Government Expenditure and Economic Dimensions: Determinants of Fiscal Policy

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Abstract

Government expenditure is a known tool of fiscal policy. For a fiscal policy to fit the economic needs of a country, nuances regarding government expenditure such as economic dimensions must be considered as determinants of fiscal policy. This study assessed an econometric model of the significance of economic dimensions to government expenditure by utilizing data from 50 countries throughout 1999–2019. Hence, statistical tests and econometric methods such as fixed effects regression are executed to determine objectives of interest. This study contributes to the economic undertakings of various countries to plan and implement their strategic economic directions.

Keywords: government expenditure, economic dimensions, fiscal policy, fixed effects model
JEL Classification: C33, E66

For a country to thrive, an explicit understanding of the importance of its overall financial health is imperative for economic and sustainable development. With this, good governance and improved practices are the key actions toward the public financial system as the management, execution, and control of public economic activities are upon the government. Hence, the government plays the most significant role in the direction of a country's development—mostly through government expenditures.

Government expenditure typically comprises the country's GDP for about 15–30%—an evident representation of an eminently massive footprint about spending resources. (The Economist Intelligence Unit [EIU], 2020). The major goals of government expenditure are divided into two categories: achieving targets in an efficient manner and assurance of its services and projects catered to the marginalized population. (Lavado & Domingo, 2015) Its power of choice—on where, who, and how to spend the budget allocations for projects—makes an impact and significant difference on GDP and the government's objectives.

Management of government expenditures in an efficient manner and improvement of spending practices are understood as the most challenging tasks for a country's administration. With this, it is important to note that it necessitates certain shifts in thinking and executing. For Blanchard et al. (2009), these shifts and adjustments are fiscal policy, whereas it is imperative to achieve particular macroeconomic objectives. These objectives (namely, economic growth, stability of prices and exchange rate, and balance of payments equilibrium) are the most important that every government should zero in on. Regrettably, there are actors that hinder the government from attaining its objectives, and these are predominantly outdated and incompetent systems. Moreover, structural, institutional, and regulatory barriers prevent the government's implementation of spending practices upholding efficiency, transparency, and cost-effectiveness (EIU, 2020). As a result, this generated a historical debate categorized into two trends: the government expenditure could be productive and efficient, and it could be otherwise. For this matter, numerous studies introduced economic models and evaluations targeting its efficiency while acknowledging its nuances. However, as one could argue, its significance and determination regarding fiscal policy is still and will always have a substantive connection to economic growth and development.

This paper aims to analyze fifty countries worldwide vis-à-vis relationship of certain economic dimensions (complexity, growth, human development index, unemployment rate, national debt, and the effectiveness of the government) to government expenditure as the determinants of fiscal policy while utilizing secondary data from 1999–2019.

Literature Review

An Overview of Government Expenditure and Fiscal Policy

Government expenditure is one of the main engines in the public financial system of one's country, especially in budgeting, as it allows programs and services to be known to its stakeholders. It is indeed a key component of national finance and fiscal policy. Good management of government expenditure programs entails strong support for the government efforts in attracting foreign and local investors, whereas such investments succor economic growth and improvement of the GDP via the contribution of the private sector. In addition, public budget management through governmental influence and economic productivity is important because it enhances the public sector in general, which is deemed to be one of the key elements toward economic development. Thus, a country's programs and policies require the utilization of government expenditure efficiently for its development to thrive. (Ouertani et al., 2018, Schick, 1983; Rayp & Van de Sijpe, 2007; Mandl et al., 2008)

Several pieces of research that discussed the relationship between government expenditure and different economic dimensions generated varying results. For instance, conclusions from Bojanic (2013) and Wang (2011) stated that for economic growth to foster, a significant increase in government expenditure is imperative. Contrarily, demonstrations from Chang et al. (2011) and Carter et al. (2013) determined that a decline in economic growth is evident such an increase in the government expenditure is taking place. Even so, Sinha (1998) asserted that the government expenditure and economic growth relationship is non-significant. Based on the mentioned studies, it is reasonable to assert that government expenditure and economic growth relationship is inconclusive. With this, Angelopoulos et al. (2008) contended that the dependence of economic growth is not only limited to the government expenditure alone but also on the government's ability to allocate and manage its expenditures hence efficiency—a plausible conclusion to say that the government expenditure's efficiency is essential to achieve better economic growth.

Schools of Thought: Wagner's Law, Neoclassical Theory and Keynesian Theory

The importance of government expenditure was discoursed by numerous schools of thought in relation to the economic progression of a country. Wagner's law, neoclassical theory, and Keynesian theory are the participants in the discourse. First, the contention of Wagner's law focuses on the effect of economic growth on government expenditure. From the theory by Adolph Wagner, in the Second Industrial Revolution, a cumulative increase in government expenditure is an effect of a significant increase in the demand side of a country. Hence, Wagner's law concluded that for better economic growth, the anticipation of a significant increase in government expenditure is necessary (Dilrukshini, 2009). Second, in the perspective of neoclassical theory, maximization of the elements particularly in the productivity in an economy, boosts impact on economic growth. However, this theory has been contested for the vagueness of its concept. Lastly, an argument from Keynesian theory concentrates on the translation of government expenditure into economic growth by fostering social programs and government projects (Ageli, 2013; Dilrukshini, 2009). In the fiscal policy under Keynesian theory, when the government expenditure increases, the aggregate demand increases as well, which the results are dependent on the size of expenditure multipliers that leads to output growth. Promotion of economic growth is upon the significant increase in the government expenditure toward job-generating programs whereas entailing an attraction on the investment of the private sectors is the principle that Keynesian theory is based on (Ono, 2011; Palley, 2013).

Empirical Approaches Related to Government Expenditure

Most studies on the measurement of efficiency of government expenditure center on education, health care, public safety, welfare, and transportation as they have a significant value and percentage of output in the domestic sense that enhances the impact towards policymaking (Khan & Murova, 2015). For instance, in OECD countries, utilization of ordinary least squares (OLS) is the approach by Bleaney et al. (2001). The study employed panel data for the measurement of the government expenditure efficiency and economic growth linkages. Empirical results concluded that the efficiency of government expenditure promotes economic growth. Several studies like Beraldo et al. (2009) and Wang (2010) supported the conclusion through related consistent results.

As modernity takes over, different approaches on the topic have been determined to fit one's study objectives. Consequently, the addition of variables to economic models has been widely followed for a better output in terms of measurement and evaluation of the government expenditure efficiency on education, health, and defense programs (Aubyn, 2014; Ouertani et al., 2018).

In this case, an important model from Robert Barro (1990) evaluated the relationship of government expenditure to economic growth by measuring the gross national product (GNP) and savings rates whereas it is concentrated on the government's productivity. In addition, the study of Albassam (2020) addressed the government expenditure efficiency by creating a model that evaluates its ability to reach government objectives.

Partial least square-structural equation modeling (PLS-SEM) method was used to explore the factors contributing to the predictability of a country's sustainable development. The related empirical research and methodologies evidently aim to create a model for the efficiency of government expenditures that serves as an essential foundation to the improvement of outcomes in the public sectors, economic development, and well-being of the people.

A study conducted by Fosu (2019) between government expenditure and unemployment rate utilized the technique on panel data estimation. One of its regression analyses includes the fixed effects regression which examined the causal effect of government expenditure—consumption and investment on unemployment in the countries of interest. The fixed effect model employed in the study evaluated differences in terms of intercepts by the assumption of statistical measures across groups.

Introduction of Six Economic Dimensions

In this study, economic dimensions such as economic complexity and growth, government effectiveness, national debt, human development, and unemployment rate will be considered against government expenditure to identify its significance and possible macroeconomic implications.

First, economic growth and complexity are vital in the productivity in the economy as it supports, enhances, and builds quality systems and projects through the utilization of the budget allocations (Khan & Murova, 2015). Government effectiveness was defined by the World Bank (2019) as the government's capacity to formulate and implement policies that are sound and effective. Moreover, it accounts for the institutional strength through its constituents, which plays a vital role in the interactions on the economy and the society. A clear understanding that it is one of the factors that enhance economic growth. Then, the national debt has been studied because of its relationship with government expenditure as it has a direct linkage in the change division (Wang & Alvi, 2011). Lastly, human development serves as a determining factor in the assessment of government expenditure efficiency because of its long-term effects regarding knowledge and skills of the people for the utilization of country's wealth, together with the unemployment rate, which participates in economic growth; good management of the government expenditure is one of the key elements to combat unemployment successfully (Aubyn, 2014; Ouertani et al., 2018; Ramady, 2013).

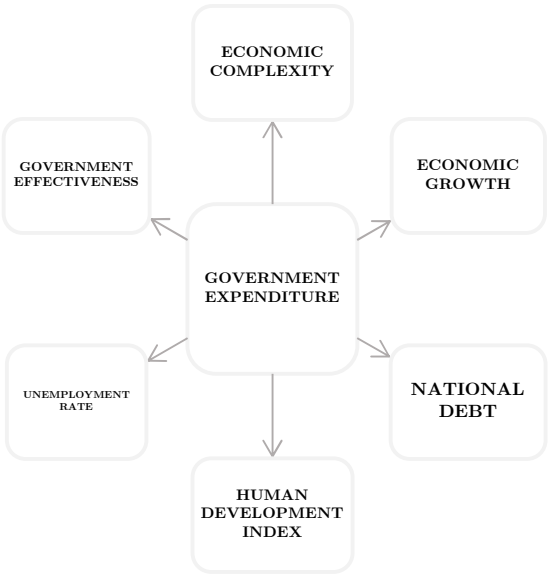
Theoretical Framework

Government expenditure is an interesting fiscal instrument that most researchers study and address. Most of the studies in the government expenditure space are highly regarded for their efficiency; according to Gupta et al. (1997), these studies have then developed four divisions. First, several approaches on government expenditure have focused on gauging and improving its efficiency through practical applications. Second, there are methods that addressed government expenditure in quantitative terms, using data of inputs secluding the outputs. Third, some studies have evaluated the opposite of the second division. Lastly, there are studies that accounted for both inputs and outputs yet still have made erratic outcomes regarding the government expenditure efficiency.

Reflecting on these four divisions, this study aims to provide new light in the government expenditure space with an inductive approach through exploration on the significance of economic dimensions such as economic complexity and growth, government effectiveness, national debt, human development, and unemployment rate to the government expenditure efficiency. Also, this study is inspired by Albassam's (2020) paper on the evaluation of the efficiency of government expenditure and its economic predictions. The aforementioned economic dimensions are all designated under the independent variables to realize the study objective, whereas the government expenditure is the dependent variable, and these are visualized through the theoretical framework in Figure 1.

Figure 1

Theoretical Framework



Conceptual Definition

Economic Complexity

Economic complexity reflects the competitiveness of a country by being its productive structure. Actors in the economic space provide an understanding of the complexity. One of many cases is when a country is not diversified and advanced with its exports, it can be assumed that it has low complexity, and it is below the metrics of being competitive (Hausmann et al., 2013; Ferraz et al., 2017). For the translation

of competitiveness into quantitative terms, economic complexity approach is suggested. In measuring or analyzing economic issues relating to its complexity, the Economic Complexity Index (ECI) based on ubiquity and diversity of products and countries is widely utilized.

Economic Growth

Economic growth is a necessity to strategize and execute all government plans. Wagner's law claims that in government expenditure, income elasticity is apparent. Moreover, its ratio to income entails growth in economic development. Also, one of the significant factors to the economic growth such as the public goods and services are provided through the expenditure of the government (Wu et al., 2020). Further, Al-Faris (2002) claimed that by analyzing the relationship of government expenditure and economic growth, it is evident that on the government's expansion role as embodied by government expenditure, economic growth is a foretelling factor. However, it's relationship is always counter-cyclical as per Wagner's law.

Government Effectiveness

Government effectiveness refers to the result of the public administration's actions in all aspects—initiatives, objectives, and its people (Rainey & Steinbauer, 1999). The principal drivers of a nation's development are the outcomes of government actions; hence such support to government initiatives is deemed to largely contribute to economic development and growth (Afonso, 2004; Montes et al., 2019). Government effectiveness and efficiency measured through policy formulation and implementation are the key determinants in the quality of public initiatives (United Nations, 2017). More concretely, government effectiveness is an indicator to comprehend and grasp the underpinnings of government expenditure.

Human Development

Human development is an approach to enhance human talents and builds opportunities for people to create well-decided choices that entails improvement towards lives teeming with fulfillment. Human capital quality is a determinant of a country's economic development and sustainability; thus, government expenditure, as one of its principal drivers, is aimed to create an avenue for healthy life and standard of living in decency (Omodero, 2019). The Human Development Index (HDI) is a measure by the United Nations to determine average achievement in the human development's key dimensions, namely, healthy, long life, knowledgeable and educated, and decent standard of living. Customarily, the HDI is used to gauge the welfare and the country's economic progression as it analyzes education, levels of income, and life expectancy; hence it provides an overall indicator for economic development (Alzahrani, 2018).

National Debt

National debt is a recurring issue relating to economic policy and it does not spare whether it is a developed or developing country as long as the level of debt is changing from time to time (Alzahrani, 2018). Macroeconomically, the national debt is often perceived as an indicator that poses a country's reputation in the global markets. (Ribeiro et al., 2012). There are studies that asserted government expenditure plays a significant role in a country's level of debt and some analyzed it alongside fiscal transparency and government effectiveness in which the results are favored on the concept that the changes in the national debt depend on the quality of government expenditure together with fiscal transparency enhancement. (Dutu & Sicari, 2016; Montes et al., 2019; Wang & Alvi, 2011).

Unemployment Rate

Unemployment is a major recurring issue across the globe. For decades, countries have been battling with unemployment and implemented various policies to curb the persistent problem (Fosu, 2019). In order to attain economic growth, political stability, and human capital optimization, unemployment rate must be controlled and combated through effective government expenditure (Ouertani et al., 2018; Ramady, 2013).

Methodology

This proposed study intends to employ the mixed method research design. Mixed method research design as interpreted by Johnson et al. (2007) is an appropriate methodology specifically if the researchers are trying to take multiple perspectives, viewpoints, or standpoints into account.

Quantitative and qualitative approaches mainly comprise the mixed method research design. Quantitative method includes statistics and econometrics method –descriptive statistics, fixed effects (FE) panel regression, whereas the qualitative method involves comparative summary.

Descriptive statistics are the techniques in numerical and graphical aspects utilized to organize, present, and analyze data of interest. It describes the characteristics of a sample to make generalizations about a specific population. The objectives of descriptive statistics are the description of the midpoint of score spreads or commonly referred to as central tendency measurement, and the score spread widely known as the variance or dispersion (Fisher & Marshall, 2009).

According to Gangl (2010), one of the useful methods to address causal inference is the fixed effect regression. FE regression is the most common method when utilizing panel data because it often provides unbiased estimates compared to the standard regression models. Moreover, FE regression permits the identification of causal effects in weaker assumptions. Therefore, FE models are most suitable to research studies that desires causal analysis.

Model Specification

The econometric model for FE regression shown below is inspired by Albassam's model (2020):

$$govtexp = \beta_0 + \beta_1 ecomplex + \beta_2 egrowth + \beta_3 govteff + \beta_4 humandevt + \beta_5 unemprate + \beta_6 natldebt + a_i + \varepsilon \quad (1)$$

Fixed effects in the model used least square dummy variable (LSDV) model. The assumption for the fixed effects regression model is when the government expenditure is zero, the six economic dimensions are zero. The six economic dimensions represented by β_1 to β_6 are the independent variables and partial linear regression coefficients held in ceteris paribus to determine its direct significance to government expenditure and by large, their relative significance or effect on fiscal policy.

Data Specification

Data sets during 1999–2019 will come from different sources, mainly multilateral organization's data banks. For government expenditure, economic growth and national debt data will be gathered from International Monetary Fund (IMF). For government effectiveness and unemployment rate, World Bank data will be utilized. For the economic complexity index, Observatory of Economic Complexity database will be used. Lastly, human development index will come from United Nations Development Program data sets. Economic complexity, government effectiveness, and human development are categorical variables, while the others are numerical variables. Data consolidated was declared as panel data. Comprehensive data definitions and covered countries are shown in Tables 1 and 2.

Table 1

Data Definition

Variable	Type/Designation	Units	Source
Government Expenditure	Dependent / *govtexp*	Percent of GDP	IMF (2019)
Economic Complexity Index	Independent / *ecomplex*	Ranges from about −2.8 (weak) to about 2.6 (strong)	Observatory of Economic Complexity (2019)
Economic Growth	Independent / *egrowth*	Percent	IMF (2019)
Government Effectiveness	Independent / *govteff*	Ranges from about −2.5 (weak) to about 2.5 (strong	World Bank (2019)
Human Development Index	Independent / *humandevt*	Ranges from about 0.2 (weak) to about 0.9 (strong)	United Nations Development Program (2019)
National Debt	Independent / *natldebt*	Percent of GDP	IMF (2019)
Unemployment Rate	Independent / *unemprate*	Percent of total labor force	World Bank (2019)

Table 2

Selected Countries

Countries			
1	Argentina	26	Malaysia
2	Australia	27	Morocco
3	Austria	28	Nicaragua
4	Belgium	29	Norway
5	Brazil	30	Panama
6	Canada	31	Peru
7	China	32	Philippines
8	Colombia	33	Poland
9	Denmark	34	Portugal
10	Egypt	35	Qatar
11	Finland	36	Russia
12	France	37	Saudi Arabia
13	Germany	38	Singapore
14	Ghana	39	Sweden
15	Greece	40	Switzerland
16	Guatemala	41	Syria
17	Honduras	42	Thailand
18	Hungary	43	Turkey
19	India	44	Ukraine
20	Indonesia	45	United Arab Emirates
21	Ireland	46	United Kingdom
22	Israel	47	United States of America
23	Jamaica	48	Venezuela
24	Japan	49	Yemen
25	Kenya	50	Zambia

Results and Discussion

Descriptive Statistics

For the overview of the characteristics of the variables, descriptive statistics was executed. Table 3 shows the statistical summary of the used variables necessary for the analysis. There are 50 countries in the sample, and these are all selected based on the accessibility to data over a 20-year period, particularly for the variables of interest—dependent and independent.

Government expenditure as a percentage of gross domestic product (GDP) averaged 33.9576%. This indicates that over the span of 20 years, almost one-third of the GDP is often allocated for government expenditure to achieve its national objectives. Economic Complexity Index has an average value of 0.4538917 which is slightly modest in the range of -2.8 as weak to 2.6. This means that economic competitiveness around the world in terms of imports and exports is still developing. Economic Growth as a percentage has a mean value of 1.565734%, which means that the economies across the globe are averaging on a minor growth. Government effectiveness accounted for a mean value of 0.5363, which is slightly modest in the range of -2.5 as weak to 2.5 as strong. This value indicates that the average effective administrative actions still have more room for improvement. Human Development Index averaged 0.7701829, which falls in the moderate region in the range of 0.2 as weak to 0.9. This value describes a considerable growth in 20 years in human development about its achievements and dimensions. National debt as a percentage of GDP averaged 60.6718%, which means that almost two-thirds of the GDP is accounted for the national debt for over 20 years. The unemployment rate which is utilized as a percentage of the total labor force, accounted for an average value of 6.889333%, which describes that even in the past 20 years, unemployment has a slow and weak reduction.

Table 3

Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Government Expenditure	1,034	33.9576	11.60662	8.392	65.11
Economic Complexity Index	940	0.4538917	0.9620776	-1.60913	2.61165
Economic Growth	1,041	1.565734	3.162686	0.022	20.55
Government Effectiveness	1,000	0.53633	1.019468	-2.28	2.44
Human Development Index	1,050	0.7701829	0.1328185	0.42	0.957
National Debt	1,032	60.6718	38.35998	1.562	260.964
Unemployment Rate	1,050	6.889333	3.83104	0.11	27.47

Fixed Effects Regression

The model shown in Table 5 employed country-time fixed effects by including dummy countries in the regression analysis. Also, the model is in level-level type as all the variables appeared in its level form.

First, the results of economic growth have shown a statistically negative relationship with government expenditure. The regression coefficient indicates that in every 1% increase in economic growth, there is a 0.375 percentage-point reduction in government expenditure—an indication that during an economic slowdown, there is significant government intervention. Economic complexity on the other hand has a statistically positive relationship with government expenditure. The result of the regression describes that with a unit increase in the economic complexity index, there is a 1.666 percentage-point increase in the government expenditure as it competitively allots and spends the budgets for the country's productive capabilities. The regression results for government effectiveness show that a statistical relationship with government expenditure is negative. This means that the effectiveness of the government entails government efforts and actions, including spending, so as a unit increases in the government effectiveness measurement, a 0.121 percentage-point of government expenditure reduces. HDI, which has a statistically positive relationship with government expenditure, also has the highest regression coefficient among the six economic dimensions. This means that in every unit increase in HDI, there is an increase of 47.15 percentage point in the government expenditure. An indication that as the quality of life improves—expectancy, education, and income per capita—there is a considerable relevant influence from government expenditure. The national debt has a positive statistical relationship with government expenditure and its coefficient of regression tells that for its every percent increase, there is a 0.0421 percentage-point increase in government expenditure—evidence of the adage, "the more you borrow, the more you spend." Lastly, the unemployment rate and government expenditure have a statistically positive relationship. Its regression coefficient indicates that in every percent increase of unemployment rate, an increase of 0.414 percentage-point is evident in government expenditure. This means the government must spend a considerable amount to combat unemployment.

Table 4

FE Regression Results

	(1)
	Fixed Effects Regression using Least Square
Variables	Dummy Variable Model
Economic Growth	-0.375***
	(0.106)
Economic Complexity	1.666***
	(0.491)
Government	
Effectiveness	-0.121***
	(0.270)
Human Development	47.15***
	(2.911)
National Debt	0.0421***
	(0.00840)
Unemployment Rate	0.414***
	(0.0868)
Observations	877
R-squared	0.458
Adjusted R-squared	0.454

Note: Robust standard errors in parentheses.
Statistical significance at 1%, 5% and 10% are indicated by *** p<0.01, ** p<0.05, * p<0.1.

Comparative Summary

For a more comprehensive and concise discussion, a comparative summary in qualitative terms is shown in Table 5.

Table 5

Comparative Summary

	Economic Growth	Economic Complexity	Government Effectiveness	Human Development	National Debt	Unemployment Rate
1.) Statistical relationship with Government Expenditure?	Yes	Yes	Yes	Yes	Yes	Yes
2.) Negative or positive?	Negative	Positive	Negative	Positive	Positive	Positive
3.) Weak, moderate, or strong?*	Strong	Strong	Strong	Strong	Strong	Strong

**Based on the statistical significance results from FE*

Conclusion

Fiscal policy defines the behavioral changes to government expenditure and tax revenue to impact the economy. Adjustments on the levels of both expenditure and revenue provide the government a reason to influence economic outcomes by modifying its economic activities—either decreasing or increasing. In relation, various economic dimensions affect government expenditure and tax revenue which contributes to the determination of a fiscal policy.

In this study, economic dimensions are believed to be underlying determinants of fiscal policy through government expenditure. The correlation results and the fixed effects regression provided an idea of how certain economic dimensions affect government expenditure. Also, it is important to know one of the caveats of the model used in this study, the inability to fully capture the cyclical behavior of government spending. Economic complexity implies that economic diversification to support competitive economic production is important. This tells that there is a necessity for the governments to spend more on investor attraction and other related drivers for continued support for the economic complexity of a county's economy. Moreover, to improve human development and unemployment rate reduction, government expenditure must prioritize mobilizing programs relating to labor productivity, and human capital investment. Government effectiveness and economic growth must be taken carefully as the stimulation of both can have different effects on government expenditure. Programs regarding the two economic dimensions should always consider the government work efficiency as it determines the characteristics of every government undertaking especially its institutional strength which regulates the position of a political will if it is in the right place to realign a country's economy. Lastly, to control the national debt, the direction of government expenditure must be towards programs that support stable economic growth to generate revenues and foster economic development.

Therefore, the identification of relationship and impacts of the economic dimensions to government expenditure as determinants of the fiscal policy shall give new strategic directions to the government that is more beneficial to their country—expansionary or contractionary.

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