (e.g., education and health services). Nongovernment sectors (e.g., the not-for-profit and private sectors) are also influenced by regulations and rules adopted and implemented by the government. Thus, public expenditures, as part of the financial management system, receive most of the scholarly attention, especially in rentier states (i.e., countries that depend heavily on income from natural resources or few sources). As a result, managing public expenditures efficiently is considered the most challenging task for governments.

Furthermore, financial rules and regulations usually deal with expenditures more than revenues through organizing and controlling public spending. Studies of public financial management address both public revenues and expenditures; thus, public spending receives more consideration from scholars and practitioners since public expenditures are more complicated and the public demand changes. Therefore, many studies introduce economic and financial models by targeting a formula that helps decision makers and researchers to evaluate the efficiency of countries' public expenditures. However, acknowledging that countries differ in terms of governance, economic and human development levels and in their needs and, therefore, their strategic plans, this paper's purpose is to propose a model for evaluating the efficiency of government spending in order to add to the literature and enhance our understanding of public finance. Additionally, the model reflects on the efficiency of the fiscal policies that a government adopts, which makes the current model different from the existing ones by addressing economic development aspects at a macrolevel (e.g., economic diversification).

The model built in this paper accordingly addresses public expenditure efficiency through evaluating the ability of public allocations to reach government's goals and objectives, since factors included in the model (e.g., human development and enhancing government effectiveness) are common in the majority of government plans worldwide. The author has created a model to evaluate the efficiency of public spending using data from 71 countries during the period 1996–2017. Econometric and statistical tests were carried out to validate the model, and to measure its stability and accuracy. A justification of using specific factors in building the current model is explained after addressing the importance of having a model of public expense efficiency. The methodological aspect of the model is also discussed. Finally, results and model applications are explored.

1. Why we need a model?

Public expenditures are the most important element in the public budgeting process. Public expenditures allow public programs and services to be introduced to their beneficiaries (individuals and nongovernment agencies). A well-managed public expense program consequently plays a critical role in supporting government efforts to attract foreign and local investors by having a high-quality infrastructure and effective government programs in which such investments support economic growth in the country and enhance the private sector contribution to GDP (Ouertani et al., 2018; Schick, 1983). Therefore, Mandl et al. (2008) argued that government policies and programs require efficient public spending in order for high-quality institutions to facilitate and help to properly manage the allocations of the public budget.

Managing the public budget is important for influencing the government and economic productivity and has an impact on the well-being of the people by introducing good public services (e.g., education and health services), especially in developing countries where the public sector is the key to economic development (Rayp & Van De Sijpe, 2007; United Nations [UN], 2017). Political and administrative systems also impact public spending efficiency; for example, an independent

agency that controls public spending will limit money waste and corruption (Mirzoev et al., 2020; Montes et al., 2019). Moreno-Enguix and Lorente Bayona (2017) study stated that public expenditure efficiency “was associated with significantly higher levels of GDP per capita or state of development, democracy, public trust in politicians, and judicial independence, as well as with a lower level of corruption” (p. 126).

Schick (1998) argued that many governments find it easier to spend more with the hope of attaining a greater amount of efficiency than to cut spending. That is why global budget allocations have been increasing dramatically in recent years. Governments consequently utilize tools and techniques to finance government projects and programs, including borrowing from domestic and external sources as part of their fiscal policy, especially during times of crisis (Domar, 1944; Kamiguchi & Tamai, 2019; Thompson, 2014).

Many schools of thought have discussed the importance of public spending on the status of a country’s economic development. Wagner’s law, for example, argues that economic growth leads to an increase in public expenditure. According to the theory by Adolph Wagner, in the late 1800s and early 1900s, an increase in demands for services from the public and a growth in administrative activities pushed the government to spend more, resulting in a cumulative increase in public expenses. Thus, Wagner’s law asserted that economic growth (e.g., generating more national revenues) translated into and led to an increase in public spending (Dilrukshini, 2009; Musgrave, 1959).

Diamond (1965) used neoclassical theory to analyze the impact of governmental intervention through public spending on the social and economic status of different countries. The neoclassical theory seeks to maximize the elements of production by achieving full employment, especially through capital investment, with only a limited amount of state intervention in the economy. Diamond (1965) thought that government spending has a greater impact on economic growth, capital markets, liquidity, and inflation than does external debt. However, neoclassical theory has been criticized for being unable to explain how we can maximize the elements of productivity in an economy and for failing to explain the need for governmental interventions in times of crisis (Alesina & Passalacqua, 2016; Greenwald & Stiglitz, 1987).

The Keynesian hypothesis alternatively deemed that government spending translates into economic growth by supporting public programs and projects. The Keynesian economists argue that government needs to intervene in the economy by spending more on social programs and government projects so that increases in public expenditures support economic activities and economic growth (Ageli, 2013; Dilrukshini, 2009). The theory is based on the principle that increases in government spending on infrastructure and social programs contribute to creating a more favorable environment for the private sector to invest in; thus, it is better at creating jobs and supporting economic growth (Ono, 2011; Palley, 2013).

Therefore, one could argue that budget allocations are significantly connected to economic and sustainable development and that public spending is influenced by the political system and governance quality. Thus, having a model for assessing government spending efficiency helps when evaluating public programs and directing expenditures towards the optimal use of available resources to achieve government goals (Florina, 2017; Mihaiu et al., 2010). Additionally, public expenditure efficiency is a good indicator of government policies’ effectiveness (Eid & Awad, 2017; Montes et al., 2019). Thus, “Studying efficiency and effectiveness pursues the relationship between inputs, outputs and outcomes” (Florina, 2017, p. 314).

2. Related research

The sole responsibility of government is to adopt sound public policies (e.g., quality fiscal and monetary policies) to enhance economic growth and the outcome of government work and to maintain high-quality public services for people (Rajkumar & Swaroop, 2008; Wildavsky, 1961). The effectiveness and efficiency of public expenditures, as part of the financial management system, accordingly influence the quality of public services and programs introduced to the country's beneficiaries (Ansari et al., 1997; Schick, 1983, 1998). According to Khan and Murova (2015), "measuring efficiency of public expenditures has considerable value for government: public expenditures constitute a significant percentage of domestic output with a direct impact on public policy involving services such as education, health care, public safety, transportation, and welfare" (p. 170).

Public expenditure efficacy has been associated with the quality of institutions and good governance practices (e.g., controlling corruption and supporting transparency) (Borge et al., 2008; Rajkumar & Swaroop, 2008). Studies on efficiency have recently taken a variety of approaches, depending on the study's goals. Variables have consequently been added to equations (i.e., models) in an effort to have a well-designed model to measure and evaluate government spending on public services and programs such as education, health services, and defense (Aubyn, 2014; Mann & Sephton, 2015; Ouertani et al., 2018; Rajkumar & Swaroop, 2008). Thus, the current model adds to the literature by addressing dimensions of economic development and how it is related to public spending.

Michael Farrell is known for studying institutions in the 1900s; he argued that there are two types of efficiency: technical efficiency (TE) and allocative efficiency (AE). According to Farrell (1957), TE refers to the input-output relationship, and it "reflects the ability to avoid waste by producing as much output as input usage would allow and, conversely, by using as little input as output production would allow," while AE "reflects the optimal allocation of input factors" (p. 173). Many studies applied Farrell's concepts (i.e., technical efficiency and allocative efficiency) while exploring public spending efficiency (Hauner & Kyobe, 2010; Khan & Murova, 2015; Wang & Alvi, 2011). However, some scholars think Farrell's approach is suited to evaluate the efficiency of an organization's work and output more than the efficiency of a government's spending (Ghali, 1997; Rayp & Van De Sijpe, 2007).

Robert Barro's model is another important model that has been adopted by many studies to measure public expenses efficiency. Barro (1990) introduced a model addressing the relationship between government spending and economic growth, in which growth is measured by gross national product (GNP) and savings rates. Barro's (1990) endogenous model concentrates on the public sector's productivity and argues that applying the model to different countries might give different results based on many factors, such as geography and the economic structure of the country. According to Barro (1990) "Aside from problems of measuring public services and the rates of growth and saving, the empirical implementation of the model is complicated by the endogeneity of the government" (p. 24). Barro's (1990) model has been improved over the years and used to address the relationship between fiscal policy and long-run economic growth through measuring public spending's productivity (Ghali, 1997; Minea, 2008; Rayp & Van De Sijpe, 2007).

We noticed from the literature the importance of having a reliable and credible model that helps countries' decision makers and international donors (e.g., IMF and World Bank) evaluate public spending efficiency as an essential foundation to enhance public services outcomes, economic development, and people's well-being. Much research has been conducted that aims to build a model to study the efficiency of the public expenditures; however, we still need more studies with different approaches to enrich and add to the discussion, and this study does just that by adding to the debate.

3. The efficiency of public expenditures model

Most studies that address public spending efficiency investigate the relationship between public spending and one or more of the public services (e.g., education and health services) (Ghali, 1997; Minea, 2008; Rayp & Van De Sijpe, 2007). However, the proposed model contains the main dimensions of the central objectives that most governments are trying to achieve by adopting spending policies, namely economic growth, monitoring the rise of public debt, economic complexity, government effectiveness, human development, and controlling the unemployment rate. Thus, the current study takes a comprehensive approach to evaluating the efficiency of public spending compared to other studies. The following section explains the reasons for including these factors.

Economic growth and diversity in a country's exports and imports (i.e., economic complexity) are essential to all government plans. Studies find that an effective allocation process of public expenses plays an important role in supporting productivity in the economy, enhancing the quality of the country's knowledge management system, and building good infrastructure projects through utilizing the public budget allocations (Khan & Murova, 2015; Kouzmin et al., 1999; Schick, 1983). Al-Faris (2002), after studying the relationship between public expenditures and economic growth, found that "economic growth is a predictive factor of the expanding role of government as exemplified by public expenditure" (p. 1190).

Another important factor in assessing its public expenses efficiency is a country's government effectiveness level; the World Bank (2019a) defines government effectiveness as "The capacity of the government to effectively formulate and implement sound policies, and the level of respect of citizens and the state for the institutions that govern economic and social interactions among them" (para. 3). The results of government actions are the main drivers in a country's development, since regulators approve legislation that and public agencies execute. Thus, supporting the quality of public services, civil service, and policy formulation and implementation as government tasks results in economic development, fights corruption, and enhances long-term economic growth (Afonso, 2004; Montes et al., 2019). According to a United Nations study (2017), the efficiency and effectiveness of public policy formulation and execution by governments are the main factors in the quality of public services and programs.

Human development is similarly a central factor in evaluating budget allocations efficiency. Investing in human capital has long-term effects on building the knowledge and skills needed to utilize a country's wealth. Translating public policies into programs and services also requires a knowledgeable workforce (Al-Yousif, 2008; Aubyn, 2014). Controlling the unemployment rate likewise contributes to political stability and economic growth and supports human resource utilization. Thus, many studies that explore the relationship between unemployment and public spending assert that a well-managed public spending mechanism is the key to a successful public program for combating unemployment (Ouertani et al., 2018; Ramady, 2013).

National debt has been a main issue for many countries; for example, Japan's government debt as a percent of GDP was 196.4% in 2016; Lebanon's was 128.6%, the United Kingdom's was 116.9%, and the United States' was 99.0% (World Bank, 2019c). Studies that analyze the relationship between government spending and national debt support the idea that government spending is significantly connected to changes in the national debt level (Dutu & Sicari, 2016; Wang & Alvi, 2011). Montes et al.'s study (Montes et al., 2019) investigated the relationship between fiscal transparency, government effectiveness, and government spending efficiency in 82 countries (68 developing and 14 developed countries); the result suggested that decline in the public debt relies on supporting the governance quality of the public spending process and enhancing fiscal transparency.

Therefore, building on earlier models and literature, the current model introduces these six dimensions to address the efficiency of government spending: economic growth, economic complexity, government effectiveness, human development, unemployment rate, and national debt. The outcome of government plans and programs that deals with these dimensions is connected to the way government expenditures are allocated, and these factors are used to construct the model.

4. Methodology

This study's purpose was to explore the efficiency of government public expenditures worldwide using partial least squares structural equal modeling (PLS-SEM). It addresses the following overarching research question: To what extent did six factors (economic growth, economic complexity, government effectiveness, human development, unemployment rate, and national debt) predict government spending among countries worldwide across a 22-year period (1996 to 2017 inclusive)?

The International Monetary Fund [IMF] (2019) World Economic Outlook Database reported government spending in 195 countries. However, consecutive values for the six factors proposed to predict government spending across the studied time-period (1996 to 2017 inclusive) were reported for only 71, or 36.4% of the 195 countries. The 124 countries with incomplete data sets were excluded by case-wise deletion, because their inclusion could bias the results, based on the assumption that missing data are the main source of bias in PLS-SEM (Kock, 2014; Newman, 2014).

Table 1 identifies the secondary data sources and defines the seven variables that were used in this study. Table 2, identifies the 71 countries that were included in this study.

4.1. Statistical analysis

The research question was addressed by constructing models using PLS-SEM to explore the six factors that potentially predicted government spending for the selected countries listed in Table 2. PLS-SEM using SmartPLS v. 3 software was chosen to address the stated research question, because it has wide applications in business and management research to explore predictive relationships between latent variables operationalized by composite factor analysis (Richter et al., 2016; Sarstedt & Hwa, 2019). Shmueli et al. (2019) asserted that "PLS-SEM is a powerful tool for prediction-oriented studies" (p. 2322). Hence, PLS-SEM cannot confirm the goodness-of-fit of the data to the specified model using a global scalar function, derived from the discrepancy between the empirical covariance matrix and the theoretical covariance matrix (Hair et al., 2017).

The proposed model assumes that β_0 = the intercept or the baseline constant is zero, because when $GS = 0$, then EG , EC , GE , HD , UR , and ND are assumed to be zero. β_1 to β_6 = the standardized partial linear regression coefficients (β weights) representing the slopes between government spending and each of the six factors. The six β weights measure the relative effect of each of the six factors on government spending when the effects of the other five variables are held statistically constant, as follows:

$$GS = \beta_0 + \beta_1 EG + \beta_2 EC + \beta_3 GE + \beta_4 HD + \beta_5 UR + \beta_6 ND$$

The data were standardized to run the tests and have the ability to compare results to prepare the data for analysis. Standardized data ensure that the relative strength and direction of each β weight could be directly compared across a potential range of -1 through 0 to $+1$. The closer the β weight is to ± 1 , then the larger the effect. If the data were not standardized, then the relative magnitudes of the β weights would be a function of their different units of measurement, and their relative strengths could not be directly compared (Hair et al., 2017). Additionally, based on the

Table 1. Definitions of seven variables

Variable		Conceptual definition	Units	Source
Government Spending	GS	General government total expenditure	Percent of GDP	IMF (2019)
Economic Growth	EG	Gross domestic product (GDP) based on purchasing-power-parity (PPP) share of world total	Percent	
National Debt	ND	Total government debt	Percent of GDP	
Economic Complexity Index	EC	The knowledge intensity of an economy by considering the knowledge intensity of the products it exports.	Ranges from about -2.8 (weak) to about 2.6 (strong)	Observatory of Economic Complexity (2019)
Government Effectiveness	GE	The capacity of the government to effectively formulate and implement sound policies, and the level of respect of citizens and the state for the institutions that govern economic and social interactions among them.	Ranges from about -2.5 (weak) to about 2.5 (strong)	World Bank (2019a)
Human Development Index	HD	Achievements in key dimensions of human development: a long and healthy life, being knowledgeable, and have a decent standard of living.	Ranges from about 0.2 (weak) to about 0.9 (strong)	United Nations Development Program (2019)
Unemployment rate	UR	Total proportion of unemployed people (modelled estimate)	Percent of total labor force	World Bank (2019b)

Sources: IMF (2019), Observatory of Economic Complexity (2019), World Bank (2019a, 2019b), and United Nations Development Program (2019).

scatterplots for all 71 countries, the relationships between government spending and each of the six factors are approximately linear. Using the variance inflation factor (VIF) statistics, the values and statistical significance of the partial regression coefficients are also assumed not to be compromised by multicollinearity. Each latent variable also exhibits a high level of internal consistency reliability, meaning that the repeated measures of each variable are strongly intercorrelated with each other.

Table 2. The countries included in this study

1	Albania	36	Jamaica
2	Algeria	37	Japan
3	Argentina	38	Jordan
4	Australia	39	Kenya
5	Austria	40	Latvia
6	Belgium	41	Lithuania
7	Brazil	42	Malaysia
8	Bulgaria	43	Morocco
9	Cameroon	44	Nicaragua
10	Canada	45	Norway
11	Chile	46	Panama
12	China	47	Peru
13	Colombia	48	Philippines
14	Costa Rica	49	Poland
15	Croatia	50	Portugal
16	Czech Republic	51	Qatar
17	Denmark	52	Romania
18	Dominican Republic	53	Russia
19	Egypt	54	Saudi Arabia
20	El Salvador	55	Singapore
21	Estonia	56	Sweden
22	Finland	57	Switzerland
23	France	58	Syria
24	Gabon	59	Tanzania
25	Germany	60	Thailand
26	Ghana	61	Trinidad and Tobago
27	Greece	62	Tunisia
28	Guatemala	63	Turkey
29	Guinea	64	Ukraine
30	Honduras	65	United Arab Emirates
31	Hungary	66	United Kingdom
32	India	67	United States of America
33	Indonesia	68	Venezuela
34	Ireland	69	Vietnam
35	Israel	70	Yemen
		71	Zambia

5. Results analysis

Table 3, after validating and testing the model, presents the PLS-SEM statistics to address the question: *To what extent did the six factors predict government spending among countries worldwide between 1996 and 2017?* Five factors are statistically significant ($p < .05$) predictors of government spending using the worldwide data available for the 71 countries listed in Table 2. The strongest predictor of government spending is economic complexity ($\beta_2 = 0.458$), followed in order of magnitude by human development ($\beta_4 = 0.372$) and unemployment rate ($\beta_5 = 0.310$). Government

Table 3. PLS-SEM model to predict government spending worldwide

Predictor		Partial Regression Coefficient (β weight)		Standard Error	t-test statistic	p-value
Economic Growth	EG	β_1	0.122	0.062	1.972	.049*
Economic Complexity Index	EC	β_2	0.458	0.147	3.126	.002*
Government Effectiveness	GE	β_3	0.145	0.059	2.422	.015*
Human Development Index	HD	β_4	0.372	0.150	2.487	.013*
Unemployment rate	UR	β_5	0.310	0.076	4.071	<.001*
National Debt	ND	β_6	0.060	0.069	0.864	.388

Statistically significant ($p < .05$).

effectiveness ($\beta_3 = 0.145$) and economic growth ($\beta = 0.122$) are weaker predictors of government spending. The β coefficient for national debt is not significantly different from zero ($p > .05$). This model's high level of practical significance is indicated by the effect size ($R^2 = 0.636$), reflecting that 63.6% of the variance in government spending is explained by the linear combination of the six weighted factors.

Thus, the model to predict government spending worldwide is:

$$GS = .122EG + 0.458EC + 0.145GE + .327HE + .310UR + .060ND$$

This implies that government spending is more efficient in influencing and predicting some components of economic development than others across the countries worldwide.

Additionally, the practical significant of the model (63.6%) shows that it is a reliable model to be used to better understand the efficiency of countries' government spending. Furthermore, economic complexity is strongly connected to government expenditures, and from reviewing the literature, we realize the importance of economic diversification in supporting economic growth and creating jobs for citizens; thus, governments need to consider more spending in knowledge management transfer and attracting investors to support the economic complexity of the economy. Human development and controlling the unemployment likewise rate as highly influencing the process of transforming government spending to the economy's well-being. Therefore, government spending on programs that support creating jobs and enhancing human capital investment must be a priority for governments, since there is a significant relationship between public expenditure, human development, and controlling unemployment.

In contrast, economic growth and the effectiveness of government performance are results of a long-term plan compared to other elements, which influence their relationship with government spending. Usually, institutions and administrative reforms take time to see the results, when funding such reforms occurs in many budgets over the years. That being said, evaluating programs that stimulate economic growth and support government effectiveness on a regular basis is necessary to help adjust those programs and to reach the objectives of such programs. It could also be argued that slow growth of the economy and less efficient government work are a sign of inefficient public spending. Therefore, the outputs of programs that support economic growth and enhance the effectiveness and efficiency of government work determine the nature and size of government spending on those projects.

However, national debt (ND) is not significant; from the literature review, maintaining an acceptable level of ND is very important to all countries, especially countries with a high level of national debt percent to GDP and slow economic growth. ND takes time to rise and fall, and it is influenced by the economy's status in the country, so supporting economic growth will have an impact on the national debt level over the short and long term. Thus, governments' spending must be directed to programs that support economic growth and economic diversity to help control ND by generating more public revenues and supporting economic development in the long term.

6. Conclusion

One of the issues governments encounter is how to translate government spending into economic and sustainable development. Running the model presented in the paper gives decision makers in a country an idea of which factors are more connected to public spending; based on that, government can adjust spending plan and direct it to the most significant dimensions and review the spending plans on nonsignificant factors. The six factors—economic growth, economic complexity, government effectiveness, unemployment rate, national debt, and human development—are included in almost all nations' plans. Thus, testing how the budget allocation efficiency impacts the outcomes of these objectives helps when assessing the effectiveness of a country's budgeting system, public programs' outcomes, and fiscal policies.

However, since the economic outcomes from the coronavirus pandemic have yet to be fully felt, this study concentrates more on long-term financial planning to best utilize the government income. Countries seek loans and issues bonds during crises and when facing a public budget deficit. Thus, directing such loans and public expenditures to develop the economy is a challenge for many governments; therefore, the model introduced here could be applied by countries to evaluate their options for building long-term economic growth and adopting high-quality public policies that help maximize the returns from such spending.

What distinguishes this model from other models is that it takes into account the most important elements of development and focuses on achieving long-term goals for an economy (such as unemployment control and economic diversification). Although countries differ economically and politically, they share development goals, albeit to different degrees, so applying this model provides a good platform from which to start towards a deeper analysis of each economy separately. Additionally, developing the current model and giving different weights to each component according to a country's development requirements and strategic plans is considered one of the best ways to utilize the current study's outcome.

Funding

The author received no direct funding for this research.

Author details

Bassam A. Albassam¹

E-mail: Balbassam1@ksu.edu.sa

¹ Department of Public Administration, College of Business Administration, King Saud University, Riyadh, Saudi Arabia.

Citation information

Cite this article as: A model for assessing the efficiency of government expenditure, Bassam A. Albassam, *Cogent Economics & Finance* (2020), 8: 1823065.

References

Afonso, A. (2004). A note on public spending efficiency. *CESifo DICE Report*, 2(1), 35–39. <https://www.ifo.de/DocDL/dicereport104-rr2.pdf>

Ageli, M. (2013). Does education expenditure promote economic growth in Saudi Arabia? An econometric analysis. *International Journal of Social Science Research*, 1(1), 1–10.

Alesina, A., & Passalacqua, A. (2016). The political economy of government debt. In *Handbook of macroeconomics* (Vol. 2, pp. 2599–2651). Elsevier.

Al-Faris, A. F. (2002). Public expenditure and economic growth in the gulf cooperation council countries. *Applied Economics*, 34(9), 1187–1193. <https://doi.org/10.1080/00036840110090206>

Al-Yousif, Y. K. (2008). Education expenditure and economic growth: Some empirical evidence from the GCC countries. *Journal Of Developing Areas*, 42(1), 69–80. <https://doi.org/10.1353/jda.0.0025>

Ansari, M. I., Gordon, D. V., & Akuamoah, C. (1997). Keynes versus Wagner: Public expenditure and national income for three African countries. *Applied Economics*, 29(4), 543–550. <https://doi.org/10.1080/000368497327038>

- Aubyn, M. (2014). *Government spending efficiency in Latin America: A frontier approach*. CAF Development Bank Of Latinamerica. Retrieved September 14, 2019, from http://scioteca.caf.com/bitstream/handle/123456789/769/Government%20Spending%20Efficiency%20in%20Latin%20America_February%2014%20Feb_VF.pdf?sequence=1&isAllowed=y
- Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98(5, Part 2), S103–S125. <https://doi.org/10.1086/261726>
- Borge, L. E., Falch, T., & Tovmo, P. (2008). Public sector efficiency: The roles of political and budgetary institutions, fiscal capacity, and democratic participation. *Public Choice*, 136(3–4), 475–495. <https://doi.org/10.1007/s11127-008-9309-7>
- Diamond, P. A. (1965). National debt in a neoclassical growth model. *The American Economic Review*, 55(5), 1126–1150
- Dilrukshini, W. A. (2009). Public expenditure and economic growth in Sri Lanka: Cointegration analysis and causality testing. *Staff Studies*, 34(1), 51–68. <https://doi.org/10.4038/ss.v34i1.1239>
- Domar, E. D. (1944). The “burden of the debt” and the national income. *The American Economic Review*, 34(4), 798–827.
- Dutu, R., & Sicari, P. (2016). *Public spending efficiency in the OECD: Benchmarking health care, education and general administration*. (No. 1278). OECD Publishing.
- Eid, A. G., & Awad, I. L. (2017). Government expenditure and private sector growth in Saudi Arabia: A Markov switching model analysis. *Economic Issues Journal Articles*, 22(2), 83–104.
- Farrell, M. J. (1957). The measurement of productive efficiency. *Journal of the Royal Statistical Society*, 120(3), 253–281. <https://doi.org/10.2307/2343100>
- Florina, P. (2017). Elements on the efficiency and effectiveness of the public sector. *Ovidius University Annals, Economic Sciences Series*, 17(2), 313–319.
- Ghali, K. H. (1997). Government spending and economic growth in Saudi Arabia. *Journal of Economic Development*, 22(2), 165–172.
- Greenwald, B. C., & Stiglitz, J. E. (1987). Imperfect information, credit markets and unemployment. *European Economic Review*, 31(1–2), 444–456. doi:10.1016/0014-2921(87)90062-6
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling* (2nd ed.). Sage.
- Hauner, D., & Kyobe, A. (2010). Determinants of government efficiency. *World Development*, 38(11), 1527–1542. <https://doi.org/10.1016/j.worlddev.2010.04.004>
- International Monetary Fund (IMF). (2019, April). *World economic outlook database* (2019 ed.). <https://www.imf.org/external/pubs/ft/weo/2019/01/weodata/index.aspx>
- Kamiguchi, A., & Tamai, T. (2019). Public investment, public debt, and population aging under the golden rule of public finance. *Journal of Macroeconomics*, 60(1), 110–122. <https://doi.org/10.1016/j.jmacro.2019.01.011>
- Khan, A., & Murova, O. I. (2015). Productive efficiency of public expenditures: A cross-state study. *State and Local Government Review*, 47(3), 170–180. <https://doi.org/10.1177/0160323X15610385>
- Kock, N. (2014). *Single missing data imputation in PLS-SEM*. ScriptWarp Systems.
- Kouzmin, A., Löffler, E., Klages, H., & Korac-Kakabadse, N. (1999). Benchmarking and performance measurement in public sectors: Towards learning for agency effectiveness. *International Journal of Public Sector Management*, 12(2), 121–144. <https://doi.org/10.1108/09513559910263462>
- Mandl, U., Dierx, A., & Ilzkovitz, F. (2008). *The effectiveness and efficiency of public spending* (No. 301). Directorate General Economic and Financial Affairs (DG ECFIN), European Commission.
- Mann, J., & Sephton, P. (2015). Revising fiscal policy and growth in Saudi Arabia. *Journal of Reviews on Global Economics*, 4, 139–146. <https://doi.org/10.6000/1929-7092.2015.04.13>
- Mihaiu, D. M., Opreana, A., & Cristescu, M. P. (2010). Efficiency, effectiveness and performance of the public sector. *Romanian Journal of Economic Forecasting*, 4(1), 132–147.
- Minea, A. (2008). The role of public spending in the growth theory evolution. *Romanian Journal of Economic Forecasting*, 2, 99–120.
- Mirzoev, T. N., Zhu, L., Yang, Y., Zhang, T., Roos, E., Pescatori, A., & Matsumoto, A. (2020). *The future of oil and fiscal sustainability in the GCC region* (No. 20/01). International Monetary Fund.
- Montes, G. C., Bastos, J. C. A., & De Oliveira, A. J. (2019). Fiscal transparency, government effectiveness and government spending efficiency: Some international evidence based on panel data approach. *Economic Modelling*, 79, 211–225. <https://doi.org/10.1016/j.econmod.2018.10.013>
- Moreno-Enguix, M. D. R., & Lorente Bayona, L. V. (2017). Factors affecting public expenditure efficiency in developed countries. *Politics & Policy*, 45(1), 105–143. <https://doi.org/10.1111/polp.12194>
- Musgrave, R. A. (1959). *The theory of public finance: A study in public economy* (7th ed.). McGraw-Hill.
- Newman, D. A. (2014). Missing data: Five practical guidelines. *Organizational Research Methods*, 17(4), 372–411. <https://doi.org/10.1177/1094428114548590>
- Observatory of Economic Complexity. (2019). *Economic complexity rankings (ECI)*. <https://oec.world/en/rankings/country/eci>
- Ono, Y. (2011). The Keynesian multiplier effect reconsidered. *Journal of Money, Credit, and Banking*, 43(1), 787–794. <https://doi.org/10.1111/j.1538-4616.2011.00397.x>
- Ouertani, M. N., Naifar, N., & Ben Haddad, H. (2018). Assessing government spending efficiency and explaining inefficiency scores: DEA-bootstrap analysis in the case of Saudi Arabia. *Cogent Economics & Finance*, 6(1), 1–16. <https://doi.org/10.1080/23322039.2018.1493666>
- Palley, T. I. (2013). Keynesian, classical and new Keynesian approaches to fiscal policy: Comparison and critique. *Journal Review of Political Economy*, 25(1), 179–204. <https://doi.org/10.1080/09538259.2013.775821>
- Rajkumar, A. S., & Swaroop, V. (2008). Public spending and outcomes: Does governance matter? *Journal of Development Economics*, 86(1), 96–111. <https://doi.org/10.1016/j.jdeveco.2007.08.003>
- Ramady, M. (2013). Gulf unemployment and government policies: Prospects for the Saudi labour quota or Nitaqat system. *International Journal of Economics and Business Research*, 5(4), 476–498. <https://doi.org/10.1504/IJEBR.2013.054266>
- Rayp, G., & Van De Sijpe, N. (2007). Measuring and explaining government efficiency in developing countries. *The Journal of Development Studies*, 43(2), 360–381. <https://doi.org/10.1080/00220380601125230>
- Richter, N. F., Sinkloviks, R. R., Ringle, C. M., & Shlägel, C. (2016). A critical look at the use of SEM in international business

- research. *International Marketing Review*, 33(3), 376–404. <https://doi.org/10.1108/IMR-04-2014-0148>
- Sarstedt, M., & Hwa, C. J. (2019). Partial least structural equation modeling using SmartPLS: A software review. *Journal of Marketing Analytics*, 7(3), 196–202. <https://doi.org/10.1057/s41270-019-00058-3>
- Schick, A. (1983). Incremental budgeting in a decremental age. *Policy Sciences*, 16(1), 1–25.
- Schick, A. (1998). A contemporary approach to public expenditure management. *World Bank Institute*, 68(1), 2–11.
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J. H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*.
- Thompson, M. (2014). *Saudi Arabia and the path to political change: National dialogue and civil society*. Bloomsbury Publishing.
- United Nations (UN). (2017). *Changes in public expenditure on social protection in Arab countries (E/ESCWA/SDD/2017/Technical Paper. 14)*. Retrieved September 11, 2019, from https://www.unescwa.org/sites/www.unescwa.org/files/page_attachments/changes-expenditure-social-protection-arab-countries.pdf
- United Nations Development Program. (2019). *Human development reports*. <http://hdr.undp.org/en/towards-hdr-2019>
- Wang, E. C., & Alvi, E. (2011). Relative efficiency of government spending and its determinants: Evidence from East Asian countries. *Eurasian Economic Review*, 1(1), 3–28.
- Wildavsky, A. (1961). Political implications of budgetary reform. *Public Administration Review*, 21(4), 183–190. <https://doi.org/10.2307/973628>
- World Bank. (2019a). *Worldwide governance indicators*. <https://info.worldbank.org/governance/wgi/>
- World Bank. (2019b). *International labor organization, ILOSTAT database*. <https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS>
- World Bank. (2019c). *Central government debt, total (% of GDP)*. Retrieved October 19, 2019, from https://data.worldbank.org/indicator/gc.dod.totl.gd.zs?end=2017&most_recent_value_desc=true&start=2017&view=bar



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format.

Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.



Cogent Economics & Finance (ISSN:) is published by Cogent OA, part of Taylor & Francis Group.

Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com

