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Public Investment, Foreign Direct Investment, and Budget Deficit

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Abstract

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MBA, George Washington University, 2017

MS, University of Abomey Calavi, 2005

Doctoral Study Submitted in Fulfillment

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Abstract

The budget deficit is a worldwide economic problem that reduces the effectiveness of public policies in public finance. Public business leaders and theorists struggle to find appropriate solutions to address the budget deficit. However, in most countries, the budget deficit is still one of the most critical challenges. Grounded in Keynes's general theory, the purpose of this quantitative correlational study was to examine the relationship between public investment, foreign direct investment, and budget deficit. Secondary data collected from the World Bank website representing the 76 low-income and low-middle-income countries were analyzed using multiple regression. The multiple linear regression results indicated the model was able to significantly predict budget deficit, $F(2, 73) = 14.05$, $p < .001$, $R^2 = .72$. However, public investment ($t = –1.279$, $p < .003$) was the only statistically significant predictor. A key recommendation is for public leaders to identify and promote public investment and foreign direct investment that may increase public revenue and decrease the budget deficit. The implications for positive social change include the opportunity for public leaders to improve their decision-making by promoting public investment and foreign direct investment that positively affect individuals and communities.

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Dedication

I dedicate the study to my spouse Zenabou Obinin Koutche and to my children Esperance, Peace, Love, and Komi-Junior for their moral support, love, and daily acts of encouragement. I thank my father and mother for their prayers, good intentions, and encouragement to push me to go far in life even though they did not have the chance to go to school in their life. To all my friends and supporters, I know how strong your wishes were to see me become Dr. Koutche one day. Here we are, and I want to consider the results of this study to be the fruit of our joint efforts. One step has been achieved. Let us keep our focus on the next steps to achieve our own biggest goals and dreams, and our goals for a new Africa and a new world. Let us move on to the next step.

Acknowledgments

First, this study is a result of God's will, who protects me, inspires me, and gave me all the resources that I needed to complete this study, despite all the events that I faced during my doctoral journey. God, all thanks be to you. Special thanks to Dr. Casale, my chair, without whom this study could not have been completed. She gave more than her best and showed throughout the journey an unlimited willingness to help. I can also not forget my second chair, Dr. Bearden, who was not involved in the daily tasks of this study like Dr. Casale, but whose actions were prompt anytime he was needed. To all the actors who were involved in the process of improving and approving the study, especially my URR, I lack the words to convey my thanks. Now that all of you have helped me to achieve this important step, it is my turn to make you proud of me by moving forward and showing that you have contributed through this study to creating a new change agent who will impact the community and maybe even the world. You will not be disappointed, by God's grace.

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Section 1: Foundation of the Study

The public budget refers to the total annual amount of public revenues and public spending (Keynes, 1936). Public revenues entail taxes and other resources that a government collects from different sources. In contrast, public spending is the different ways through which governments spend public revenues to develop socioeconomic projects that benefit communities and create economic growth (Dornean & Oanea, 2014). Governments have limited resources, but the needs to satisfy are unlimited (Marshall & Rochon, 2019). Therefore, the problem of a budget deficit is one of the critical indicators of the efficiency of public budget management.

The budget deficit is a macroeconomic indicator widely used to assess the fiscal policies of the countries. However, the budget deficit is a result of the allocation of the budget, which is a management decision. Therefore, was essential to analyze the budget deficit beyond a simple view of the macroeconomy. My aim in this study was to analyze the budget deficit with a management perspective by examining the relationship between public investment, foreign direct investment (FDI), and budget deficit. The findings of the study can serve as a guide to help leaders of public agencies to make better decisions of budget allocation.

Background of the Problem

The budget deficit is one of the most critical challenges in the management of public finance (Bayraktar, 2019). In most countries of the world, the budget deficit's standard is 3% of the gross domestic product (GDP; Dou & Ye, 2018). The social and economic needs that the government must satisfy may increase in the context of scarcity

of resources to meet those needs (Keynes, 1936). In such a circumstance, public spending overcomes public revenues, and this leads to a budget deficit, which has become almost a systemic problem (Ntembe et al., 2018).

The budget deficit is a serious economic problem in the field of the public finance and represents a perpetual challenge that public leaders try to address (Abdullah et al., 2018). Although the budget deficit is the result of management decisions, there is no practical framework that leaders of the public financial agencies can reference to ground their daily decision. Therefore, it is important to analyze the budget deficit from the perspective of management. Providing leaders of the public agencies with a guide that can help them to improve the management of the public budget is an important gap to fill in the field of the public finance. In this quantitative correlational study, my aim was to contribute to filling that gap.

Problem Statement

The budget deficit is a critical macroeconomic problem in developing countries, which affects the efficiency of governments' public policies (Pegkas, 2018). Data from the 2018 report of the World Bank showed that, in more than 80% of the low-income countries (LIC) and low-middle-income countries (LMIC), public authorities have failed to achieve the set threshold of 3% of GDP, which is the established standard. The general business problem was that the increasing budget deficits in the LIC and LMIC is a threat to the achievement of social and economic goals. The specific business problem was that some leaders of the public agencies involved in the process of management do not know the relationship between public investment spending, FDI, and budget deficit.

Purpose Statement

The purpose of this quantitative correctional study was to examine the relationship between public investment spending, FDI, and budget deficit. The independent variables were public investment and FDI. The dependent variable was the budget deficit. The target population comprised leaders of public agencies who held a position of decision making in the process of the management of the public budget in the LIC and LMIC. In terms of social change, the leaders of the public agencies can gain a better understanding of the relationship between the three variables of the present study. Leaders may use the results of this study to adopt a strategy to allocate public money to public investment efficiently and to promote the inflows of FDI in projects that may generate a positive impact on the communities.

Nature of the Study

The three basic methodologies to conduct scientific inquiries are qualitative, quantitative, and mixed methods (Korstjens & Morser, 2017). The quantitative method is appropriate to examine the relationship between variables, predict outcomes, or seek cause and effect relationships to generalize to a broader population (Saunders et al., 2015). The qualitative method is appropriate to answer how and why questions by using narrative input as the primary data collection source (Yin, 2018). The mixed method is appropriate when research uses both quantitative and qualitative approaches (Fisher & Bloomfield, 2019). The qualitative was not appropriate for this study due to the nonnumeric data collection approach. Furthermore, the mixed method was not appropriate because I did not intend to combine both the qualitative and qualitative

approaches. Therefore, the quantitative method was the most suitable for this study because I sought to use numerical data to examine the relationships between variables.

This study was a correlational design. Other quantitative research design options include experimental and quasi-experimental. The correlational design consists of the use of surveys, classification, and data reduction techniques, and assessments of relations among variables (Watson, 2015). The experimental design involves extreme control of the test environment and random assignment to conditions to control the outcome (Watson, 2015). The quasi-experimental design entails variables of study without random assignment (Saunders et al., 2015). The experimental and quasi-experimental designs were inappropriate because of the lack of random data sampling and the statistical significance of relationships among variables. The correlational design was appropriate to this study because I sought to examine the relationship between independent and dependent variables.

Research Question

What is the relationship between public investment spending, FDI, and budget deficit?

Hypotheses

Null Hypothesis (H_0): There is no statistically significant relationship between public investment spending, FDI, and the budget deficit.

Alternative Hypothesis (H_1): There is a statistically significant relationship between public investment spending, FDI, and budget deficit.

Theoretical Framework

The British economist Keynes advocated the concept of deficit spending as fiscal policy. To ground the present study, I chose the general theory that Keynes developed in 1936. In the general theory, Keynes (1936) contended that a decline in consumer spending could be balanced by a corresponding increase in government deficit spending, which would, therefore, maintain the correct balance of demand to avoid high unemployment. According to Keynes, once full employment was reached, the market could return to a more relaxed approach, and a reverse of the budget deficit could be effective. However, the use of the budget deficit through public spending can induce some economic deregulation (Irwin, 2015). Therefore, Keynes argued that if extra government spending caused inflation, the government could raise taxes and drain additional capital out of the economy.

Applied to this study, Keynes's general theory allowed me to anticipate a potential influence of public spending and FDI on the budget deficit for two essential reasons. First, although the over public spending can induce budget deficit, budget deficit is necessary to expand the economy, and consequently to generate more revenues that will furthermore ensure the balance (Nicoloski & Nedanovski, 2018). Second, Keynes (1936) asserted that raising additional taxes or attracting FDI to expand the economy creates economic deregulations such as inflation. These two crucial statements of Keynes's theory revealed that there is a relationship between public investment, foreign investment, and budget deficit that I examined in this study.

Operational Definitions

Budget deficit: Budget deficit refers to the difference between the total spending and the total revenue of a government for a given year (Keynes, 1936).

Foreign direct investment (FDI): Public spending refers to the total annual amount of money that foreign investors spend in a given economy through different sectors of activities (Dornean & Oanea, 2014).

Gross domestic product: Nicoloski and Nedanovski (2018) defined the GDP as the total value of goods produced and services provided in a country for 1 year.

Public current spending: Public current spending refers to the total annual amount of money that the governments spend in public needs other than economic infrastructures and other productive needs (Keynes, 1936).

Public investment: Public investment refers to the total annual amount of money that governments spend in economic infrastructures like energy and road and other productive projects (Keynes, 1936). Public investment refers to investments that governments make in the expectation of economic growth and increase of the national revenues (Barisiki & Baris, 2017).

Public spending: Public spending refers to the total annual amount of money that governments spend to produce goods and services or to purchase goods and services that are needed to fulfill the government's economic and social objectives (Dornean & Oanea, 2014). The two components of public spending are public investment spending and current public spending (Keynes, 1936).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are circumstances and factors in a study that researchers assume to be true (Polit & Beck, 2012). According to Saunders et al. (2015), assumptions are a set of suppositions that are the closest possible reality that researchers can assume to be the truth. The only assumption of this study was that the data I collected from the secondary official sources on the variables of the study were reliable.

Limitations

A limitation is a weakness that potentially limits the validity of the results of a study (Patton, 2015). According to Akaeze (2016), limitations are external conditions that restrict the scope and have the potential to affect the outcome of the study. I identified two possible limitations for the present study. The first limitation was that the data were from secondary sources. Although I could rely on the reliability of the official sources such as the reports of the World Bank and the international monetary fund, some reports may have had some biases at their origin. The fact that the data for this study were exclusively from secondary sources supposed that the eventual bias that those sources may contain may also affect the outcome of the study. The second limitation was the scope of the study, the LIC and LMIC. Such a reality may limit the potential to generalize the results.

Delimitations

A delimitation is a boundary and parameter to which a study is deliberately confined (Saunders et al., 2015). In this study, delimitations included collecting data only

on the economies of the LIC and LMIC. I focused the study on the relationship between public investment, FDI, and budget deficit. I used only data from secondary sources to proceed with the analysis.

Significance of the Study

Contribution to Business Practice

Mastering the budget deficit is one of the most challenging aspects of the management of the budget deficit (Abdullah et al., 2018). Leaders of public agencies who have the responsibilities of the management of the public budget can use the predictive model to anticipate the level of the budget deficit by developing a relevant policy to attract investment. Significant predictors can become the focus of those leaders to predict the level of the budget deficit from a forecast of the public investment and the FDI. Thus, this study may serve as a model for the leaders of public financial agencies to improve the process of allocation of the limited resources between public investment and the other components of public spending. The model may also help build relevant to attract the FDI in a way that anticipates the budget deficit at its set level.

Implications for Social Change

Public spending and FDI are two important levers of social impacts in developing countries (Liu et al., 2014). The implications of this study for positive social change include the opportunity for the leaders of the public financial agencies to gain an understanding of the relationship between public investment spending and FDI. Promoting public investment and attracting FDI may improve the life conditions of the communities if public projects target social sectors like healthcare, education, energy, and

water. Moreover, public investment and FDI may create jobs and other business opportunities may help the communities to improve their lives conditions (Dornean & Oanea, 2014).

Review of the Professional and Academic Literature

Budget deficit is a relatively recent national and global economic concept. Before the 20th century, economists and advisers of governments advocated for a balanced budget where expenditures matched revenues (Mariana, 2016). The goal was a surplus rather than a deficit budget. However, the Keynesian revolution coupled with the rise of demand-led macroeconomics legitimized deficit budgets, allowing governments to spend more than their anticipated revenues (Banday & Aneja, 2016). Subsequently, governments, including the U.S. government, borrowed funds to increase their expenditure. Today, there are very few countries that have an equilibrium budget (Muhammad et al., 2016). Creating deficits has become intentional in many nations because researchers and practitioners believe that doing so can stimulate economic growth through spending (Bonizzi, 2017).

Despite the wide adoption and implementation of budget deficits in many economies, differing views about the pros and cons of budget deficits remain. The perspectives of economic scholars on strategies for creating, addressing, and maximizing budget deficit for economic gains also differ widely, as do theoretical worldviews on when and how national and global economic leaders may leverage budgets to strengthen their economy and bounce back in the event of a downturn. This section includes a discussion of these perspectives as presented in published literature. First, I present the

literature search strategy and discuss the theoretical foundation for this study in the context of related theories. I then present a review of the literature related to the three central variables for this study: public investment, FDI, and budget deficit. I conclude by sharing my analysis of the relationship between these three variables as inferred from the literature.

Literature Search Strategy

Publications examined in this review include scholarly peer-reviewed journal articles published within the last 5 years and a few nonpeer-reviewed publications relevant to the topic. I located relevant literature by searching the following databases: Academic Source Premier, EBSCOhost, ProQuest, Hein Online, Emerald, Sage, and Business Source Premier, Questia, and Google Scholar. The keywords employed for the search included *public investment, foreign direct investment, budget deficit, public expenditure, foreign investment, current account deficit, budget deficit and economic growth, budget deficit and public investment, budget deficit and foreign investment, public investment and foreign direct investment, foreign investment in Africa, public investment in Africa, budget deficit in Africa, budget deficit in Europe,* and *budget deficit in North America*.

Application to the Applied Business Problem

The purpose of this quantitative correctional study was to examine the relationship between public investment spending, FDI, and budget deficit. The literature review involved extensive research with critical analysis and synthesis of the themes using Keynes's theory to ground the study. This study's target population included the

leaders of the public financial agencies of the eight countries members of the LIC and LMIC, which is the economic bloc of the French speaking countries of the West African region.

Low-Income Countries (LIC) and Low-Middle-Income Countries (LMIC)

According to the World Bank, the four categories of countries in the world are LIC, LMIC, upper-middle-income countries (UMIC), and high-income countries (HIC). The LIC have a per capita gross national income (GNI) of less than $1,036, and the LMIC have per capita GNI from $1,036 to $4,045 (World Bank, 2019). The UMIC have a per capital GNI between $4,046 and $ 12,535, and the HIC have a per capita GNI above $12,535. LIC and LMIC are developing countries that receive development aid from HIC governments and international agencies to boost their development.

Per capita GNI is the dollar value of a given country divided by the population (Abdullah et al., 2018). Using per capita GNI as a criterion to classify countries allows researchers to determine the level of development in countries around the world and to assess the level of the living conditions of the populations (Mariana, 2016). Per capita GNI is an indicator of the distribution of the national income and serves as a means to compare the level of poverty between countries (Barisiki & Baris, 2017). Per capita GNI is also an indicator to public leaders to develop public policies that may improve the lives and conditions of the communities (World Bank, 2020).

Theoretical Foundation of Study

Keynes's General Theory

Keynes developed the theory of economics in the 1930s during the Great Depression, which began in 1929 (Keynes, 1936; O'Connell, 2016). The central premise of the theory is that increasing aggregate demand boosts economic growth by optimizing economic performance and preventing economic collapse (Keynes, 1936). In the event of an economic depression, governments can stimulate demand and end the depression by increasing expenditure and lowering taxes (O'Connell, 2016). Monetary and fiscal policies serve as fundamental tools that public leaders can use to stimulate aggregate demand in the economy (Samuels & Medema, 2019). In his theory, Keynes suggested increasing government spending in the event of an economic depression to stimulate the economy and recommended monetary and fiscal policies to stimulate aggregate demand in depressed economies.

Keynes's fiscal policy centers on the multiplier effect. The multiplier effect means that a dollar spent as a fiscal stimulus ends up producing more than a dollar of economic growth (Dillard, 2018; Keynes, 1936). Introducing government funds into an economy as an economic stimulus leads to increased business activities and more spending in the country (Dillard, 2018; Keynes, 1936). Keynes (1936) proposed that when there is more spending in the economy, aggregate output and income increase. Extra income means that workers will be more willing to spend their surplus income, which results in higher growth in GDP compared to the initial stimulus amount injected by the government (Armstrong, 2019; Driessen & Gravelle, 2019). Because spending by one consumer

means income for another worker, Keynes's fiscal policy posits an increase in government spending during an economic crisis, which can boost aggregate demand and increase revenues. For Keynes, an increase in individuals' income may increase GDP because of the spending of the surplus of income in goods and services. Thus, Keynes encouraged more spending and less saving during an economic recession.

Interest and demand are two critical focus of Keynes's theory. Keynes wrote that a government can increase demand by lowering interest rates (as cited in Driessen & Gravelle, 2019; Walsh, 2017). Keynes based his support for this type of government intervention on the assumption that an economy in crisis requires radical interventions to recover, and factors such as wages and employment are slow to respond to market forces that shape the economy (as cited in Driessen & Gravelle, 2019; Keynes, 1936; Walsh, 2017). Keynes recommended short-term government interventions to stimulate the economy (as cited in Barisiki & Baris, 2017). According to Keynes, increasing public spending may be an essential way to boost growth for the economy.

Application of Keynesian Theory in Previous Studies

Authors of existing studies have applied the Keynes theory for economic development research in various countries. Al-Fawwaz (2016), for instance, researched the impact of government expenditure on the economic growth of Jordan between 1980 and 2013 and pointed out that public investment is the most effective component of public spending on economic growth. Musa and Jelilov (2016) conducted a similar study to determine the impact of government expenditure but with a focus on economic growth in Nigeria. Musa and Jelilov sought to determine why government expenditure in Nigeria

had not resulted in proportionate economic growth between 1981 and 2012. In another study, Sriyalatha and Torii (2019) compared Singapore and Sri Lanka to determine the long-term impact of fiscal policy on economic growth between 1972 and 2017. Moreover, Gatawa et al. (2017) examined the impact of money supply, interest rates, and inflation on economic growth. Additionally, Laosebikan et al. (2018) analyzed the impact of public debt on the economy of Nigeria and analyzed each category to isolate the category of debt that had the largest impact on GDP. Furthermore, Maurya and Singh (2017) examined the growth effects of public expenditure in India. The findings of the preceding two studies revealed the substantial interest in the scholarly community in validating the propositions of the Keynesian theory.

In addition, many authors have supported the central assertion of Keynesian theory. Al-Fawwaz (2016) found that total government expenditure and current government expenditure had a positive impact on economic growth. However, Al-Fawwaz was not specific about the categories of the current government expenditures that positively affect the economic growth. Musa and Jelilov (2016) determined that the relationship between government expenditure and economic growth was positive, and Hussain and Haque (2017) observed a positive and significant relationship between budget deficit and GDP growth rate in Bangladesh. Sriyalatha and Torii (2019) found that government revenue, expenditure, and investment expenditure had a positive and significant effect on the economic growth of Singapore and Sri Lanka. Gatawa et al. (2017) found a positive effect of money supply and a negative effect of interest rate and inflation on economic growth in the long term. Findings from Maurya and Singh's (2017)

study revealed that increased public expenditure leads to growth in the economy. Laosebikan et al. (2018) determined that external and domestic government debts were statistically significant to the economy's growth. Laosebikan et al. also found that the coefficients of domestic debt, external debt, fixed capital, and interest rates had a positive effect on the GDP, and domestic debt had the most significant impact because it had the highest coefficient. The findings support Keynes's economic theory by indicating that mechanisms such as government expenditures, fiscal deficit, government revenue, public investment, external debt money supply through FDI, domestic debt money supply, and interest rates positively influenced economic growth.

Criticism of the Keynesian Theory of Economics

An often-cited gap in Keynesian theory relates to its propensity to stimulate an increase in debt, which may result in a further downward turn for an economy in crisis. Keynes (1936) proposed that to break an economic crisis cycle, public leaders may borrow funds to intervene by pumping monies into its economy. Keynes assumed that governments could easily repay public debt if they increased spending to stimulate the economy. Therefore, for Keynes, budget deficit may generate public revenue to pay public debt that public leaders create when they decide to increase public spending. However, Keynes did not specify the type of spending that may generate public revenue, and that is the main weakness of Keynes's perspective of the relationship between public spending and budget deficit. Ajudua and Davis (2015) acknowledged that public investment affects economic growth positively. Also, Keynes ignored the fact that borrowing and budget deficits lead to high interest rates and financial crowding-out

(Laosebikan et al., 2018). Crowding-out results when public leaders increase borrowing from the private sector to finance higher social investment (Hussain & Haque, 2017). When public leaders increase borrowing from the private sector to finance public projects, the interest rates increase and the private investment decreases (Sriyalatha & Torii, 2019). Keynesians did not consider the effect of budget deficit on high interest rates and crowding-out in the economy in the assumption on borrowing, stimulus spending, and debt repayment. Also, Keynes did not consider the effects of gaps in lending processes that may delay the deployment of funds necessary for economic stimulation.

Critics of Keynes's theory also argued that because of the bureaucratic necessities that accompany borrowing and stimulus spending, fiscal expansion in an economy usually comes too late (i.e., when the economy has started to recover). Fiscal expansion results in an upward change in aggregate demand such that when the economy starts to recover, the demand becomes difficult to halt and may lead to inflation in the marketplace (Gatawa et al., 2017; Sriyalatha & Torii, 2019). Additionally, predicting the output gap, which is the difference between aggregate demand and aggregate production, may be difficult because it varies (Li, 2017), but Keynesian theory includes an assumption that it is possible to determine how much demand is necessary to match the output gap (Li, 2017; Tang & Bethencourt, 2017). Implementing the Keynesian theory may create an imbalance economic situation (Gatawa et al., 2017). Keynesian theory fails to account for the spike and often uncontrollable demand and mismatched output gap that results from bureaucratic delays associated with stimulus spending (Li, 2017). Keynesian

theory may also ignore changes in the political environment of a country after an economic crisis (Laosebikan et al., 2018).

Keynesian and Ricardian economists have some essential points of divergence. According to Li (2017), Keynesian economists did not consider the concepts of equivalence and change in the political environment in a country, which are the heart of Ricardian theory. In Ricardian theory, once the economy has reached equilibrium, the taxes will increase to pay off the debt (Boundless Economics, 2020). However, implementing an expansionary fiscal policy by a government may not be a solution to finance tax cuts through borrowing (Ahmad & Rahman, 2017). The reason is that people will be less likely to spend their tax cut because they expect taxes to rise again (Li, 2017). In such cases, the expansionary fiscal policy will not deliver the desired effect on the economy and may increase unemployment (Heimberger et al., 2017).

Keynes's theory of economics serves as a way to encourage public leaders to spend more during recessions (Ajudua & Davis, 2015). However, after the recession, spending by the government does not reduce (Ajudua & Davis, 2015). The result is that the public leaders that follow recessions impose high taxes and have high spending standards, and hence bigger governments (Ahmad & Rahman, 2017). Governments tend to hold onto spending projects that they design for short-term purposes, and they end up serving long-term goals (Boundless Economics, 2020). The application of Keynesian theory fails to consider that public leaders may maintain the increase in spending recommended by the Keynesian theory policy during and after an economic crisis, which leads to increased tax rates and government expenditure rates.

Keynes also faced other types of critics. Critics argue that Keynes's theory fails to account for consequences of budget deficits that relate to high interest rates and decreases in private sector investment that may sink the economy in the long run (Hussain & Haque, 2017; Laosebikan et al., 2018; Sriyalatha & Torii, 2019). The typical time lag between the onset of a crisis and the implementation of a fiscal policy can result in an imbalance between demand and output (Gatawa et al., 2017; Li, 2017; Sriyalatha & Torii, 2019). Keynes did not consider the feasibility and the implications of sustaining fiscal expansion projects and expenditures after an economic crisis is over (Boundless Economics, 2020; Li, 2017). Keynes's fiscal and monetary policy solutions can lead to high interest rates and reduced private investment, which are disadvantageous to an economy (Sriyalatha & Torii, 2019). Critics also believe that the theory does not include consideration of the consequences of the increased government spending and expenditure proposed after an economic crisis (Li, 2017). However, Keynes's framework has the advantage of offering a lens to examine how public investment and FDI can affect the budget deficit.

Alternative Theories to Keynes's General Theory

The individuals who criticize Keynes's theory oppose the monetarist, Austrian, and neoclassical theories as alternative theories to Keynes's theory. The applicability of the alternative theories to the present study depended on how focused the theorists were on the study variables and the relationships between variables. Although Keynesian, Autrian, monetarists, and neoclassical theorists developed different approaches to address

an economic depression, the developments below show that only Keynes's theory includes a focus on the variables of the present study.

Monetarist Theory

Monetary theory is one of the major economic theories of the 19th century. Milton Friedman put the monetarist theory forward in 1956 to restate the quantity theory of money (Brunner & Meltzer, 1972). The focus of the monetarist theory is the idea that the main driver of economic activities in a country is a change in its money supply. Central banks have the most critical role in economic growth (Driessen & Gravelle, 2019; Ibrahim, 2017); therefore, leaders of central banks can exert power over an economy's growth by tampering with the amount of currency and liquid instruments in circulation within an economy. If a country's money supply increases, economic activities also increase. The theory follows the formula $MV = PQ$, where M is monetary supply, V is velocity, and Q is number of goods and services. When the money supply increased, velocity holding constant, P or Q or P and Q also increase (Armstrong, 2019). In practice, public leaders of some countries implement the monetarist theory. For example, Miranda (2018) claimed that the monetarist theory inspired the monetary policy of the central bank of Mexico. The monetarists posit that money supply is the primary determinant of economic growth. The theory recognizes the role of central banks in increasing the money supply during an economic crisis and subsequently influencing economic growth in a country.

Monetarist theory has both strengths and weaknesses. One strength of the theory is that it includes a strategy to counter inflation (Walsh, 2017). In the short-term, the

interest rate increases when central banks acquire governments bonds and reduce money supply (Obeng & Sakyi, 2017). A long-term increase in lending institutions' interest rates slows consumer spending by barring access to credit (Walsh, 2017). The theory's weakness is that it fails to consider the subjectivity involved in capital valuation (Boundless Economics, 2020). Hülsmann (2018) found that the money supply's artificial expansion tends to result in intertemporal imbalances in a production structure. However, the theory has limits because it assumes the capital's objective value in the economy and its effects on demand.

Both monetarist theory and Keynesian theory have a specific approach to fixing an economy in crisis. The monetarist theory relates to Keynes's theory of economics in that both theories advocate for an increase in money supply to stimulate the economy during recessions (Armstrong, 2019). However, while the Keynes theory is flexible about the money supply source, the monetary theory disputes the borrowing of money to increase spending (Miranda, 2018). According to monetarists, central banks should print more money to feed the economy instead of raising additional taxes, which is one of Keynes's critical solutions when an economy is subject to deregulation.

Monetarist and Keynesian theories have both differences and similarities. According to Driessen and Gravelle (2019), monetarists acknowledge the quantity theory of money and consider money supply a critical determinant of economic growth. Furthermore, monetarist economists recognize the role of essential institutions such as central banks in controlling the money supply and subsequent economic growth (Driessen & Gravelle, 2019). The similarity between Keynesians' and monetarists'

perspectives is that the economists of both theories advocated an increase in money supply in an economic crisis (Miranda, 2018). The main point of difference between both theories is the source of funds for the money supply (Driessen & Gravelle, 2019). Whereas the monetarist theory recommends that central banks supply the money needed and advocates against borrowing, the Keynesian theory recommends a flexible source of funds that may include borrowed funds (Driessen & Gravelle, 2019). Walsh (2017) emphasized that the monetarist theory can effectively regulate inflation by deploying bond issuance measures and increased interest rates. Monetarist economists also pointed out the value of capital in the economy and the effects of the capital on demand and supply (Hülsmann, 2018).

Austrian Economic Theory

Austrian economic theory is another major economic theory of the 19th century. Austrian economists based their theory on methodological individualism, which includes an assumption that people act in meaningful ways that can undergo analysis (Schumpeter, 2017). Early contributors to its foundation include Carl Menger, Frederich Von Weise, and Eugene Von-Bawerk (Boundless Economics, 2020; Smith, 1994). According to Menger, value is subjective (Smith, 1994). The ability to satisfy human needs determines the value of a product (Schumpeter, 2017). The Austrian economists based their theory on human behavior and emphasized utility as a measure of a product's value to determine the extent of application and support to an economy in crisis (Smith, 1994).

Economists have divergent positions about the Austrian theory. For example, Pham (2017) examined the unification of the Austrian theory with mainstream economics

and compared the methodology of Austrian economic theory with two methods from mainstream economics. Focusing on the orthodox and the revealed preference methodologies from mainstream economics, Pham recommended that the Austrian economists give due importance to empirical work within their research program. Pham believed the empirical work in the research body on the Austrian theory demonstrates the agreements between mainstream economics and Austrian research paradigms. Elert and Henrekson (2019) contended that economists who agree with the Austrian school of thought need to incorporate collaborative innovation into their research on an unstructured market order. For Elert and Henrekson, a lack of innovation is an obstacle to the success of entrepreneurship. To demonstrate a new paradigm for Austrian economic thought, Elert and Henrekson identified evolutionary innovation blocks of five pools of economic skills necessary for building collaborative teams. The Austrian theory approach aligns with mainstream economics; however, a collaborative innovation to strengthen the theory and make it more relevant in the modern economic environment is necessary (Schumpeter, 2017).

The Austrian theory differs from Keynesian theory in terms of approach. According to Pham (2017), the Austrian economists disagreed with Keynes on government intervention in the economy during a recession to restore equilibrium. The Austrian economists advocated emphasizing the product and the buyer as a viable way to restore an economy in crises. The Austrian economic theory's weakness is that Austrian economists have ignored statistical or mathematical methods for measuring and analyzing economics variables and failed to consider experimental economics, aggregate

macroeconomic analysis, and econometrics (Boundless Economics, 2020). Instead, Austrian economists based their theory on the observation of people's actions and therefore borrowed from social sciences (Beck & Witt, 2019). Additionally, the Austrian perspectives lack clarity and models to analyze macroeconomic concepts, such as budget deficit and foreign investment, which makes it unsuitable for the current study (Beck & Witt, 2019; Boundless Economics, 2020).

The Austrian theory and the Keynesian theory also have another difference. According to Schumpeter (2017), the Austrian economists focused on analyzing human behaviors for economic development. In contrast, Keynesian economists focus on the role of other factors, such as money, investment, employment, and interest rate. Moreover, Austrian economists prioritized utility, products, and buyers as viable means for stimulating an economy in a crisis, whereas Keynesian theory recommends government intervention through deficit spending to stimulate an economy (Pham, 2017; Schumpeter, 2017; Smith, 1994). Thus, the key difference between the Austrian and Keynesian theories is the distinct approaches to responding to an economic recession.

Neoclassical Economics Theory

Another alternative economic theory to Keynes's theory is the neoclassical economic theory. Adam Smith and David Ricardo developed the neoclassical theory in the early 19th century (Bernheim, 1989; Boundless Economics, 2020; Hollander, 1973). The neoclassical theorists posited that competition leads to an efficient allocation of resources in an economy. The forces of supply and demand create market equilibrium (Pham, 2017). The neoclassical economists stated that savings determine investment;

therefore, equilibrium in the market and growth at full employment should be a government's primary economic priorities (Boundless Economics, 2020). Neoclassical economists assume that consumers' first concern is to maximize their satisfaction (von Hauff, 2020). Making economic decision involves dealing with rationality, and people make purchasing decisions considering the products' perceived utility (von Hauff, 2020; Hollander, 1973; Sredojević et al., 2016; Vlados, 2019). The neoclassical theorists highlighted the importance of market forces of demand and supply in creating market equilibrium and noted the effects of human perceptions on economic decisions (Hollander, 1973). Therefore, the difference that makes the neoclassical theory, which is an alternative theory to the Keynesian theory, is the place of market forces in the neoclassical theory.

The neoclassical theory differs from the Keynes theory in that, whereas Keynes's theory proposes the management of aggregate demand by the government during a recession, neoclassical economists advocate for minimum involvement by the government in the economy (Beck & Witt, 2019; Sajjad et al., 2018). Neoclassical theorists assigned the government a limited role in providing essential services (Vlados, 2019). A decrease in aggregate demand would lead to a decrease in production, which would consequently accelerate a decline in wages and prices (Inoua & Smith, 2019). The cyclical swings would induce an adjustment of the economy and restore economic growth (O'Brien, 2017). However, Keynes drew from experiences in the great recession to establish that characteristics of market economies and their structural rigidity can worsen economic weaknesses and cause a further decline in aggregate demand. Keynes (1936)

argued that lower wages could not restore full employment because employers cannot be willing to encourage employees to produce more goods without a change in demand.

Additionally, in a depression, business conditions do not allow for an incentive for firms to make more investment; instead, capital investment decreases (O'Connell, 2016; Samuels & Medema, 2019; Stockhammer, 2017; Tily, 2016). The neoclassical theorists limited government intervention in economic crises and posited the self-regulation of economies through market forces (Tily, 2016), in contrast with the Keynesian theorists who advocated for government intervention to stimulate economic growth in economic crises (Samuels & Medema, 2019). Furthermore, the neoclassical theorists did not consider the adverse effects of the economic crisis on business climate and the subsequent impact on capital investment (Stockhammer, 2017), which makes the theory unsuitable for this study. Therefore, the critical difference between neoclassical and Keynesian perspectives is the government's role in an economic crisis. The neoclassical economists failed to consider that although the market forces are essential in the functioning of an economy, government interventions are necessary to adjust regulation and stimulus to boost the economy.

Justification for the Keynes Theory in the Present Study

The Keynesian theory aligns with the concepts under focus in this study for two reasons. First, the Keynesian theorists center their analysis on budget deficit, which is the dependent variable for this study, and explain pathways through which budget deficit may serve to help economies recover from a crisis (Tanzi & Schuknecht, 1997). Second, FDI and public investment have macroeconomic components related to Keynes's theory

(Onuoha et al., 2018). FDI induces new markets in the recipient country and increased spending in the economy (Paul & Singh, 2017). Keynes (1936) noted that an increase in spending in the economy causes the multiplier effect that stimulates economic growth. Furthermore, Abu and Karim (2016) posited a positive correlation exists between economic growth and public revenues, and all other factors remain the same. An increase in public revenues leads to a reduction in the budget deficit. Therefore, there may be an implicit relationship between budget public investment, which, according to Ahmad and Rahman (2017), is an essential factor of economic growth, FDI, and budget deficit.

Furthermore, analyzing some essential factors that characterize an economic depression is another way to demonstrate Keynes's perspective in the present study. Low output and unemployment in the marketplace are the most critical manifestations of economic depression (Dillard, 2018; Keynes, 1936). In Keynes's perspective, injecting a stimulus to increase production and employment, attracting FDI, and increasing public investment and FDI are essential solutions to boost the economy in a depression, and consequently improve individual and public revenues (Dillard, 2018). According to Dillard (2018), an increase in individuals' revenues may increase public revenues through taxes, and an increase in public revenue may reduce the budget deficit. Therefore, the application of Keynes's theory to the context of a depression helps to anticipate a possible relationship between public investment, FDI, and budget deficit.

Unlike the Keynes perspective, the monetarist, Austrian, and neoclassical economists focused their analysis on factors that do not align with the present study. Monetarist economists emphasized the place of money supply in an economic crisis

(Armstrong, 2019), the Austrian economists posited the importance of human behavior in an economic crisis (Schumpeter, 2017), and the neoclassical economists advocated the role of market forces to address the consequences of an economic crisis (Vlados, 2019). Although money supply, human behavior, and market forces are three essential factors that theorists may use to build relevant solutions to an economy in crisis, those three factors cannot serve as variables for the present study. In contrast, Keynes's perspective has an implicit or explicit focus on public investment, FDI, and budget deficit, which are the three variables in this study. Therefore, Keynes provided a lens to conduct a more in-depth examination of the relationship between public investment, FDI, and budget deficit. Keynesian constructs can serve as a framework for explaining the budget deficit concept and as pathways for government intervention in public investment and FDI to manage the budget deficit efficiently.

Overview of Findings Related to Key Variables

Public Investment

Impact of Public Investment on Private Investment

The impact of public investment on the economy is subject to debate. Different positions exist on the effects of public investment on private investment. According to Makuyana and Odhiambo (2016), public investment can encourage private investment. National connectivity and infrastructure and public services are essential for the growth of private investment and the consequent creation of sustained employment (Ahmad, 2017). The use of public debt to finance public investment in energy, roads infrastructure, and information technologies, may stimulate private investments (Mabula & Mutasa,

2019). Dash (2016) evaluated the relationship between public and private investment in India from 1970 to 2013. Findings from Dash's study showed that, in the short run, public investment has a positive effect on private investment and crowds out private investment, depending on governments' options of investment.

Different angles of analysis on the effects of public investment on private investment exist in the literature. Nguyen and Trinh (2018) reported that the crowd-in or crowd-out effect depends on the time lag and claimed that public investment crowds in private investment in the short term but has long-term crowding-out effects. Using annual data from 1960–1961 to 2017–2018 in India, Mallick (2019) examined whether public investment crowds out or crowds in private investment. Findings from the study indicated that a crowd-in resulted after a few quarters of crowding-out private investment. In Brazil, from 1982 to 2013, there was a crowding-in effect of private investment by public investment (de Borja Reis et al., 2019). Crowding-in impacts of public investment on private investment may be influenced by the effect of demand, increase in productivity, increase in private capital, and favorable structure policies (de Borja Reis et al., 2019). A market-friendly incumbent and increase in FDI can dampen the crowding-out effect of public investment. Public investment may favor or deter private investment. Public investment may create crowding-in effects and crowding-out effects to private investment with evidence of crowding-in in the short run appearing more prevalent than in the long term (Mallick, 2019). According to Nguyen and Trinh (2018), enabling the environment of infrastructure, national connectivity, and public service may determine the effect of public investment on private investment.

Impact of Public Investment on Economic Growth

The relationship between public investment and economic growth is a subject of interest. Public investment is an essential precursor for economic growth (Bayraktar, 2019; Junquera-Varela et al., 2017; Savage, 2019; Zergawu et al., 2018). Public investment supports an increase in revenue and induces an accumulation of private and infrastructure capital, which furthers economic growth and stability (Junquera-Varela et al., 2017; Savage, 2019; Zergawu et al., 2018). However, the effectiveness of public investment in supporting economic growth is mixed and differs from economy to economy (Bengtsson & Stockhammer, 2018; Schwartz, 2015). Public investment may also induce the growth of the industrial sector and the broader economy (de Borja Reis et al., 2019). Truger (2016) also observed that through public investment in infrastructure, innovations, green investments, and education, countries experience increased job opportunities, high living standards, and ripple productivity.

Critics argue against public investment as a significant facilitator of economic growth. From a study on Chile, Ahmad (2017) pointed out that public investment alone did not generate sustainable growth in Chile. In a similar study on Vietnam, Nguyen and Trinh (2018) indicated that public investment did not encourage economic growth in the country. Furthermore, Nguyen and Trinh posited that investment from the private sector, FDI, and state-owned enterprises positively affected growth in the short term. Although public investment leads to higher growth rates in some economies, the impact of others is limited (Nguyen & Trinh, 2018). However, with other micro- and macroeconomic variables such as private investment and FDI, the effectiveness of public investment may

become more evident (Ahmad, 2017). Therefore, public investment alone might not sustain economic growth in some economies.

Factors Influencing Public Investment Effectiveness

Some essential factors determine public investment effectiveness in supporting economic growth. Those factors include quality of the investing and recipient institutions, conditions in financial markets, effects of macroeconomic variables, crowding-out effects of public spending, the income level of countries, and the threshold level or volatility of public investment (Bayraktar, 2016; Makuyana & Odhiambo, 2016; Yilmaz, 2018). Makuyana and Odhiambo (2016) pointed out that, in developed economies, an association exists between an increase in public investment and economic growth, but they did not observe the same for developing economies. For Bayraktar (2016), the influence of public investment on economic growth is dependent on the economic and institutional factors of investing institutions or countries and recipient countries. The level of economic development in a country may determine the influence of public investment in that country and its economic growth. Investment rates determine their effectiveness in beneficiary countries.

The volatility or threshold of public investment may determine the impact on economic growth. Bayraktar (2016) observed that returns on public investment were exponentially higher in economies where public investment increased beyond a threshold level. A low level of public investment may not stimulate public capital accumulation and, as a result, economic growth because such an investment can barely cover the maintenance expenses of available public capital (Bayraktar, 2016). Bayraktar and

Moreno-Dodson (2015) noted that public spending could be a significant determinant of growth only for productive purposes. According to Bayraktar and Moreno-Dodson, the investment level may determine the impact on economic growth, and low investment rates may lead to an insignificant effect on economic growth. The effective use of public investment may also determine its efficiency within recipient countries.

The sectoral focus of public investment and political life cycles includes two factors that condition the impact of public investment. According to Yilmaz (2018), overinvesting in communication and transportation services, and underinvesting in education, energy infrastructure, health security services, and city infrastructure, may not positively impact economic growth. The frequency and effectiveness of public investment can also depend on political cycles. Elections influence public investment and the resultant economic growth. Gupta et al. (2016) observed that nominal public investment increases at a higher rate at the beginning of electoral cycles and reduces afterward. Gupta et al. also noted that the peak period of public investment growth is 28 months before elections, and a decrease of 0.7 percentage points occurs every month after that. Factors such as misallocation of funds and changing political cycles may determine the effectiveness and frequency of public investment.

Public investment plays an essential role in the growth and economic development. Public investment may induce significant increases in revenue, private and infrastructure capital, and investments (Ahmad, 2017; Dash, 2016). However, these benefits are not universal, as some countries experience them significantly more often than other countries (Makuyana & Odhiambo, 2016). The ability of public investment to

produce maximum benefits depends on several factors, including the volatility of the investment (Bayraktar, 2016), quality of the investing or recipient institutions, investment threshold, sectors in which the government invests (Bayraktar & Moreno-Dodson, 2015), and the country's political cycles (Gupta et al., 2016; Yilmaz, 2018). Public investment may also influence the growth of FDI in host countries.

Foreign Direct Investment

FDI is an essential economic factor of the relationship between a country and the rest of the world. FDI is a form of foreign investment that involves buying lasting assets in another country (Malik, 2015). According to Babu et al. (2020), FDI is an investment from investors who hold at least 10% of a foreign firm's voting power. FDI may be in the form of a new establishment in a target country or might involve acquiring shares, expanding a firm's operations in the target nation, being part of a joint venture and merger, or completing the purchase of a foreign company (Onuoha et al., 2018). According to Malik (2015), FDI may include other investment forms, such as setting up production plants or buying buildings and machinery in another country. FDI may be horizontal when investors embrace different industries and vertical when investors buy shares in other domains within the same industry (Paul & Singh, 2017). FDI involves purchasing foreign assets and is a long-term investment through which investors aim to grow and increase capital and technology investments within host nations and to make a profit (Bosanac & Požega, 2016). However, the effectiveness of the impact of FDI on the host country is subject to debate.

Pros and Cons of Foreign Direct Investment

FDI is beneficial to both investors and recipient nations. For example, FDI is a form of long-term investment by foreign investors in a host country that have a potential benefit for both the originating and the receiving country (Bosanac & Požega, 2016). Countries' leaders strive to encourage investment to and from foreign nations because of benefits such as improved economy and revenue and the accompanying development (Shuaib et al., 2015). To a host country, FDI induces expertise and enhanced technology, as the process allows a resource transfer from foreign investors, including the exchange of new skills and technology (Malik, 2015). FDI also generates employment opportunities in the receiving country, which leads to more human capital development (Bosanac & Požega, 2016; Malik, 2015).

FDI may induce human capital development, expertise, and knowledge from new foreign establishments in host countries (Onuoha et al., 2018). FDI supports financial liberation and increases employment opportunities and human capital development (Pettifor, 2019; Samwel, 2016). According to Samwel (2016), FDI can result in technological advancement and increased productivity levels. FDI may also improve knowledge management and human capital development, work efficiency, and competence in host countries because it enables foreign investors to share resources with host countries (Samwel, 2016).

FDI is essential in the economic connection and the promotion of international trade between countries. FDI is a significant part of growth in international trade around the world (Samwel, 2016). Such investment is also a way for investors to provide

incentives to reduce the disparity between revenues and costs, which researchers have proven increase productivity through the provision of new facilities and equipment in a target country (Babu et al., 2020). Such incentives result in economic improvements (Pettifor, 2019). For instance, Thaker et al. (2017) acknowledged that FDI is a significant and dominant factor in a country's development and economic diversification and observed positive effects on real GDP, nominal exchange rate, current account balance, and industrial production index.

FDI may also have adverse effects on the economy and political structure of host countries. According to Maleki (2016), FDI may harm domestic investment, change a target country's political structure, and induce economic colonization and expropriation (Maleki, 2016). Moreover, FDI may lead to debt accumulation and deepen the budget deficit, contrary to Keynes's perspectives (Wangui, 2019). In Africa, the number of countries with a debt ratio of more than 75% increased twofold between 2011 and 2017, and FDI was among the causes (United Nations Economic Commission for Africa, 2019). In a comparison of situations in Kenya and Singapore, Wangui (2019) revealed that the impact of the public debt is more effective in Southeast Asia tan in the African countries. Therefore, despite the positive effects of FDI on host countries, public authorities should also care about the types of transactions to avoid adverse effects.

Researchers use two strategies to monitor public debts that may result from FDI. First, a country's fiscal sustainability prospects depend mainly on the structure and composition of domestic and external debt (United Nations Conference on Trade and Development, 2016). Second, in most sub-Saharan African countries, outsized public

debts increase because of factors such as regulatory laxity, weak fiscal discipline, absence of clear policy direction, poor resource allocation, and fiscal slippage (World Bank, 2018). In support of these caveats, Dao and Bui (2016) contended that borrowing is not a problem; instead, spending borrowed funds on recurrent expenditures is the problem (Akinola, 2017). Bangladesh had large negative balances from 1981 to 2017, yet it witnessed a positive economic growth, similar to the case of Vietnam, because of the appropriate allocation of the money borrowed (Ferrero, 2015). Despite the substantial debt relief to the heavily indebted poor countries, some countries still accumulate debts at alarming rates (Chauhan & Kumar, 2017). Monitoring public debts that may result from FDI is essential to avoid the host economy's adverse effects.

Factors Attracting Foreign Direct Investment

The inflow of FDI in an economy depends on both economic and political factors. Corporate governance, political risk, trade openness, exchange rate, and size of the GDP are factors that significantly determine the growth of FDI in a country (Njoroge, 2016). Bosanac and Požega (2016) cited the reasons for investment and the types of companies involved as essential determinants of the various forms of FDI a country receives. Economic viability and political factors predict the growth of FDI in a country (Dao & Bui, 2016). Foreign investors evaluate the recipient economy's suitability against these factors to ensure the host countries' and investor parties' interests are maximized and to predict growth (Njoroge, 2016). The political stability and market size of a host country may also predict the presence and growth of FDI (Bosanac & Požega, 2016).

Political Stability and Market Size

The political and economic stability of recipient countries may influence FDI in target countries (Bosanac & Požega, 2016). A politically stable country is likely to motivate investors from various countries to establish multinational organizations (Shuaib et al., 2015). Investments from foreign investors benefit host countries in terms of economic health, revenue source, and accompanied development (Shuaib et al., 2015). Consequently, some public leaders enhance their political stability and economy to encourage foreign nations (Shuaib et al., 2015). Durmaz (2017) found that, in Turkey, improved democracy increased FDI flows, even though FDI inflows had spillover effects. Malik (2015) also noted that a stable economy allows the establishment of new foreign ventures, which provides an avenue to boost the economy and create employment. Therefore, stable economic and political climates in host countries are two critical determinants of FDI inflow in an economy.

Market size also plays an essential role in attracting FDI. Small market size can make host countries less attractive for establishing new firms but does not affect existing firms (Dreger et al., 2017). Analyzing the determinants of Chinese FDI activities in the European Union, Dreger et al. (2017) found that market size and bilateral trade were the main factors for Chinese investment in the European Union. Also, business-friendly institutions do not foster FDI (Dreger et al., 2017). Moreover, Dreger et al. (2017) advised that sectoral dispersion of Chinese FDI in the European Union did not change much after the global financial crisis. Although small markets may deter new investors,

the above findings reveal that foreign investors may prioritize market size above economic stability and landscape to determine recipient economies.

Foreign Investment Regulations

Foreign investment regulations are essential in the decision to invest abroad. Comparing the situations of Ghana and China, Ayangbah and Sun (2017) found that differences in regulations affected FDI. Ayangbah and Sun attributed the success of FDI in China to policies that attracted foreign investment and approval of market-oriented development growth. Ghanaian public leaders similarly tried to adopt progressive foreign investment policies, but Ghana's development declined as China developed. Comparing the two countries' laws, Ayangbah and Sun acknowledged that Ghana had more bureaucratic business acquiring abilities than China.

Analyzing the options that led to sustainable investment in African countries, Manfredi (2017) observed that investment favored countries with policies that would lead to a mutual coexistence between the investor and the country of residence. Vietnamese also promoted FDI by providing a favorable business environment for multinational companies (Pettifor, 2019). Fair policy regulations with business-friendly environments may determine the growth of FDI (Pettifor, 2019; Seid, 2018). Target policies to explicitly attract investors may also positively impact FDI (Marka & Prakash, 2018; Wall et al., 2017). Moreover, Wall et al. advised that factors such as the sovereign credit rating, branding, and international financial reporting standards (IFRS) may also determine FDI in emerging markets.

Sovereign Credit Rating, Branding, and IFRS

Sovereign credit ratings are essential determinants of FDI in emerging markets. The use of the sovereign credit rating, branding, and IFRS to view economic situations, include information about the risks that investors can bear in a host country (Mah, 2018). In general, FDI flow from low-rated donor countries to high-rated recipient countries (Lungu et al., 2017; Pettifor, 2019). Emerging market FDI investors invest more in high-rating advanced countries, and only invest in low-rating emerging market countries when the ratings of those countries improve (Cai et al., 2019).

Budget Deficit and Debt

Budget deficit and public debt are two factors that investors consider before venturing into new establishments. According to Samwel (2016), a constant increase in an economy's fiscal deficits may dissuade private investors and induce massive crowding-out of FDI. Public debts may attract FDI and harm FDI (Ncanywa & Masoga, 2018). Moreover, Ncanywa and Masoga (2018) observed that an increase in public debt in a country led to a rise in FDI. Olaoye (2019) found that the debt overhang in Nigeria did not affect private investment; investors thought it was safe to invest despite the debt overhang. However, over time, public debts led to a depreciation of the currency value or high exchange rates, which made it difficult for investors to recover their investments and making an economy less competitive (Coccia, 2017; Ncanywa & Masoga, 2018; Olaoye, 2019). Foreign investors consider fiscal deficits and public debts to be determinants of investment, as the two factors may motivate or discourage foreign investors.

Recommendations for Attracting Foreign Direct Investment

FDI is essential for economic growth. Appiah et al. (2019) noted that FDI positively impacts economic growth when governments target sectors with connections that are relevant to the national economy. Critical factors determine foreign investors' decisions to invest overseas and induce the needs to adopt policies that attract public foreign investors in a host country. According to Akinola (2017), regulations, policies, and institutional factors are the most prominent factors.

Regulations and Policies. Economic regulations and policies are critical factors for attracting FDI. Davaakhuu et al. (2015), for instance, found that implementing the right policies can attract employment-intensive growth in the manufacturing and agriculture sectors. However, to make policies responsive to foreign investors, policymakers should consider traditional and institutional determinants of FDI (Njoroge, 2016). Furthermore, Topal and Gül (2016) suggested governments avoid regulatory inconsistencies at all costs. Stable government policies, more civil freedom, and sustained institutional politics are critical factors in foreign investors (Durmaz, 2017).

Institutional Factors. Institutional factors within host countries can facilitate FDI in emerging markets. Cai et al. (2019) noted that to attract FDI from other emerging markets, emerging market recipients need a more robust institutional environment, and the institutional quality of developed market recipients matters less. Liberalization is an essential factor, as seen in China's case (Davaakhuu et al., 2015; Durmaz, 2017; Yao et al., 2016). Liberalization was significant for cost adjustments and provided Chinese multinational enterprises more information about the host countries (Yao et al., 2016).

Finally, Wall et al. (2017) recommended significant investment in renewable energy technologies to reduce greenhouse gas emissions, mitigate climate change, and fuel economic development. According to Yao et al. (2016), institutional factors such as the quality of markets and investment in an economy's relevant sectors are also crucial to improving FDI.

In conclusion, FDI is an essential component of economic relationships between countries. FDI has significant positive effects on both host countries and investors (Appiah et al., 2019; Ferrero, 2015). However, foreign investors may also lead to adverse effects, deepen the budget deficit, and contrast with Keynes's perspectives (Muhammad et al., 2016). Therefore, public leaders need to have a relevant national framework for managing FDI.

Budget Deficits

The budget deficit is a relatively new economic concept. Before the 20th century, economists and advisers of governments advocated for a balanced budget where expenditures matched revenues (Mariana, 2016). The goal was a surplus rather than a deficit. Keynes advocated for a budget deficit and allowed governments to spend more than their anticipated revenues (Banday & Aneja, 2016). Few countries have a balanced budget in the 21st century, and developing nations have larger deficits because of their lack of a stable private sector (Arjomand et al., 2016; Muhammad et al., 2016). Although the concept of a budget deficit is relatively new, the Keynesian revolution inspired many public leaders to embrace the concept, notwithstanding gaps and instability in their economy.

Determinants of Budget Deficits

There are different reasons for budget deficits. Budget deficits occur when governments make budgets for spending more than their revenue or more than they make (Sajjad et al., 2018; Yetunde & Olasunkanmi, 2016). A country's GDP, exchange rate, assets, and profits can predict its budget deficit. Other determinants of budget deficit include personal stocks and price increase (Eze & Ogiji, 2016; Muhammad et al., 2016). An increase in government spending and a reduction in collected taxes may also influence a country's budget deficit (Dillard, 2018). Several macroeconomic indicators can make a government spend more than it makes. However, the extent to which these indicators predict a country's budget deficit appears to vary over time. While the performance of some economic indicators predicts a budget deficit in the short term, others are better predictors in the long term. Njoroge (2016), for instance, demonstrated that an ongoing decrease in the national government deficit and an increase in the actual exchange rates led to a decreased national government deficit in the long run. The long-run analysis also indicated a price increase and national investment were determinants. Alternatively, Muhammad et al. (2016) found that, in the short run, actual GDP, assets, and profits were the main determinants of the budget deficit. A country's deficiency in a single economic indicator is insufficient to predict an increase or decrease in its budget deficit. Instead, an increase or decrease in a country's budget deficit results from a complex interplay of macroeconomic indices (Muhammad et al., 2016; Njoroge, 2016).

Benefits of Budget Deficits. Although budget deficits have become a popular concept, economists disagree on their benefits to several aspects of the economy. For

example, Akinola (2017), Biplob (2019), Dao and Bui (2016), Oprișan (2019), Sahin (2019), and Van and Sudhipongpracha (2015) noted that a budget deficit does not adversely affect a country's economic growth, but rather, a budget deficit may cause critical economic deregulations. Van and Sudhipongpracha, and Biplob observed that the budget deficit furthered economic growth, especially in the long run. Dao and Bui determined that negative balances did not affect economic growth because they were associated with increased productive expenditures, which impacted the economy positively. Budget deficits also increase the availability of loans and the money supply to the populace, which in turn improves profits and prices (Sahin, 2019). For example, despite having a huge budget deficit, Vietnam was able to grow its economy (Pettifor, 2019). Vietnam had a leading negative balance from 1989 to 2011 but managed to enhance its economy during this period. Another example of the positive effect of a budget deficit on economic growth is the case of Bangladesh. Bangladesh had large negative balances from 1981 to 2017, yet it witnessed a positive economic growth similar to Vietnam because of the appropriate allocation of the borrowed money (Ferrero, 2015). Although several researchers agree that, despite having substantial negative balances, some countries have experienced significant economic growth typically preceded by an increase in productive expenditure (Akinola, 2017; Oprișan, 2019), others argue otherwise.

Disadvantages of Budget Deficits. Budget deficits have evident problems in economies. Although budget deficits can have some positive effects on an economy, the negative side outweighs the positive side (Abubakar, 2016; Akinola, 2017; Mah, 2018).

Akinola (2017) noted that budget deficits crowd out private borrowing and interest rates. For Abubakar (2016), budget deficits harm the economy because they result in inflation and increased unemployment. To address vast negative balances, public leaders raise taxes on goods and services; however, such a strategy may increase prices (Zengin et al., 2018). Mah (2018) found that negative balances were inversely related to economic development in South Africa. Gisore and Jepchumba (2017) and Kamiguchi and Tamai (2019) observed that budget deficits negatively affected GDP in East African countries. Budget deficit adversely affects inflation, interest rates, unemployment rates, and private borrowing potential. Owing to the different positions noted above, the budget deficit may harm an economy, especially if there are no other policies to master inflation.

The increase in public debt is another downside of the budget deficit. The budget deficit is a negative balance of a budget. At the same time, debt (also referred to as public debt) is the money that nations owe governmental and nongovernmental organizations, other nations, and the private sector (Durmaz, 2017). Public debt and fiscal deficit have a close relationship, in that the latter leads to the former (Muhammad et al., 2016). To address the budget, governments borrow money from the private sector, other countries, and international money-lending entities, such as the World Bank and the International Monetary Fund, to fund projects (Akinola, 2017). As budget deficits increase, public debt also increases. Oprișan (2019) explored the effects of budget deficits in European countries such as Bulgaria, Romania, and Poland between 1990 and 2000 and found that, during this period, the nations were struggling to balance their account books as fears of public debt increased. During the 10-year period, public debt increased due to an increase

in the budget deficit each year. By 1998, Romania's public debt had grown to almost 40% of the country's GDP (Eze & Ogiji, 2016). As a result, Romania was blocked from accessing external financial assistance from the international market, which nearly doubled the country's problems. Central and Eastern European nations such as Poland, Bulgaria, Hungary, and the Czech Republic also suffered from the debt crisis (Oprișan, 2019). For instance, while Romania struggled with a debt of $240 million in 1990, Hungary, Bulgaria, and the Czech Republic had debts of $21.3 billion, $10.9 billion, and $4.4 billion, respectively (Oprișan, 2019). Poland's public debt was much larger: approximately $50 billion. The public debt posed a massive problem for these nations, for their borrowing power had reduced as a result of debt sustainability (Akinola, 2017). Findings from Woja's (2017) study in Poland also affirmed that the budget deficit adversely affected its public debt.

Economists have demonstrated that, like public debt, budget deficits can lead to current account deficits. An existing account comprises net income such as dividends and interest, foreign aid, and revenue from exports (Ferrero, 2015; Jafar et al., 2016; Muhammad et al., 2016). An existing account reflects a nation's foreign transactions (Muhammad et al., 2016). Some studies show a bidirectional relationship between budget deficit and current account deficit. Topalli and Dogan (2016) contended that budget deficits caused current account deficits in some contexts, but existing accounts also caused budget deficits in other contexts. Reed et al. (2019) determined that there was a long-term relationship between budget deficits, current account, and public debt sustainability in Iran. The inverse relationship between budget deficits and economic

growth appears evident from multiple studies, but it is also clear that the impact of budget deficits on an economy differs from one sector to another (Abdullah et al., 2018).

Sectoral Differences in the Impact of Budget Deficits. Budget deficits help certain sectors as land prices thrive, but impede the growth of other sectors, including amenities, structural unemployment, income, and cost of housing. Wu et al. (2015), for example, suggested that budget deficits at local government levels had a progressive influence on the prices of land but an adverse influence on factors such as amenities, income, and cost of constructing houses. Additionally, in their study to determine the effects of the national budget deficit on the joblessness rate in Nigeria from 1986 to 2015, Ayogueze and Anidiobu (2017) found that the national budget deficit had an influential and nonefficient effect on the joblessness rate in Nigeria during the time of their review. Fedeli et al.'s (2015) trend study of 1980 to 2009 also confirmed the negative correlation between budget deficit and structural joblessness. The impact of budget deficits on an economy varies by differences in sectoral characteristics and is more evident at subnational levels.

Impact Pathways for Budget Deficits. One major pathway is that budget deficits lead to an increase in money supply, which results in inflation. Zengin et al. (2018) determined that a short-term, one-directional relationship exists between inflation and money supply and a two-directional correlation exists between money supply and budget deficits. Another impact pathway that economists propose is that a budget deficit leads to an increase in taxes, and a consequent increase in market prices, and to inflation. A negative balance forces the government to increase taxes on goods and services to

generate revenue, which results in rising prices (Zengin et al., 2018). A third pathway that researchers highlight is that when money becomes easily accessible, its value will drop, and people will have to pay more for fewer goods (Ayogueze & Anidiobu, 2017). Lastly, budget deficits result in amplified long-term interest rates (Akinola, 2017). In one study, attempts to increase budget deficits resulted in increased interest rates in the short term, with a significant effect on the economy (Palley, 2015). Akinola (2017) observed that increased interest rates led to increased future budget deficits, lowered domestic investment, and reduced future output levels because they minimized the private sector's need for capital in the form of loans. A few things are evident from the various pathways that economists propose: the pathways through which a budget deficit affects a nation's economy are multidirectional, are interconnected, and involve indices such as money supply, interest rates, market prices, and inflation. These indices reduce the need for commercial and retail borrowing.

Strategies for Managing and Maximizing Budget Deficits

Even with contrary views on the influence of budget deficits on an economy, research has shown that, with effective investment, debts cannot hurt the economy (Akinola, 2017; Chukwuani & Osita, 2018). The budget deficit is a problem of public budget management. Vovchenko et al. (2015) recommended creating effective and sustainable budget management systems to address a budget deficit. A sustainable budget system may mean applying algorithms that ensure the sustainability of the budget system based on macroeconomic indicators, necessary conditions of the internal debt-paying capability of the country, an aggregated index of fiscal stress, and an aggregated indicator

of the openness of the country's budget (Vovchenko et al., 2015). An effective and sustainable budget management system, when implemented correctly, can play a significant role in improving income generation and reducing a budget deficit (Vovchenko et al., 2015). In the case of Russia, Vovchenko et al. suggested that implementing a sustainable budget system could result in several key benefits, including the gradual reduction of oil and gas deficits on the federal budget. A working management system could also help the country preserve the volume of Russia's national debt on a safe level and regularize the analysis and formation of budget parameters based on current expenditure obligations. Sustainable budget management systems can address budget deficits with internal regulations to maintain sustainable debt levels, increase income generation, and reduce budget deficits. Public investment can also address budget deficits.

Public Investment. Public investment is a fundamental component of the budget deficit. Public leaders can regulate their public investment to minimize consequent deficits and inflation (Trang et al., 2017). For example, in 2019, Kenyan public leaders decided to decrease its budget deficit to 3.8% of the GDP by the end of the 2023 fiscal year. To accomplish this, Kenyan authorities added approximately $4.51 billion into the economy to boost security, food, housing, and manufacturing (Dessus et al., 2016). After an economic crisis, France's government decided to restore its public funds through national sovereignty and justice for future generations (Chakraborty, 2016). The steps taken to make this growth possible included increasing labor in the economy and pioneering business productivity and competition (Keho, 2016a). In France, public

leaders cut spending by focusing on the competitive sectors of the economy, such as labor improvement (Keho, 2016b). The country's government believes that when labor increases in an economy, revenues increase and working ranks will increase (Boeri, 2019).

Revenue Expenditure Tracking and Regulations. Tracking and regulating public expenditure is an efficient approach to anticipate the budget deficit. Okafor et al. (2017) recommended that public leaders master the trend of the public revenue expenditures and microeconomic strategies because revenue expenditures and nonrefundable personal returns affect the efficacy of a deficit economy. Revenue expenditures may trigger a country's tax to contribute extensively to decreasing the budget deficit (Okafor et al., 2017).

Regulating public expenditures is the focus of some public leaders. On how revenue expenditures may be regulated, Pettifor (2019) suggested that economies that have spare capacity and idle resources can increase expenditure to generate income, which would reduce the budget deficit. However, an increase in expenditure in weak economies should also be aimed solely at increasing income (Eze & Ogiji, 2016). When implemented in a deficit economy, revenue expenditures should yield enough money to cover the deficits (Keho, 2016a). Finally, revenue expenditure should target the productive sectors of the economy because it will likely result in economic stability (Eze & Ogiji, 2016). Revenue expenditure tracking is a microeconomic strategy that can generate income, which public leaders can use to cover deficits in a deficit economy. When combined with sound policies, this strategy can be effectively used in productive

sectors to promote economic stability. Deficit financing is another strategy that governments can deploy to improve economic stability.

Deficit Financing. Financing the deficit is an important decision in the process of managing the public budget. Eze and Ogiji (2016) identified external source of deficit financing, nonbanking public source of deficit financing, and exchange rate as metrics with significant and positive implications on economic stability, as indicated by GDP. Metrics with negative impacts include ways and means, source of deficit financing, banking system source of deficit financing, and interest rate. The private sector, especially banks and private individuals, are the major investors or buyers of the bonds (Keho, 2016b). The private sector, such as banks, can buy short-term gilts from the government because they often consider gilts as ready money that can help them maintain their lending to customers (Keho, 2016b). Deficit financing metrics can significantly influence economic stability; public leaders may finance deficits with bonds and short-term gilts, which private sector investors purchase, thus making loans available. Debt servicing can also mitigate budget deficit effects on an economy.

Foreign Direct Investment. FDI is a resilient source of external finance to economic and financial shocks (UNCTAD, 2018). FDI represents more than a source of funds, as it is also a package of tangible and intangible assets public leaders in developing countries may apply to build capacity (UNCTAD, 2018). Mah (2018) suggested that countries with budget deficits should promote FDI by creating an enabling environment for foreign businesses to invest and local businesses to export and invest in foreign countries. China has a high FDI (Muhammad et al., 2016) and provides multinational

companies such as Apple Inc. with cheaper labor compared with the United States. In return, it earns revenue in the form of taxes from the sales of Apple products on the international market (Ferrero, 2015). Taiwan and Bangladesh also benefit from FDI to balance their current account. FDI can finance economies with budget deficits and can be an efficient source of finance for economies in crisis.

Spending Cuts and Strict Fiscal Rules. Managing or maximizing budget deficits can also directly curb money supply and corresponding expenditure in the general population (Akinola, 2017). The approach to addressing budget deficit in South Africa was to cut spending by $10.3 billion in 3 years and increase GDP from 0.9% to 1.2%, even though debts and tax collection increased (Chakraborty, 2017). The central bank can reduce the printing of money (Njoroge, 2016) and discourages commercial banks from giving loans to people to reduce the money in supply (Ibadula et al., 2017). Finally, budget deficits will likely advance an economy if a public leader invest the money it borrows in development projects, such as building roads or generating electricity to run manufacturing industries (Akinola, 2017). Public leaders can close their deficit gap by reducing money supply and cutting down on government spending. A strategy for lowering the money supply includes reducing cash and loan availability. However, public leaders may maximize the benefits of budget deficits to stimulate economic growth if borrowed funds or revenue obtained are deployed to development projects.

Monetary Policies. Countries may employ monetary policies to improve their currency (Dow et al., 2018). African countries, such as Zimbabwe in the 2000s, and developed countries, such as Germany in the 1920s, increased their money supply to pay

their debt (Kaplan & Thomsson, 2017). Despite being a developed country, Germany was living beyond its means until 2009, when it enforced strict fiscal rules in its constitution. It required the national government to operate on a structural deficit of not more than 0.35% by 2016; by 2020, it operated on no structural deficit (Arjomand et al., 2016). Public investments can yield a lot of revenue, especially when a budget deficit is under control (Boeri, 2019).

Additionally, value-added tax impact may impact positively the GDP. In countries such as Sri Lanka, public leaders used value-added tax to improve the GDP and reduce the budget deficit (Muhammad et al., 2016). However, with this strategy, the reinforcement of strict measures such as cost control and financial consolidation to guarantee effective enhancement of growth of the nation's economy is also recommended. Monetary policies such as an increase in money supply, fiscal regulations, and value-added taxes can aid debt repayment, which consequently improves GDP and budget deficits. These strategies can influence budget deficit efficiency and mitigate their negative impact.

Summarily, public leaders may can use budget deficits to encourage economic growth (Akinola, 2017). Some strategies discussed in this regard include the productive investment of funds into development projects, human capital, and labor to increase revenue to tackle budget deficits (Boeri, 2019; Chakraborty, 2016; Dessus et al., 2016; Keho, 2016a). Additionally, public leaders should consider implementing budget management systems to monitor budgets and debts and address debt sustainability (Vovchenko et al., 2015). Governments can also regulate public investments and focus

expenditures on productive sectors of the economy to minimize budget deficits and reduce inflation caused by deficit spending (Trang et al., 2017). Public leaders may also use this strategy to generate income to reduce the deficit and ensure economic stability (Eze & Ogiji, 2016; Keho, 2016b). Selling government bonds, increasing the value of export products, increasing exports, and restricting imports are other strategies to finance a budget deficit. Leaders may use FDI to finance economies with a budget deficit, which indicates that a relationship might exist between FDI and budget deficit (Arjomand et al., 2016; Kaplan & Thomsson, 2017; UNCTAD, 2018).

Relationships Between the Variables of the Study. Public investment and FDI appear to reinforce each other. Public investment improves the attractiveness of a country to foreign investors (Zergawu et al., 2018), and FDI improves the efficiency of government spending in terms of both quality and quantity (Zhang et al., 2019). Findings from earlier studies show that both public investments and FDI can improve GDP and lead to economic growth, even though the noninfrastructure component of public investment had a more significant and favorable influence on GDP than the infrastructure component did (Ajudua & Davis, 2015; Mallick, 2019). Public investment and FDI are complementary measures of economic stimulation and development, and they influence government expenditure and GDP, with a consequent effect on economic growth. FDI may be a response to budget deficits.

In terms of the relationship between FDI and budget deficit, the literature indicates that a budget deficit can facilitate or impede FDI. Although some foreign investors find countries with huge budget deficits attractive, others do not (Ncanywa &

Masoga, 2018; Samwel, 2016). FDI also relates to the budget deficit because FDI helps improves savings in the receiving country, which can serve to finance its budget deficit. Abu and Karim (2016) examined the relationship between FDI and domestic savings, domestic investment, and economic growth in 16 sub-Saharan Africa countries using data from 1981 to 2011, and they found unidirectional causality between FDI and domestic savings. Muzurura (2016) conducted a study on developing countries and found that FDI augmented domestic savings. Budget deficits in host economies may attract FDI, which improves savings in the host country to finance budget deficits; budget deficits may also deter foreign investors.

Public Investment and Budget Deficits. The relationship between public investment and the budget deficit is not straightforward. Yovo (2017) noted that public investment can positively affect and negatively affect a budget deficit. During the phase of investment, public investment may aggravate the budget deficit. And after the investments relate to a productive sector, they may generate revenues in the years following the investment to reduce the extent of the budget deficit (Yovo, 2017). The activities deplete the revenue and compel them to opt for a deficit budget and acquire more debt to finance their budget (Gisore & Jepchumba, 2017).

A budget deficit may stimulate public investment. Budget deficits and resulting debts can facilitate public investment by serving as a source of income for capital development (Ncanywa & Masoga, 2018). Sánchez-Juárez and García-Almada (2016) concluded that public debt positively correlates with public investment, and this, in turn, stimulates economic growth because public leaders acquire loans to finance multiple

public investment activities. Pellens et al. (2018) also found that budget surpluses and deficits significantly influenced public spending on research and development (R&D). In Pellens et al.'s study, there was a robust pro-cyclical effect on public R&D investments, although a country's heterogeneity had an influence (Pellens et al., 2018). One factor that influences the extent to which budget deficit affects public investment is debt level. In studying how the budget deficit affects public investment in Senegal, Ndour (2017) observed that the effect varies according to the debt level. When public debt is greater than the threshold of 80% of GDP, an increase in deficit reduces public investment (Ndour, 2017). The public debt to GDP ratio increases over time (Kamiguchi & Tamai, 2019).

Finally, public investment is among the many strategies' economists recommend for managing and maximizing budget deficits (Ndour, 2017). Once monitored and regulated effectively, and used for capital and tax-generating activities, public investment can become a viable source for financing budget deficits and reducing debts. Budget deficits can result from an increase in government spending on development projects (Abu & Karim, 2016), and budget deficits in the economy can spur an increase in public investment for income generation. Thus, an increase in public debts may be associated with public investment and indicative of a government's economic stimulation efforts.

Transition

In Section 1 of the present study, I developed the foundation of the study. The foundation of the study included the background of the problem, problem statement, purpose statement, research questions, and hypothesis. Also, Section 1 consisted of the

significance of the study, the nature of the study, theoretical framework, operational definitions, and assumptions, limitations and delimitations of the study. I ended the foundation of the study by a critical analysis of the professional literature on the topic of the study.

In Section 2, I outlined my role as the researcher, the research method and design, and participant sampling methods. Section 2 also included discussions on ethical research; data collection instruments, techniques, and analysis; and the validity of the research instruments that I will employ. I applied the components discussed in Section 2 to report the findings and future action recommendations in Section 3.

Section 2: The Project

Section 2 of this study includes the problem statement, the description of the critical components and instruments of the process of the research, and the quality of the final output. I introduce the role of the researcher, the participants of the study, the research method, and the research design. Moreover, the section includes the population sampling, data collection instruments, technique of collection, and data organization and analysis. The section also includes ethical considerations and analysis of the validity and reliability of the study.

Purpose Statement

The purpose of this quantitative correctional study was to examine the relationship between public investment spending, FDI, and budget deficit. The independent variables were public investment and FDI**.** The dependent variable was the budget deficit. The target population comprised leaders of the public agencies who held a position of decision making in the process of the management of the public budget in the LIC and LMIC. In terms of social change, the leaders of the public agencies may gain a better understanding of the relationship between the three variables of the present study. Leaders may use the results of this study to adopt a strategy to allocate public money to public investment efficiently and to promote the inflows of FDI in projects that may generate a positive impact on the communities.

Role of the Researcher

The role of the researcher in a quantitative study is to identify the participants and the sources of data, collect and analyze the data, and present findings (Kyvik, 2013).

Saunders et al. (2015) acknowledged that quantitative researchers should use empirical data to test theoretically derived research hypotheses. I used my understanding of the latest development of the quantitative research method to address the specific business problem of the present study.

In the *Belmont Report*, the U.S. Department of Health & Human Services (1979) pointed out three key ethical principles that researchers must observe in their relationships with the participants during the process of a study: (a) respect for persons, (b) beneficence, and (c) justice. Researchers observe the principle of respect for persons when they recognize the importance of freedom of choice (Saunders et al., 2015). Beneficence involves the actions researchers take to ensure the well-being of participants (Patton, 2015). Justice refers to the belief that researchers should fairly consider the risks and benefits of the study and anticipate the eventual externalities (Bromley et al., 2015). Although there were no participants in the present study to consider the principle of respect for persons and beneficence, I observed the principle of justice by assessing and focusing on the benefits of the present study, especially in terms of social change.

According to Greaney et al. (2012), there is no need for informed consent to take place in collecting secondary data when the sources are official and accessible to the public. The source of data for this study met Greaney et al.'s definition, so my study did not require any consent process. However, the use of secondary sources also requires a minimum of precaution to avoid biases. I conducted the process of collection and analysis of the data with rigor and attention to avoid eventual biases.

I have over 15 years of professional experience in the field of finance at different public positions of public finance management. I have been a senior minister of finance and have served as a country governor for international financial organizations such as the World Bank, International Monetary Fund (IMF), and the West African Development Bank. In those positions, I have developed, implemented, and overseen many public policies of public finance management, and specifically policies that related to the three variables of the present study. Therefore, my background has a relevant link to the present research. Guo (2015) recommended that quantitative researchers create an opportunity for interaction with the participants and to be professional and objective in the collection of the data. Although there were no participants in the present study, I observed the principle of objectivity and avoided influencing the analysis by my professional experiences.

Participants

The most critical requirement when selecting research participants is to ensure alignment with the research question (Saunders et al., 2015). Researchers must establish selection criteria that have a relevant link with the topic and the research question (Watson, 2015). Furthermore, Denzin and Lincoln (2015) recommended establishing a respectful relationship with the participants and being fair and honest with them. There were no participants in the study because the data needed came from official and publicly accessible secondary sources. Watson (2015) recommended researchers use secondary data to observe rigor and objectivity to avoid manipulating of information. I collected secondary data from the website of the World Bank. To ensure the robustness of the

findings, I collected data from the 2019 annual report of the World Bank, which is the most recent publication available and likely gave the most relevant information about the variables.

Research Method and Design

Research Method

The first research approach I explored for this study was the quantitative method. The quantitative research method allows researchers to use measurable variables from consistent processes and procedures test hypotheses and address research questions (Saunders et al., 2015). Researchers employ the quantitative research method to examine relationships between variables in the form of correlation or comparison (Frels & Onwuegbuzie, 2013). In the quantitative method, researchers use numerical data representing independent and dependent variables to respond to research questions and hypotheses to address a business problem (Yilmaz, 2018). Researchers use correlation analysis to examine the relationship between independent and dependent variables (Faul et al., 2009). My aim in this study was to examine the relationship between public investment, FDI, and budget deficit, so the quantitative method with a correlation analysis was the most appropriate.

Researchers use the qualitative method to answer how and why questions by using narrative input as the primary data collection source and principles of deductive reasoning (Yin, 2018). Moreover, quantitative studies imply some essential aspects such as participant observation, field study, and discovering and mapping multiple

perspectives to gain a better understanding of a phenomenon (Gay et al., 2009), which did not apply to the present study. Therefore, the qualitative method was not appropriate.

The mixed method is a combination of qualitative and quantitative methods (Fisher & Bloomfield, 2019). Researchers use the mixed method when neither the quantitative nor qualitative approaches can address the research questions individually (Faul et al., 2009). The quantitative method was sufficient to address my research questions and hypotheses without the support of a second research method (see Saunders et al., 2015). Because there was no need for a combination with a second research method, the mixed method approach was not appropriate.

Research Design

The three research design choices for a quantitative study are (a) experimental design, (b) quasi-experimental design, (c) and correlational or nonexperimental design (Zellmer-Bruhn et al., 2016). Researchers use an experimental design to explore the cause-and-effect relationship between variables (Watson, 2015). An experimental design includes a control group and an experimental group (Saunders et al., 2015). A researcher assigns subjects randomly to either group (Watson, 2015). Researchers using the experimental design can manipulate a specific independent variable to determine what effect the manipulation would have on dependent variables (Klenke, 2016). There were not control and experimental groups for the present study. Moreover, I did not need to manipulate data. Therefore, the experimental design was not appropriate.

Researchers use quasi-experimental design when they seek to make inferences about the cause-and-effect relationships between independent and dependent variables

(Watson, 2015). There are some similarities between quasi-experimental studies and experimental research studies; for example, both involve some controls over extraneous variables when full experimental control is not practical (Leedy & Ormrod, 2013). I did not seek to make inferences about the cause-and-effect relationship between independent and dependent variables in the present study. Therefore, experimental, and quasi-experimental designs were not appropriate for this study.

Researchers use a correlational design for efficient examination of relationships between variables using numeric data (Watson, 2015) to address stated research questions and hypotheses (Faul et al., 2009). In a correlational design, the researcher determines how a change in one variable correlates with another variable (Watson, 2015). Still, correlation does not allow researchers to establish a cause-and-effect relationship, with the possibility of manipulation of variables and the use of random sampling (Saunders et al., 2015). In this study, I sought to examine the relationship between independent and dependent variables. Therefore, the correlational design was the most appropriate design to address the research question of this study.

Population and Sampling

The population of a study is a group of individuals sharing the same characteristics (Yin, 2018). The target population of this study included the LIC and LMIC. The LIC have a per capita GNI of less than $1,036, and the LMIC have a per capita GNI between $1,036 and $4,035 (World Bank, 2019). The 2019 annual report of the World Bank, which is latest report available that provides information on per capita GNI, revealed a total of 26 LIC and 50 LMIC (see Appendix A). The population of the

study comprised the LIC and the LMIC as noted in the 2019 annual report of the World Bank.

The impossibility of contacting every person in a large population causes researchers to use sampling methods (Yin, 2018). A sample refers to the selected elements from a population for a study (Saunders et al., 2015). Researchers use samples when the size of a population is so large that interacting with everyone is not possible (Watson, 2015). Because sampling consists of choosing only a few individuals for a study that will be generalized to the whole population, researchers must use the appropriate sampling approach to avoid possible biases that may affect the quality of the findings (Aggarwal & Ranganathan, 2017). Palinkas et al. (2015) advised using the approach to sampling that most closely matches the objective of the study and the nature of the study.

There are several different approaches to sampling. The most common approach is random sampling, in which researchers select individuals from a population at random which gives the same probability for everyone to be part of a sample (Tyrer & Heyman, 2016). Researchers use stratified sampling to ensure equal representation of the population in the sample when they can identify and divide the sample into strata (Yin, 2018). Cluster sampling is appropriate when there are different identifiable groups in a population that is large (Tyrer & Heyman, 2016). Finally, researchers may choose purposeful sampling and snowball sampling when probability sampling (i.e., random, stratified, and clustered samplings) is not applicable (Saunders et al., 2015). Seventy six cases formed the population of the present study and I considered the entire population

for the study. As the sample and the population were the same, I did not need to refer to a particular sampling approach; however, a G*Power analysis was necessary. According to Green and Salkind (2017), researchers use G*Power analysis to determine the appropriate sample size for a multiple linear regression. I ran a G*Power analysis to determine the appropriate sample size for this study. I used two independent predictor variables and a priori power analysis, assuming a moderate effect size (f = .15) and alpha = .05, with a minimum power of .80 and a maximum power of .99. The resulting minimum sample size was 68 cases to achieve a power of .80, and the maximum sample size to achieve a power of .99 was 146 cases (see Appendices B and C). Therefore, 76 LIC and LMIC was an appropriate sample size for the study. When the population and the sample are the same, there is no risk of bias that can result from the sampling method (Calmettes et al., 2012).

The data were from secondary official sources. For each country in the study, I collected data from the 2019 annual report of the World Bank, which was the latest publication available and was likely to give the most relevant information about the variables. According to the standards of the national accounts set up by the World Bank and IMF, the data for each variable were in relative terms that represented a percentage of GDP. Saunders et al. (2015) recommended using bootstrapping when there is a violation of a statistical assumption that can result from the sampling method of the data collection approach. As there was no need for a sampling method in the present study and the data were from credible official sources, I did not need to use bootstrapping to resample data when testing the research hypothesis.

Ethical Research

According to Saunders et al. (2015), ethical considerations of a study include the protection of sensitive data, respect for the study population, and approval to protect the participant. The present study did not require human involvement and sensitive or confidential data. I collected data from secondary official sources, which, according to Connelly (2014), do not require the consent of a stakeholder. I complied with the guidelines of Walden University and use necessary ethical considerations in the conduct of the study and the confirmation process. I pursued the approval of the Institutional Review Board and follow the orientations to enhance scholar compliance and adherence to the institution's rubric requirements.

Other ethical considerations in a study include the storage of data on an external hard drive for secure storage (Connelly, 2014). Yin (2018) recommended securing data against unauthorized access to preserve participants. Although I did not have participants to protect in this study, I saved all the data in secured devices and secure and follow the same process as if there were participants in the study. Khan (2014) recommended saving and protecting files on hard drive with a password for five years after the study's completion. I saved and protected files on the hard drive with a password until the deletion occurs 5 years after the study's completion.

Data Collection Instruments

For this study, I did collect secondary data from the website of the World Bank. Only financial performance instruments were appropriate for the present study. Public investment, FDI, and budget deficit are three essential components of a country's

economic and financial performance (Cingolani, 2019). The management of public finance is subject to a set of indicators that serve as a guide to appreciate the wealth of an economy and to judge the quality of the political option of each government. Beyond the economic perception that seems to be the general trend when talking about those three components, the performance indicators resulting from each one of those variables are also important for management decisions (Makuyana & Odhiambo, 2016).

According to Lerner (2013), the ratios of the public investment, FDI, and budget deficit are three critical indicators of the performance of an economy and traduce the perspective of the public finance management. The ratios are in terms of the percentage of the gross domestic product (GDP; Hayo & Neumeier, 2016). The ratio of the public investment (PI) is equal to 100* annual amount of public investment/annual amount of GDP. The ratio of FDI is equal to 100* total yearly amount of FDI/total annual amount of GDP. The ratio of budget deficit (BD) is equal to 100* (total annual revenues-total annual public spending)/total annual amount of GDP. The data were already available as ratios in the sources from which I collected them. Therefore, there were not a need for further calculations and data collection instruments.

Data Collection Technique

The data for public investment, FDI, and budget deficit was computed and reported on an annual basis in the websites of the World Bank for each of the 76 cases, forming the population and the sample of the study. As a result, there was no need to use data collection approaches, such as a survey or observation. The performance of a pilot study was not required for the present research study because the data were from the

international and regional organizations that have a reliable system of data production to generate trustworthy information widely accessible to the public.

After completing the data retrieval for the study, the saving of the information retrieved on an external drive was the first safety precaution. The storage of the data for five years after completion of the study is another safety measure (Shaw, 2017). Organizing the data required constant storage of all rough drafts and other useful material. I saved the data on an external drive for five years after the study completion.

Data Analysis

The research question of this study was as follows: What is the relationship between public investment spending, FDI, and budget deficit?

H_0: There is no statistically significant relationship between public investment spending, FDI, and the budget deficit?

H_1: There is a statistically significant relationship between public investment spending, FDI, and budget deficit?

The examination of such a correlational relationship implied the use of IBM SPSS version 27.0 for Windows. This software offers the appropriate statistical package and table results complying with the APA format, provides Pearson's correlation coefficient analysis, multiple regression analysis, and descriptive statistics to describe the general distribution by frequency and percentage (Green & Salkind, 2017). According to Brezavscek et al. (2014), SPSS is the most effective software to analyze large data sets that predict a linear relationship between two or multiple independent variables and dependent variables. SPSS offers the advantage of using descriptive statistics to identify

central tendency measures, such as minimum, mean, maximum, and standard deviation (Green & Salkind, 2017). Those measures of tendency are essential for the analysis during the statistical test. The three variables were in the form of ratios.

The variables in the present study included the two independent variables (public investment and FDI), and the dependent variable (budget deficit). Green and Salkind (2017) recommended the use of linear regression for studies in which there are more than two quantitative variables and the in which there is a clear distinction between the independent and dependent variables, but there are different forms of regression. Researchers use hierarchical multiple regression analysis when they have control of the variables (Watson, 2015). When the aim of a study is to identify the independent variable with the strongest relationship with the dependent variable, stepwise multiple regression analysis is the most appropriate (Elzamly & Hussin, 2014). Green and Salkind (2017) recommended the bivariate multiple regression analysis to researchers who aim to predict the effect of one variable versus multiple variables. Multiple linear regression analysis is the statistical technique to evaluate the relationship between multiple independent variables and the dependent variable to explain variances among independent variables and their relationship to a dependent variable, and to evaluate explanatory variables when used to predict the outcome of a response variable (Chen et al., 2014). When the aim of a study is to identify the independent variable that has the strongest relationship with the dependent variable, stepwise multiple regression analysis is the most appropriate statistical technique. My aim in this study was to evaluate the extent to which public

investment and FDI predict budget deficit. Therefore, hierarchical, stepwise, and bivariate multiple regression analysis were not appropriate for this study.

Multiple linear regression analysis will imply the validation of five critical assumptions, which are multi-collinearity, normality of errors, homoscedasticity, linearity, and independence of error (Guo & Fraser, 2014). If there is a violation of the assumptions the tests can lead to erroneous findings: Type 1 errors and type 2 errors (Green & Salkind, 2017). It is essential to carefully assess each of the assumptions and analyze the data and the results of the test. I used SPSS to test those five assumptions associated with multiple regression analysis. There was any serious violation of assumption. Therefore, I did not need to proceed with an alternative that negates violations of the multiple linear regression. According to Chen et al. (2014), the activities to perform if there is a violation in case of violations of assumptions are (a) using a different linear model, (b) performing transformations to correct non-normality, (c) non-linearity, and multi-collinearity, (e) removing outliers, and (f) using weighted linear regression model. Saunders et al. (2015) recommended bootstrapping in case of violation of the assumption of data violation.

Multicollinearity occurs when there is a correlation between two or more independent variables (Saunders et al., 2015). The assumption of multiple regression is that there is no collinearity among independent variables (Zainodin & Yap, 2013). There is multicollinearity if a correlation coefficient is ≥ .01, and a tolerance close to 0 means there is multiple collinearities (Green & Salkind, 2017). In this study, I used a cutoff of 0

and assume that there is no multicollinearity among the independent variables if the tolerance is >.1

An assumption of normality of errors occurs when there is a normal distribution of the variables of the sample of the population (Green & Salkind, 2017), and a violation of normality may induce biases in the inferential statements from the researcher (Imai et al., 2013). In this study, I assessed normality by plotting data in SPSS. In a normal distribution, data are close to the diagonal line. However, if data is far to the diagonal line in no-linear positions there is not a normal distribution. Bootstrapping technique is a means to address the violation of the assumption of normality (Saunders et al., 2015).

Homoscedasticity is the assumption when the variance of error terms is similar across the independent variables (Saunders et al., 2015). Homoscedasticity refers to the situations in which all the values of the predictor variable have the same variance around the regression line (McCusker & Gunayadin, 2015). Violation of homoscedasticity occurs if there are growing dispersions of the residuals with larger or lower values of outliers, the use of an enhanced data collection technique, and the omission of a variable from dataset care factors (Green & Salkind, 2017). Standard errors and wrong inference can result from a violation of homoscedasticity (Saunders et al., 2015). I used a scatter plot chart in SPSS to assess homoscedasticity visually. I considered the scores above the regression line as a normal distribution.

Linearity is the assumption of expectation that the value of the dependent variable will be a linear function of each independent variable, when the other variables remain the same (Green & Salkind, 2017). When using the linearity, researchers assume that the

relationship between the research variables is linear (Harrell, 2015). There is a linear relationship when a change of the standard deviation in any of the parameter values induces the same change to the dependent variable (Green & Salkind, 2017). To assess the assumption of linearity, I used SPSS to calculate the changes in the standard deviation and the dependent variable.

Independence of errors refers to a situation in which the distribution of errors is random without influence from errors in existing observation (Harrell, 2015). Independence of errors is the assumption that researchers check the probability that a standalone variable may have in other variable in the case of error (Watson, 2015). I used SPSS calculation to test the independence of errors if necessary. The data for the present study were certified data from credible international organizations; therefore, the likelihood of the occurrence of error is low and I will not be necessary to proceed with the test of the assumption of independence of errors.

Data cleaning is essential to achieve the quality of a study (Saunders et al., 2015). Data cleansing or data cleaning is the process of detecting and correcting (or removing) corrupt or inaccurate records from a record set, table, or database and refers to identifying incomplete, incorrect, inaccurate, or irrelevant parts of the data and then replacing, modifying, or deleting the dirty or coarse data (Cai & Zhu, 2015). The data for this study were from credible secondary sources. I did not need to proceed a data cleaning as if it was data collected from a survey.

Study Validity

Reliability and validity are the two crucial components of quality research (Saunders et al., 2015). Reliability refers to the necessity to produce consistent results with a tool or an assessment instrument and validity refers to the degree of accuracy of an instrument of measure (Kelly et al., 2016). Validity and reliability are the two criteria that quantitative researchers establish to ensure rigor and trustworthiness of the findings (Claydon, 2015). Heale and Twycross (2015) noted that although research findings are significant, it is critical not to ignore rigor of the research. Heale and Twycross (2015) recommended quantitative researcher to use homogeneity, convergence, and evidence of science the types of evidence to measure the validity and reliability of quantitative findings.

Since the present study was quantitative, only the criteria of validity will be applied. Validity includes internal validity and external validity (Claydon, 2015). There is internal validity when researchers can simultaneously eliminate viral hypotheses and inference causal relationships among variables, without a high risk of error (Green & Salkind, 2016). Therefore, whether the study is experimental or nonexperimental, in the internal validity, researchers focus on whether the independent variable predicts or is the cause of the dependent variable. This study was a nonexperimental design (i.e., correlation) and threats to internal validity was not applicable.

Although the threat of internal validity did not apply to this nonexperimental study, there was a need to focus on the threats to statistical conclusion validity. Statistical conclusion validity is a measure of how reasonable research or experimental conclusion

is (Saunders et al., 2015). Threats to statistical conclusion validity are conditions that reject the null hypothesis when it is true and accept the null hypothesis when it is false. The threats to statistical conclusion validity included (a) reliability of the instrument, (b) data assumptions, and (c) sample size (Heale & Twycross, 2015).

The reliability of the instrument is the degree to which the results obtained by measurement can apply to similar studies (Bolarinwa, 2015). One of the crucial requirements for the instruments of data collection in research studies is the instruments' reliability or consistency of eliciting data from participants. Cronbach's α is the most used test by researchers to determine the reliability of an instrument (Heale & Twycross, 2015). Researchers use indices of internal consistency of instruments to infer reliability and report indices as reliability of coefficients using a scale of 0 to 1(Heale & Twycross, 2015). Reliability coefficients closer to 1 indicate the high internal consistency of the instruments and thus an indication of reliability. Therefore, I analyzed the independent variables' coefficient values to infer the indices of internal consistency. The financial data I collected from the official sources for this study are under law and regulations, including the national fiscal laws of the countries forming the population and the sample of the study apply to their fiscal policies. The existence of legal frameworks for the financial data used in the study was a support to the assurance of the content validity of the instruments. The assumptions about a multi linear regression are multicollinearity, normality of errors, linearity, homoscedasticity, and independence of errors. A violation of those assumptions could cause serious biases to the results of the study and lead me to inaccurate statistical inference. Depending on the assumption, I used probability or

descriptive statistics to check the different assumptions. For example, there is multicollinearity if a correlation coefficient is ≥ .01, and tolerance close to 0 means there is multiple collinearity (Green & Salkind, 2017). In this study, I used a cutoff of 0 and assume that there is no multicollinearity among the independent variable if the tolerance is >.1. I used the SPSS graphics and especially, scatter plot to check the assumption of normality, homoscedasticity, and independence of errors by analyzing the dispersion of the observation to the central line. For the assumption of linearity, I used the SPSS calculation to calculate the reaction of the observed value to any change in the standard deviation. If a change of a given number to the standard deviation leads to the same number of changes in the observed variable, then I would conclude that there is linearity.

The sample size can harm the validity of the study (Yin, 2018). A larger sample size is a factor in the mitigation of sampling errors (Uronu Lameck, 2013). Therefore, the size of the population of the study of 76 LIC and LMIC will be a validity issue. Although the literature supports larger samples for quantitative studies, Gay et al. (2009) posited if a population is less than 100, there should be no sampling. The study analysis of the whole number of the LIC and LMIC as it resulted from the 2019 report of the World Bank assisted in mitigating the low number of individuals in the study since all the selected countries comprise the actual population-related of the research.

External validity refers to the generalizability of the results to the population sample (Saunders et al., 2015). When the findings of a study cannot apply to other contexts than the context of the study, then the study has limited external validity (Saunders et al., 2015). The sampling method is essential in the research process to

ensure external validity, which determines the generalizability of the results (Watson, 2015). In the present study, I selected all the available units of the study (the LIC and LMIC). There was not a problem with sampling since the population and the sample are the same. The findings will be generalizable in other contexts with the integration of a mediator variable that reflects each new context to which the study will be applied.

Transition and Summary

The purpose of this study quantitative correlational study was to examine the relationship between public investment, FDI, and budget deficit. The study covered the 76 LIC and LMIC as it resulted from the 2019 report of the World Bank. From the analysis on the data on the variables for each one of the studies, I made the inference to answer the research question and confirmed or infirmed the hypothesis.

In this section, I described my role as a researcher, and the need to avoid biases and to observe ethical practices throughout the process. I discussed the target population and the sampling. I exposed the sources of data, data collection instruments, data collection techniques, and data analysis. I explained the reason for selecting multiple linear regression to test the hypothesis regarding the relationship between public investment, FDI, and budget deficit.

In Section 3, I provided an overview of the research study, the findings of the study, and the interpretation and analysis of the results. I exposed how I intend to apply the results to real-life applications and strategies for implementing change in the field of public finance. Finally, I made recommendations for future research as well as personal research reflections of this study.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this quantitative correlational study was to examine the relationship between public investment, FDI, and budget deficit. The independent variable was public investment and FDI. The dependent variable was budget deficit. The study was conducted on the 76 LIC and LMIC that represented the entire population of the geographical scope of the study. To have an expressive value of each variable, I collected data from 2019, which represented the latest publication of the World Bank about the classification of the countries. Results of the multiple linear regression analysis showed that the model was able to predict budget deficit significantly, $F(2, 73) = 1405$, $p < .001$, and $R^2 = .72$. Results also revealed that public investment was the only significant predictor of the budget deficit, with $t = -1.279$ and $p < .003$.

In this section, I present the findings of the study. First, I present the applications to professional practice, the implications for social change, and recommendations for action. Second, I make recommendations for further research and reflect on my experience in the doctoral study process. Finally, I test the assumptions using SPSS Version 27.

Presentation of the Findings

Before the statistical testing, I evaluated the reliability of the model using Cronbach's alpha. The reliability of the variable is acceptable. The overall level of reliability for the model is .78. Cronbach's alpha for public investment, FDI, and budget deficit are .702, .721, and .858, respectively. Although the accepted value of Cronbach's

alpha is .7, values above .6 are acceptable (Taber, 2018). Cronbach's alpha for each of the three variables of the study was above .7, which is the accepted value. The study included 76 countries, which represented the entire population of the geographical scope of the study. Table 1 depicts the values of Cronbach's alpha for each variable.

Table 1

Reliability Test

Variables	Cronbach's alpha
Foreign direct investment	.721
Budget deficit	.858
Public investment	.702

Note. $N = 76$

Tests of Assumptions

I tested and evaluated each assumption, using SPSS, to ensure there was no violation. The six assumptions I tested were multicollinearity, outlier, normality, linearity, homoscedasticity, and independence of residuals. It is paramount to test the assumptions of multiple regression analysis to ensure there is no violation that could induce data bias and affect the findings negatively (Green & Salkind, 2017).

Multicollinearity

There is multicollinearity when tolerance value levels ($1 - R^2$) are less than .01, and the variance inflation factors (VIFs), which is the reciprocity of the tolerance, are greater than 5 (Green & Salkind, 2017). For the present study, I used a cutoff of 0 and assumed there was no collinearity if the tolerance was greater than .1. As depicted in Table 2, the results revealed that there is no evidence of collinearity between the

independent variables. Therefore, I did not need an additional test such as the bootstrap process.

Table 2

Multicollinearity Statistics

Variable	Tolerance	VIF
Public investment	.93	1.075
FDI	.98	1.020

Outlier, Normality, Linearity, Homoscedasticity, and Independence of Residuals

To evaluate outliers, normality, linearity, homoscedasticity, and independence of residuals, I analyzed the normal probability plot (P-P) of the regression standardized residual and the scatterplot of the standardized residuals. Figures 1–2 show that there was no major violation of assumptions. Figure 1 shows that the data points do not have a major dispersion from the diagonal from the bottom left to the top right. Therefore, there was no major violation of the assumption of normality. Figure 2 does not show the existence of a clear and systematic pattern in the scatterplot. The number of cases in the study, which represented the entire number of cases in the scope of the study, is the main reason that some of the points are relatively far from others. It was therefore reasonable to conclude there was no violation of the assumption. I used an outlier histogram (see Figures 3–5) to test for outliers. The figures show no outlier, which means that the assumption of the outlier was not violated.

Figure 1

Normal Probability Plot (P-P) of the Standardized Regression

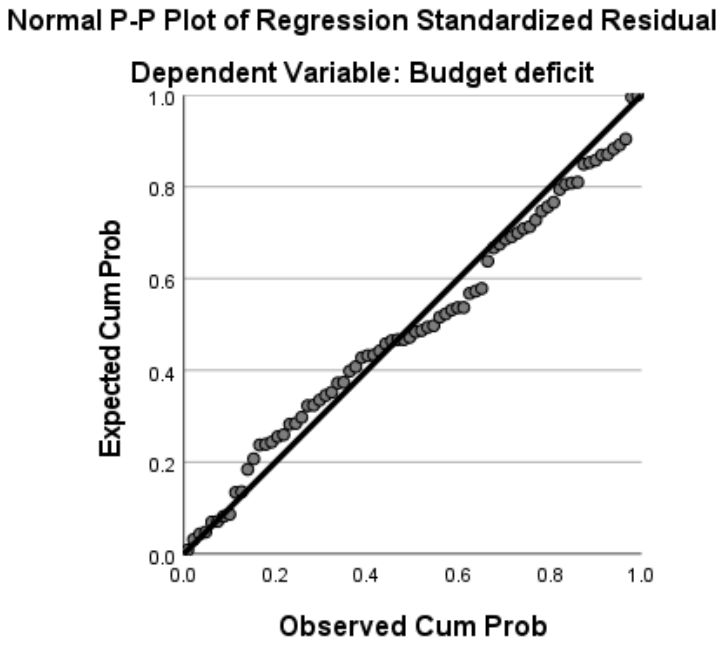


Figure 2

Scatterplot of the Standardized Residuals

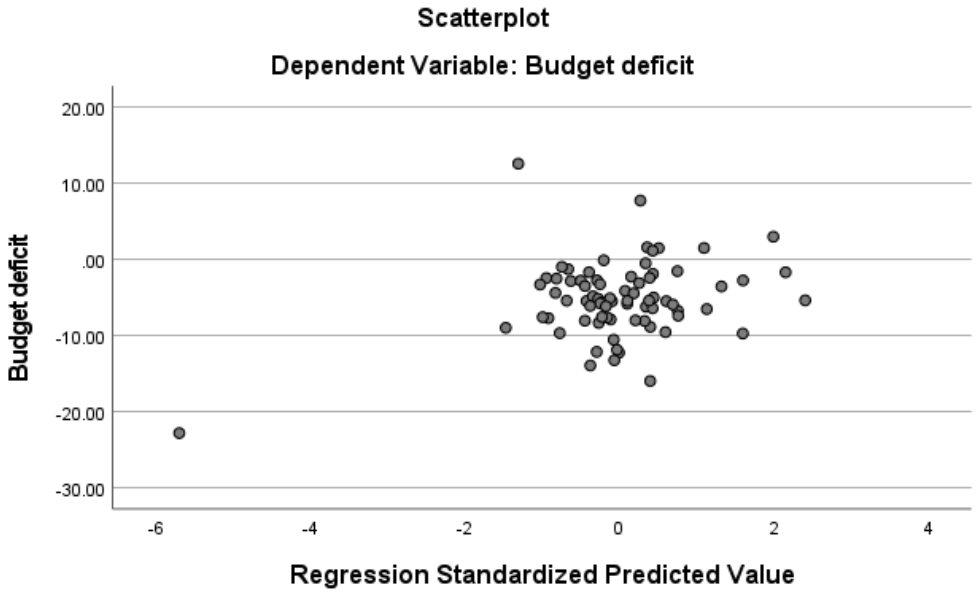


Figure 3

Histogram of Outlier for Public Investment

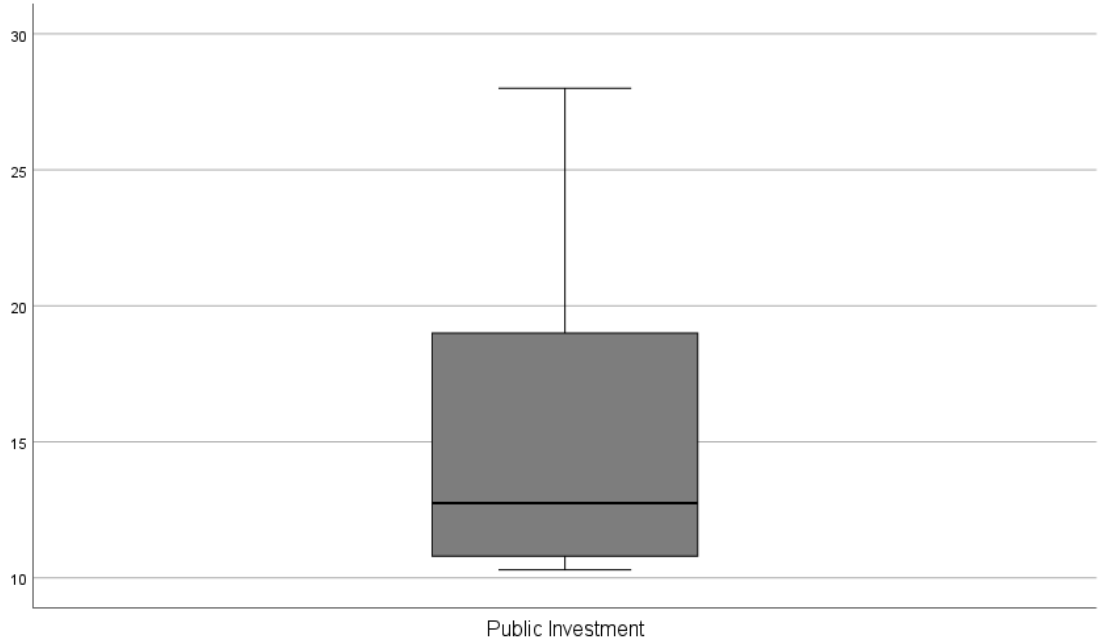


Figure 4

Outlier Histogram for FDI

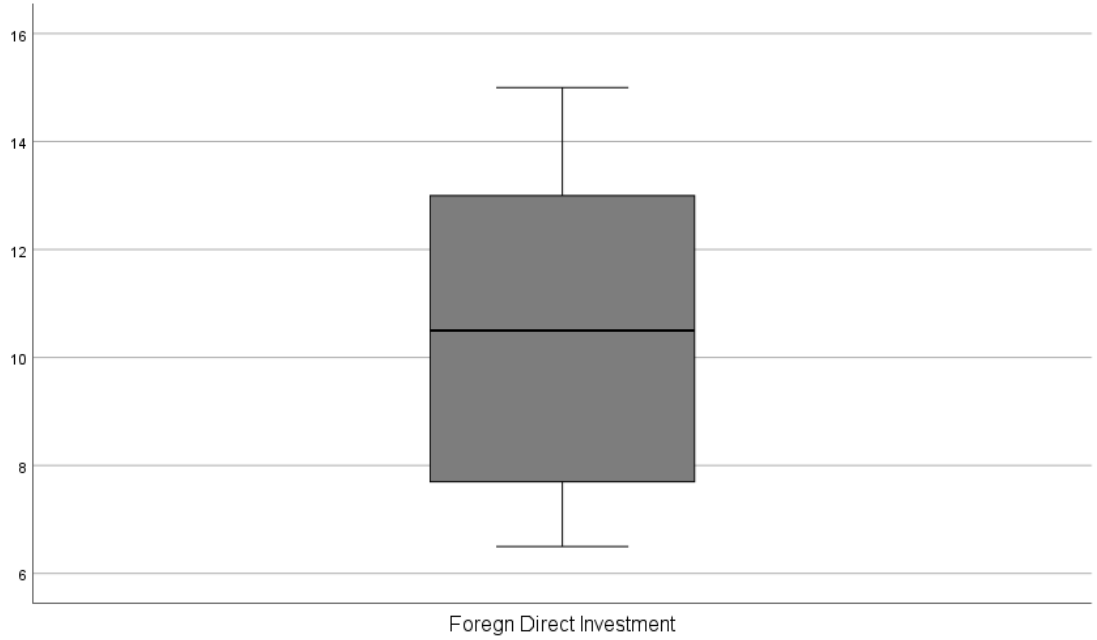
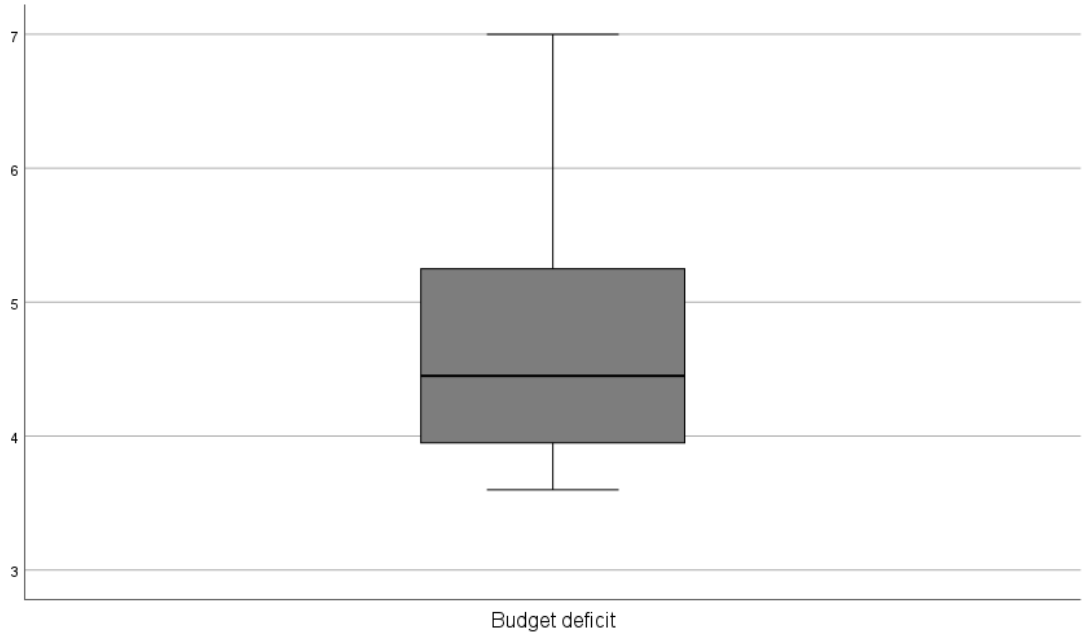


Figure 5

Histogram of Outlier for Budget Deficit



Although the results above were sufficient to confirm there was no serious violation of the assumption, I also ran the Kolmogorov-Shapiro test of normality. The results confirmed that FDI is not a statistically significant predictor of the budget deficit. However, the values of significance for public investment were $p = .066$ for Shapiro-Wilk and $p = .081$ for Kolmogorov-Smirnov. I also assessed the normal (Q-Q) plot for each variable, and the results showed there was no major violation of the assumption of normality that contrasted with the overall result of the model. All the points were close to the diagonal except one point on the (Q-Q) plot of public investment and budget deficit, which did not represent a major violation. Table 3 and Figures 6 to 8 depict the results of the additional test of normality.

Table 3

Test of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
FDI	.201	76	.320*	.908	76	.430
Public investment	.382	76	.004	.858	76	.002
Budget deficit	.106	76	.310*	.722	76	.235

[a] Lilliefors significance correction.
* A lower bound of the true significance.

Figure 6

Normal (Q-Q) Plot of Public Investment

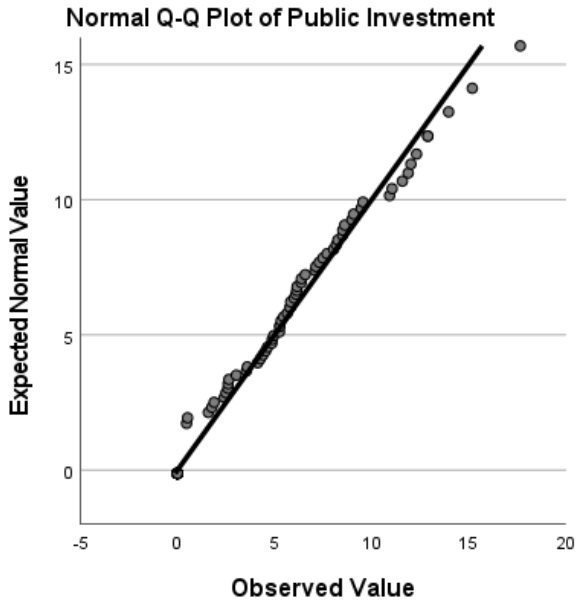


Figure 7

Normal (Q-Q) Plot of FDI

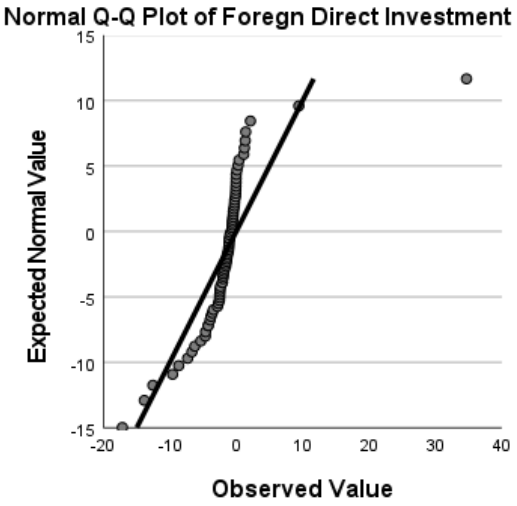
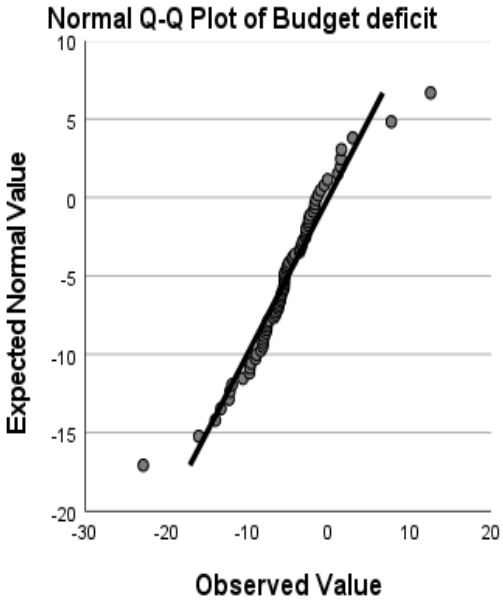


Figure 8

Normal (Q-Q) Plot of Budget Deficit



Descriptive Statistics

I conducted this study on the LIC, which are countries that have per capita GNI of less than $1,036, and the LMIC, which are countries that have per capita GNI between $1,036 and $ 4,035. Therefore, the study included a given number of countries (N = 76) that represented the entire population of the geographical scope of the study. The data were secondary data gathered from sources available to the public. Table 4 shows the descriptive statistic of the independent and dependent variables.

Table 4

Mean and Standard Deviation for Predictor and Criterion Variables

	Mean	Std. deviation
Budget deficit	-5.199	.5923
Public investment	5.598	.8560
FDI	6.654	.6249

Note. N = 76

Inferential Results

I used multiple linear regression, alpha = .05 (two-tailed), to examine the relationship between public investment, FDI, and budget deficit. The independent variables of the model were public investment and FDI. The dependent variable was budget deficit. The null hypothesis was as follows: There is no statistically significant relationship between public investment spending, FDI, and the budget deficit. The alternative hypothesis was as follows: There is a statistically significant relationship between public investment spending, FDI, and budget deficit. Prior to the data analysis, I tested the assumption of multicollinearity, linearity, normality, outlier, and independence of residuals to ensure there was no major violation that could harm the robustness of the

findings. There was no major violation of the assumptions. The multiple linear regression analysis showed that the overall model was able to predict budget deficit significantly, $F(2, 73) = 14.052$, $p = .000$, and $R^2 = .72$. The regression analysis also showed that public investment was the only significant predictor of the budget deficit, with $t = -1.279$ and $p = .003$. $R^2 = .72$ indicated that approximately 72% of the variation in the budget deficit accounts for its linear regression with public investment and FDI. Although public investment is a statistically significant predictor of the budget deficit, $R^2 = .72$ indicated that only a combination of the two independent variables significantly predicts the budget deficit, but standing alone, each independent variable had a limited effect of prediction on the dependent variable. Table 5 shows the regression summary.

Table 5

Regression Analysis Summary for Predictor Variables

	Unstandardized coefficients		Standardized coefficients		
Variable	B	Std. error	Beta	*T*	Sig.
(Constant)	-6.516	.907		5.124	.001
Public investment	.434	.133	-.144	-1.279	.003
FDI	-.267	.100	-.299	-2.657	.010

Note. $N = 76$.

Analysis Summary

The purpose of this quantitative correlation study was to examine the relationship between public investment, FDI, and budget deficit. The research design was multiple linear regression. The value of significance and the confidence level for the study were .05 and 95%, respectively. I tested the reliability of the study using Cronbach's alpha and the value showed that the level of reliability of the study was acceptable, with a

Cronbach's alpha of .858 for budget deficit, .702 for public investment, and .721 for FDI. The accepted value of Cronbach's alpha is .7, but values above .6 are reasonable (Taber, 2018).

I tested the five key assumptions surrounding multiple regression using different approaches. I tested multicollinearity using the values of tolerance and the VIF. According to Green and Salkind (2017), there is collinearity if the tolerance value levels are less than .1 and the values of the VIF are greater than 5. The tolerance value levels were greater than .1 and the VIF value levels were less than 5 for both variables. I tested the assumption of linearity, normality, homoscedasticity, and independence of residuals using a combination of descriptive statistics with tables and figures. Although the results showed no serious violation of the assumptions, I ran the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality, and the results also confirmed no major violation. Therefore, there was no evidence of a violation for any of the five assumptions.

The lack of evidence of a violation of the assumptions supports the trustworthiness of the results of the study. The multiple linear regression analysis showed that the model was able to predict budget deficit significantly, $F(2, 73) = 14.052$, $p < .001$, and $R^2 = .72$. $R^2 = .72$ indicated that approximatively 72% of the variation in the budget deficit accounts for its linear regression with public investment and FDI. The research question was as follows: What is the relationship between public investment, FDI, and budget deficit? The results provided sufficient evidence to respond that there is a linear relationship between public investment, FDI, and budget deficit. Also, the results support the rejection of the null hypothesis and confirm the alternative hypothesis, which

is as follows: There is a statistically significant relationship between public investment spending, FDI, and budget deficit.

Theoretical Discussion of the Findings

The results of the study revealed a statistically significant relationship between public investment, FDI, and budget deficit. Such a result is congruent with Paul and Singh (2017), who posited that investing in public projects in the sectors that facilitate private initiatives may induce an inflow of FDI and lower the budget deficit. Bosanac and Požega (2016) noted that public leaders may address a budget deficit by investing in infrastructure, such as roads, energy, and information technology, and by developing public–private partnerships. Bosanac and Požega noted that a combination of public investment facilitates private investment and the development of a public–private partnership may decrease the level of budget deficit. Bosanac and Požega's research aligns with the finding of the study. The results of the study are also congruent with Keynes's general theory, which is the theory that grounded the present study. According to Keynes (1936), public leaders may overspend in public investment to generate economic growth and raise additional capital abroad when the budget deficit becomes high. Keynes implicitly recommended a combination of public investment and FDI as a strategy to reduce the budget deficit.

Also, the results revealed a positive correlation between public investment and budget deficit (t = -1.279, p< .003). Such a result serves as evidence to support the positions of theorists who think that overspending on public projects may lead to a high level of debt and deepen the budget deficit. For example, Ajudua and Davis (2015)

acknowledged that public investment affects economic growth positively but warned about the consequences of uncontrolled public spending that may lead to further economic problems. Furthermore, Laosebikan et al. (2018) pointed out that borrowing and budget deficits lead to high interest rates and financial crowding out. A crowding out may occur when public leaders increase borrowing from the private sector to finance higher social investment (Hussain & Haque, 2017). Investing in public projects can have a positive impact on economic growth in the long term; however, when public leaders increase borrowing from the private sector to finance public projects, interest rates increase, which increases the budget deficit as a result (Maurya & Singh, 2017). However, Yovo (2017) posited that investments relate to a productive sector and may generate revenues in the years following an investment to reduce the extent of the budget deficit. Therefore, Yovo acknowledged implicitly the possibility of an inverse correlation between public investment and budget deficit. Yovo's position contrasts with the findings of the present study but is congruent with the logic driving Keynes's general theory, which grounded the theoretical framework of the study.

The results revealed a negative but not statistically significant correlation between FDI and budget deficit ($t = –2.657$, $p < .010$). Although the correlation is not statistically significant, the negative coefficient indicated that the inflow of FDI may reduce the budget deficit. Such a result supports Keynes's general theory. According to Keynes (1936), public leaders may use a budget deficit to create economic growth and raise additional capital abroad when the use of the budget deficit induces economic issues. In stating such a position, Keynes acknowledged implicitly that FDI correlates inversely

with budget deficit. Babu et al. (2020) and Malik (2015) stated that the inflow of FDI in an economy may reduce public investment, and public leaders may allocate additional revenues to new projects that may improve communities' living conditions, thereby supporting the finding of the study at that point. Sriyalatha and Torii (2019) posited that when public leaders increase public debts to develop public projects, the interest rate increases, which limits both national and foreign private investment. Therefore, Sriyalatha and Torii supported the negative relationship between FDI and budget deficit.

Applications to Professional Practice

The purpose of this quantitative correlational study was to examine the relationship between public investment, FDI, and budget deficit. The independent variable was public investment and FDI. The dependent variable was budget deficit. The findings provided strong evidence to reject the null hypothesis because the overall model showed a statistically significant relationship between public investment, FDI, and budget deficit. Public leaders, especially those who manage public finance and the economy, may use the findings to initiate more relevant fiscal and budgetary policies. According to Ahmad and Rahman (2017), public investment in the sectors that improve the business environment and in infrastructures that support and facilitate economic activities may induce an inflow of FDI. Furthermore, Makuyana and Odhiambo (2016) emphasized that a combination of public investment and FDI may reduce the propensity of public leaders to borrow and thus reduce the budget deficit. With a better understanding of the relationship between public investment, FDI, and budget deficit, public leaders can improve their decisions regarding the allocation of public resources. Public leaders can

develop relevant combinations of public investment and FDI to create economic growth, which can increase public revenue and reduce the budget deficit.

The findings from the study may affect the process used by the authorities of the LIC and LMIC to make regional laws and may serve as guidelines for business leaders beyond the geographical scope of this study. As explained in this study, the eight countries involved in the present study follow the same economic, fiscal, budgetary, and trade policies because they are part of the same economic union. However, only a few of the countries in the world meet the standards set in the law for the most critical indicators such as the budget deficit. This may be because the lawmakers set those standards without using scientifically and practically reasonable factors. The findings from this study may help the lawmakers to use relevant factors in their decision making that may help them to initiate regional laws with more objective standard values for the most critical indicators.

Implications for Social Change

The budget deficit is an issue for public leaders and other individuals in the present and the future. In the present, the budget deficit limits the capacities of public leaders to develop more projects that can accelerate development and improve individuals' living conditions. The budget deficit compromises the chance of success for future generations, as they will have to pay the public debts resulting from loans that present authorities take to address the budget deficit. By providing findings that help to understand the relationship between public investment, FDI, and budget deficit, public leaders can improve the process of making decisions. Public leaders can use the finding

in this study to manage the budget deficit more efficiently, as they will have a better understanding of some of the predictor variables. More specifically, the findings can help public leaders to (a) avoid investing in public projects that do not have an interest for their country, (b) save public revenue, (c) improve the quality of the law, and (d) reduce public debts and increase public revenues.

The second dimension of the social change of this study is about communities and individuals. With a better understanding of the relationship between the three variables in the study, public leaders might improve their decision making and positively affect individuals and communities. Public leaders also might avoid wasting public money, create more public revenue, and reduce the public debt. Subsequently, public leaders will be able to target projects that improve the living conditions of communities and the individuals therein. For example, better allocation of the public revenue resulting from the application of the findings of the study can help to (a) develop economic and social projects (schools, hospitals, water, and energy) in the interest of the communities, (b) improve the quality of education and create jobs, and (c) reduce the burden of the present public debt on the future generation. The development of economic and social projects can positively affect living conditions and behaviors in the communities. For example, if there is more public revenue, providing electricity to communities that have never had access to modern sources of energy can lead to positive changes in lifestyle and behaviors.

Recommendations for Action

This study's overall model showed a statistically significant correlation between public investment, FDI, and budget deficit. Public investment was the only statistically significant predictor; however, FDI also had an influence on the budget deficit. The findings showed that the high and significant correlation between the independent and the dependent variables of the model resulted from the combination of the two independent variables. In terms of public policy, a combination of public investment and FDI must reduce the budget deficit (Keynes, 1936). According to Makuyana and Odhiambo (2016), a combination of public investment and FDI may reduce public leaders' propensity for borrowing and reduce the budget deficit. The fact that this study's findings revealed the contrast with such a high and statistically significant positive correlation between public investment, FDI, and budget deficit calls for a set of actions.

I have identified three major actions that may reduce the budget deficit with a combination of public investment and FDI. The actions are (a) hire independent experts to determine the objective criteria of choosing public projects and sectors of interest for FDI and the conditions of access to public debt, (b) develop a training program for stakeholders in the process of public management, and (c) revise legislation to enforce the criteria of identifying domains of interest for public investment and FDI and the conditions to access public debt. According to Bonizzi (2017), when public leaders use objective criteria to identify the domains of interest for investment, it may reduce the budget deficit over time. However, in the short term, public debt may increase. Identifying objective criteria for public investment and FDI and conditions of access to

the public debt will improve transparency in the choice of public actions and ensure a relevant combination of public investment and FDI that may negatively impact the budget deficit.

Developing a training program and enforcing the criteria are also two critical actions. The development of a training program could improve stakeholders' capacity in the management of public finance in the choice of the domains of interest for public investment and FDI. The enforcement of new legislation criteria will increase transparency, reduce the possibilities of fraud, and lower the opportunity costs of project choice. When public leaders chose public actions with lower opportunity costs, public spending and the budget deficit decreased (Mariana, 2016). The enforcement of the criteria resulting from independent experts' work will increase the spirit of duty to make the right decisions regarding stakeholders' management of the public budget. Public leaders will ensure the choice minimizes the debt burden in public revenue and reduces the budget deficit.

The implementation of the three actions requires a rigorous organization and relevant strategies. Public leaders must establish a checklist of the actions and processes needed to achieve each action, turn it into a strategy with clear goals, and gain the adherence of key stakeholders before the implementation phase. Therefore, the next step will be to work toward achieving each action. To hire independent experts, it is paramount to identify the best experts at the international level, referring to shortlists of experts whom international organizations such as the World Bank and IMF use for procurement. For the training program, it will be critical to identify many stakeholders to

train. In turn, the stakeholders will duplicate the knowledge received in their respective country. Public leaders could use webinars to oversee and evaluate the training program. Finally, enforcing the criteria identification of projects and conditions to access public debt will involve helping lawmakers to first understand what they will enforce.

Recommendations for Further Research

This study contributes to the literature on the relationship between public investment, FDI, and budget deficit. The findings help to increase understanding of the influence that public investment and FDI may have on budget deficit. However, the findings showed that the standardized coefficient *beta* of FDI in the overall model was negative (*beta* = - 2.657), but in the same model, a combination of public investment and FDI has a high positive and statistically significant correlation with the budget deficit. My first recommendation for further study is to study the relationship between FDI and budget deficit only. The second recommendation is to conduct a study to develop a deeper understanding of the influence of FDI on budget deficit by examining the partial correlation between the variables in this study.

The study had two limitations. The first limitation resulted from the fact that the data were from a secondary source and any error from the source may have led to bias in the results. The second limitation was the size of the sample, which was the same as the population of the study. The study was the 76 LIC and LMIC. According to Saunders et al. (2015), limitations are factors that induce biases in the findings of a study or limit the generality of the findings. My recommendation for further study to address the biases that may result from the sources of data is to conduct a study on the determinants of

investments and budget deficit in each country. According to Banday and Aneja (2016), a budget deficit is the difference between total public spending and total public revenue. Conducting a study on the determinants of investment and budget deficit could help to collect data from each country and to calculate the values of each variable. My recommendation to address the limitation about the size of the sample is to examine the relationship between the same variable on a wider level, especially extending the scope of the study to the upper middle income and high income countries. According to Yin (2018), studies with larger samples are likely to have more robust findings than studies with smaller samples. Conducting a study on the relationship between public investment, FDI, and budget deficit among the 76 countries in the world could lead to more relevant findings.

Reflections

This doctoral journey has been an impactful experience in my life. My aim when I decided to begin the journey was to earn a degree in an English-speaking system, especially from the United States. For someone like me with a French-speaking background, it is a critical comparative advantage to my peers of the same background in my country and my region. My aim was also to enhance my expertise in finance, which is my field of expertise. However, throughout the journey, I discovered and gained far more than my initial expectations. The doctoral journey has improved my writing skills and, in addition to the knowledge I acquired from conducting the literature review and my participation in class sessions, I have improved my skills in self-organization, time management, structuring ideas, and even in daily life. The learning-by-doing method

used at Walden University was beneficial for me. I have developed my skills in many domains that were not my domains of expertise. For example, I can run any type of test and statistical analysis with SPSS, even though I had never been strong in statistics.

I also experienced challenges trying to meet all the Walden University requirements, such as the Doctor in Business Administration rubric, the standards of the American Psychological Association publication style, and addressing different types of feedback. I also experienced working with an amazing chair in Dr. Casale with her unlimited willingness to help and to push me forward in the journey. Without her patience and her willingness to help, I, with my French-speaking background who started practicing English actively only in 2016, would not have been able to complete a doctoral degree and write a dissertation.

In addition to my experience during the journey, the findings in my study gave me a new understanding of public finance. As a practitioner of public finance through my experience as a minister of finance in my country, I had thought about the theoretical reasons that might explain why countries are not able to achieve the standard of the budget deficit despite the existence of a set standard ratio. By choosing to examine the relationship between public investment, FDI, and budget deficit, my first aim was to find scientific evidence of the influence of each independent variable on the dependent variable. The results would then help me to suggest how public leaders could use the two independent variables to manage the budget deficit more efficiently. However, the results of the study were surprising and contrasted with my preconceived ideas. I was aware that public investment, as a critical component of public spending, would have a positive

impact on the budget deficit. I also was aware that the inflow of the budget deficit might have a negative influence on the budget deficit. However, I did not think that the combination of public investment and FDI would have a positive and statistically significant correlation with the budget deficit.

My wish was to finish my doctorate and to move toward achieving more goals in my life. However, I will miss working with Dr. Casale and interacting with my classmates. I am now used to writing emails to Dr. Casale and receiving feedback just minutes later, including words of encouragement. I am also used to having discussions with my classmates. I will miss those warm and exciting interactions. My doctoral journey was beneficial for the knowledge I have acquired and for the persons I have had the chance to meet.

Conclusion

Managing the budget deficit is one of the most critical challenges in the field of the public finance. There is a set standard of the ratio of the budget deficit, but in most the cases, public leaders fail to achieve the standard of the budget deficit because they lack understanding of some of the essential factors that determine the budget deficit. The purpose of this quantitative correlational study was to examine the relationship between public investment, FDI, and budget deficit. I focused on the 76 LIC and LMIC, as it resulted from the 2019 publication of the World Bank. I used SPSS Version 27 to test the hypotheses, and I analyzed descriptive statistics, tested the assumptions, and performed multiple linear regression. Before testing the assumption, I evaluated the reliability of the study using Cronbach's alpha and found that the reliability of the study was reasonably

acceptable. The model confirmed the alternative hypothesis and rejected the null hypothesis, therefore confirming that a statistically significant relationship exists between public investment, FDI, and budget deficit. However, public investment was the only statistically significant predictor of the budget deficit. The findings also showed a negative but not statistically significant relationship between FDI and budget deficit.

The negative correlation between FDI and budget deficit and the positive correlation between public investment and budget deficit support Keynes's theory that grounded the study. However, the results of the model were a confirmation of the thoughts of the challengers of Keynes's theory, who posited that using the budget deficit as a means to create economic growth may be potentially harmful to the economy. I found the need to conduct further research to deepen some of the aspects of the questions regarding the limitations of the study. I concluded from the study that having a good strategy for allocating public revenue to public projects and determining objective criteria for identifying the domains of attraction of FDI need to be a priority for public business leaders. I hope this study's contribution to the literature on public finance will be useful and will provide public leaders with additional and new information to improve their strategy of allocating public revenue.

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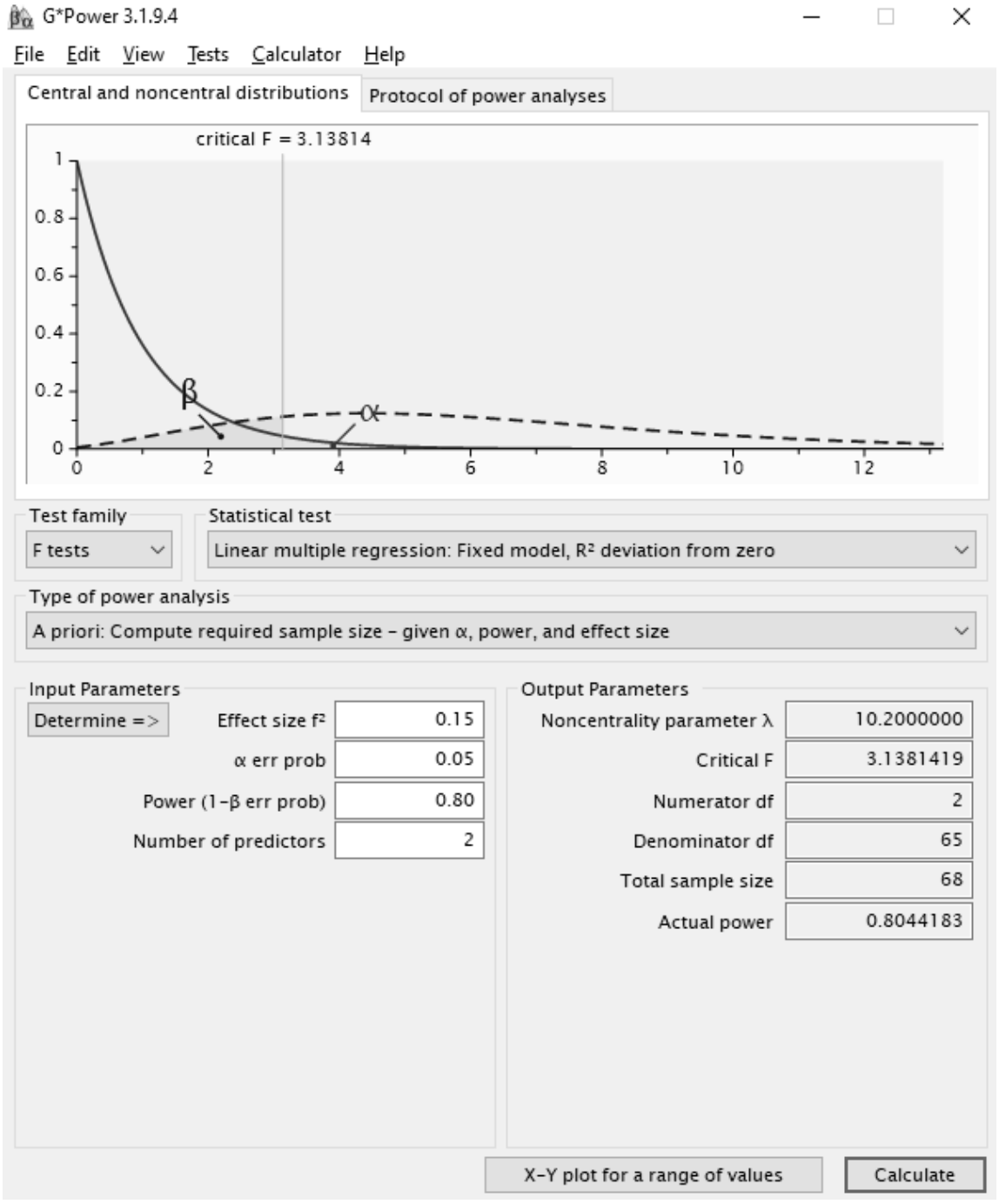
Appendix A: World Bank's 2019 Countries Categorization

Countries	Categories	Countries	Categories	Countries	Categories
Afghanistan	LIC	Côte d'Ivoire	LMIC	Israel	HIC
Albania	UMIC	Croatia	HIC	Italy	HIC
Algeria	LMIC	Cyprus	HIC	Jamaica	UMIC
Angola	LMIC	Czech Republic	HIC	Japan	HIC
Anguilla		Denmark	HIC	Jordan	UMIC
Antigua and Barbuda	HIC	Djibouti	LMIC	Kazakhstan	UMIC
Argentina	UMIC	Dominica	UMIC	Kenya	LMIC
Armenia	UMIC	Dominican Republic	UMIC	Kiribati	LMIC
Aruba	HIC	Eastern Caribbean Currency Union		Korea	LIC
Australia	HIC	Ecuador	UMIC	Kosovo	UMIC
Austria	HIC	Egypt	LMIC	Kuwait	HIC
Azerbaijan	UMIC	El Salvador	LMIC	Kyrgyz Republic	LMIC
Bahamas, The	HIC	Equatorial Guinea	UMIC	Lao P.D.R.	LMIC
Bahrain	HIC	Eritrea	LIC	Latvia	HIC
Bangladesh	LMIC	Estonia	HIC	Lebanon	UMIC
Barbados	HIC	Eswatini	LMIC	Lesotho	LMIC
Belarus	UMIC	Ethiopia	LIC	Liberia	LIC
Belgium	HIC	Euro area		Libya	UMIC
Belize	UMIC	Fiji	UMIC	Lithuania	HIC
Benin	LMIC	Finland	HIC	Luxembourg	HIC
Bhutan	LMIC	France	HIC	Macao SAR	HIC
Bolivia	LMIC	Gabon	UMIC	Madagascar	LIC
Bosnia and Herzegovina	UMIC	Gambia	LIC	Malawi	LIC
Botswana	UMIC	Georgia	UMIC	Malaysia	UMIC
Brazil	UMIC	Germany	HIC	Maldives	UMIC
Brunei Darussalam	HIC	Ghana	LMIC	Mali	LIC
Bulgaria	UMIC	Greece	HIC	Malta	HIC
Burkina Faso	LIC	Grenada	UMIC	Marshall Islands	UMIC
Burundi	LIC	Guatemala	UMIC	Mauritania	LMIC
Cabo Verde	LMIC	Guinea	LIC	Mauritius	HIC
Cambodia	LMIC	Guinea-Bissau	LIC	Mexico	UMIC
Cameroon	LMIC	Guyana	UMIC	Micronesia	LMIC
Canada	HIC	Haiti	LMIC	Moldova	UMIC
Central African Republic	LIC	Honduras	LMIC	Mongolia	LMIC
Chad	LIC	Hong Kong SAR	HIC	Montenegro, Rep. of	UMIC
Chile	HIC	Hungary	HIC	Montserrat	
China	UMIC	Iceland	HIC	Morocco	LMIC
Colombia	UMIC	India	LMIC	Mozambique	LIC

Comoros	LMIC	Indonesia	UMIC	Myanmar	LMIC
Congo, Democratic Republic of the	LIC	Iran	UMIC	Namibia	UMIC
Congo, Republic of	LMIC	Iraq	UMIC	Nauru	HIC
Costa Rica	UMIC	Ireland	HIC	Nepal	LMIC
Netherlands	HIC	Qatar	HIC	Tunisia	LMIC
New Zealand	HIC	Romania	HIC	Turkey	UMIC
Nicaragua	LMIC	Russia	UMIC	Turkmenistan	UMIC
Niger	LIC	Rwanda	LIC	Tuvalu	UMIC
Nigeria	LMIC	Samoa	UMIC	Uganda	LIC
North Macedonia	UMIC	San Marino	HIC	Ukraine	LMIC
Norway	HIC	São Tomé and Príncipe	LMIC	United Arab Emirates	HIC
Oman	HIC	Saudi Arabia	HIC	United Kingdom	HIC
Pakistan	LMIC	Senegal	LMIC	United States	HIC
Palau	HIC	Serbia	UMIC	Uruguay	HIC
Panama	HIC	Seychelles	HIC	Uzbekistan	LMIC
Papua New Guinea	LMIC	Sierra Leone	LIC	Vanuatu	LMIC
Paraguay	UMIC	Singapore	HIC	Venezuela	UMIC
Peru	UMIC	Slovak Republic	HIC	Vietnam	LMIC
Philippines	LMIC	Slovenia	HIC	West Bank and Gaza	LMIC
Poland	HIC	Solomon Islands	LMIC	Yemen	LIC
Portugal	HIC	Somalia	NA	Zambia	LMIC
Puerto Rico	HIC	South Africa	UMIC	Zimbabwe	LMIC
South Sudan	LIC	Switzerland	HIC	Sudan	LIC
Spain	HIC	Syria	NA	Suriname	UMIC
Sri Lanka	LMIC	Taiwan Province of China	HIC	Sweden	HIC
St. Kitts and Nevis	HIC	Tajikistan	LIC	Timor-Leste	LMIC
St. Lucia	UMIC	Tanzania	LMIC	Togo	LIC
St. Vincent and the Grenadines	UMIC	Thailand	UMIC	Tonga	UMIC
Trinidad and Tobago	HIC				

Appendix B: G*Power for Minimum Sample Size



Appendix C: G*Power for Maximum Sample Size