Public Sector Governance, Sector Size, Debt and Macroeconomic Stability: An Analysis of Developed and Developing Economies

SHAMAILA ZAREEN

Reg. No.193-FE/PHD/F18

Ph.D. Economics

Supervisor

DR. Faiz ur Rahim

Associate Professor

SCHOOL OF ECONOMICS

International Institute of Islamic Economics (IIIE)

International Islamic University Islamabad

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By

Shamaila Zareen
Reg. No: 193-FE/PhD /F18

Accepted by the International Institute of Islamic Economics (IIIE), International Islamic University Islamabad (IIUI), as partial fulfillment of the requirements for the award of PhD degree in Economics

Supervisor: _____
(Dr. Faiz-ur-Rahim)
Associate Professor, IIIE, IIUI

Internal Examiner: _____
(Dr. Muhammad Akram)
Assistant Professor, IIIE, IIUI

External Examiner-I: _____
Prof. Dr. Abdul Sattar,
Head, Baharia Business School,
Baharia University, Islamabad

External Examiner-II: _____
Dr. Saima Shafique,
Associate Professor,
Department of Economics, NUML, Islamabad

Chairperson,
School of Economics
International Institute of Islamic Economics
International Islamic University, Islamabad

Director General,
International Institute of Islamic Economics
International Islamic University, Islamabad

Director General
International Institute of Islamic Economics
International Islamic University
Islamabad

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In the name of Allah, the most merciful and beneficent

DEDICATION

I dedicate this thesis to my sister, Husband, Mother, Brother, Friends and my Supervisor whose support has enabled me to complete this research study successfully.

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Abstract

Several economic theories conclude that the relationship between public sector governance and macroeconomic stability is direct as better public sector governance improves economic stability or reduces macroeconomic instability. However, the literature provides us positive, negative and insignificant relationship between the both. Following the idea, our study aims to evaluate the mediating role of public size and public debt in governance-stability association. For estimation, we have used a panel data of 102 developed and developing nations for the period 1996-2021 and employed one-way random effect estimator for the SUR system, as suggested by Biørn (2014). Our findings show that the public sector governance effectively improves macroeconomic stability through the channel of public sector size and public debt for developed economies, however in the case of developing economies the role of public size and public debt is quite opposite and relationship is negative. Moreover, public size and public debt contributes positively in maximizing the macroeconomic stability for developed economies and the results demonstrate that well managed and smaller public size and public debt mediates the governance-stability association. In developing economies, the public sector management policy should be reviewed and public sector size and public debt should be managed at minimum possible level as the developed economies are having a comparatively manageable smaller public size and constructive public debt. So, it is concluded that public sector governance improves the macroeconomic stability not only directly, but also indirectly through the channel of public sector size and public sector debt.

Keywords: public sector size, public sector governance, public debt, Macroeconomic stability index, worldwide government indicators, SUR (Seemingly Unrelated Regression)

JEL Codes: H11, D73, H63, E31, O43, C30

CHAPTER 1

1 INTRODUCTION

1.1 Background of the Study

A key aspect of economic well-being of a country is the degree of macroeconomic stability. Macroeconomic stability is necessary for the implementation of fiscal reforms, economic development plans, job creation and inflation control. The contribution of fiscal spending to long-term economic growth is a hotly debated subject, particularly when nations struggle to manage their fiscal requirements. Macroeconomic stability is considered an important factor in defining a country's economic competitiveness. Stable growth and economic stability are inextricably linked, as the former safeguards a country from external shocks. There is a significant relationship among macroeconomic stability and economic growth. The ability to support the economy financially and monetarily depends on macroeconomic stability.

In modern macroeconomics, the most crucial aspect is macroeconomic stability. Macroeconomic stability provides protection against interest rate and currency fluctuations in the global market. Uncontrolled inflation, massive debt burdens, and currency swings can trigger a breakdown in GDP and lead to economic crises. Macroeconomic instability generally has negative effects and impedes the economic progress in nations. However, on the relationship between macroeconomic stability and economic growth, there has been limited empirical research particularly in the SAARC region (Siddik 2023). The primary goal of any nation is to achieve long-term economic growth. In light of recent research on macroeconomic modeling and policy problems as a stabilizing tool, the effectiveness of fiscal policy is being questioned. In developed countries, fiscal policy aims to improve the marginal propensity to save while curbing consumption to stimulate capital formation. Nonetheless, the primary goal of fiscal policy in developing countries is to ensure equitable income distribution and redirect available resources from non-productive to productive purposes (Popa and Codreanu, 2010). Fiscal policy promotes macroeconomic stability by limiting economic activity during prosperity and maintaining stable aggregate demand during a recession.

Macroeconomic stability is achieved through three major fiscal policy instruments: automatic stabilizers, cyclical fiscal policy and discretionary fiscal policy. Automatic fiscal

stabilizers such as income tax and social spending are crucial to maintaining stability. The second approach is cyclical fiscal policy, and the third approach is discretionary fiscal policy, which allows the government to adjust taxes or spending in response to changes in the economy. (Kapoor and Debrun, 2010; 2010a, 2010b). Concerns have arisen regarding the relevance and significance of fiscal policy in influencing economic growth.

The degree of macroeconomic stability is the most important factor affecting a country's economic competitiveness. According to the Global Competitiveness Index, Switzerland performs better than Moldova, Romania, Croatia, Bulgaria, Poland, Lithuania, Latvia and several other European countries (Global, 2018). In 2011, EU governments updated and adopted the Macroeconomic Imbalance Procedure (MIP) to achieve macroeconomic stability. Fiscal policy can support macroeconomic stability in three key ways. Firstly, according to Blinder and Solow (1974), the government automatically reduces saving during economic downturns and enhances it during economic booms to reduce fluctuations in national spending. Furthermore, the public sector enhances output stability through the domestic expenditure composition because government consumption is considered less unpredictable than other GDP components. Secondly, governments can actively adjust public spending and tax policies to compensate for economic cycle variations. Finally, the efficient tax and transfer system improves economic performance and market flexibility, ultimately making the economy more resilient to shocks.

Public sector governance has a dual function in the context of macroeconomic stability: it prevents opportunistic behavior in resource allocation, but it also counteracts problems such as power imbalances, lack of accountability and transparency, high levels of corruption, and so on. Furthermore, by propagating the harmful macroeconomic effects of external shocks, it may slow the recovery of post-crisis macroeconomic stability. The inherent stabilizing effect of fiscal policy increases with the size of the country.

Currently, both advanced and emerging countries are facing new challenges in meeting budget needs. Macroeconomic stability influences the monetary competitiveness of a nation. A nation's economic stability in the face of external shocks contributes to sustained growth and is understood as macroeconomic stability. However, there is a significant relationship between economic development and macroeconomic balance. Unfortunately, numerous factors contribute to destabilizing economies, posing challenges in the upcoming years.

Macroeconomic instability in developing nations stems from three primary causes. First, there are large external shocks to the financial market, resulting in substantial fluctuations in the real exchange rate and deterioration in terms of trade. Secondly, developing countries contend with internal shocks arising from distinctive uncertainty and self-inflicted policy issues, ultimately resulting in stagflation. Thirdly, less advanced countries cannot withstand shocks (Loayza et al., 2007). The source of macroeconomic instability in these nations lies in large-scale, abrupt changes in aggregate supply and demand, leading to internal shocks. Maintaining economic order to support both domestic and international competitiveness is a major responsibility of the government. The achievement of stable economies is predominantly associated with the appropriate synchronization of governmental policies and the optimal calibration of the public sector's size within the economy. A stable framework for public spending will help reduce variations in output and the level of national revenue.

Achieving macroeconomic stability is one of the major aims of any government and public policies have grown significantly since the advent of Keynesian economic theory. Thus, the global crisis that began in the USA in 2007 and quickly extended to many other nations has once again highlighted the significance of the public economy and Keynesian policies due to its macroeconomic volatility. Developing countries continue to be significantly more unstable than industrial ones. Economic stability is determined by a variety of factors, including the size of the economy, economic conditions, employment levels, endowment structure and trade stability. The main factor in public sector governance that has a significant impact on macroeconomic stability is the size of government

However, how macroeconomic stability can be achieved is the main issue. The objective can be attained in various ways and one of them is through spending on social and physical infrastructure. Social infrastructure involves expenditure on health and education, while physical infrastructure comprises roads, highways, energy and irrigation, among other things. Fiscal policy helps to drive long-term monetary expansion and improves the overall effectiveness of the financial system by leveraging public spending and taxes. (Tanzi 1995). Factors affecting economic growth include initial human and physical capital, labor force, inflation, growth rate, GDP per capita and trade openness

Political stability and public spending size enable the economy to achieve long-term growth, ultimately leads to macroeconomic stability. A stable economy heavily relies on effective government policies and the government size. There is increasing concern over the

proportion of government size in developed and developing economies. Economic growth slows down in a market economy as government interference increases due to heightened bureaucratic involvement, corruption and the exclusion of profitable private investors. On the one hand, public spending is seen as necessary to provide infrastructure and protect property rights. However, an oversized public sector reduces significant private investment and increases distortionary taxes (Christie, 2014). More specifically, for the provision of fiscal and monetary support to the economy, macroeconomic stability is an important indicator. Economic stability facilitates production and enables the public and government to plan effectively for the long term. In Africa, government spending on agriculture and health contributes to economic growth. Growth is largely driven by Asian investment in agriculture, education and defense. Less developed countries allocate the largest share of public spending to military defense.

According to researchers the size of the government has a significant impact on GDP growth. There are three main views on the relationship between government size and economic growth. Keynes contends that, excessive public consumption leads to a higher level of demand for public goods, which boosts employment and investment. The government makes a considerable contribution to the elimination of conflicts of interest between the private sector and the government. Another group of economists argues that public spending may harm growth due to poor government institutions. (Barro,1990 and Armey, 1995) agree on an inverted U-shaped curve when the size of the government is large. Classical economic policies in many parts of the world were ineffective in reducing recession. According to Keynesian thought, public expenditure is an important component of fiscal policy that helps achieve a full employment level.

For developing countries, increasing the size of government slows growth due to the greater need for spending. To generate funds, the government raises taxes to finance increased spending. This rise in tax slows economic activity while increasing private investment, which has a negative effect on growth rates. (Barro 1990; Landau 1983). On the other hand, in developing nations, a larger government sector promotes private investment and has a significant impact on monetary growth, as larger governments are more likely to invest in the modernization and diversification of infrastructure and technology. However, many others believe that the relationships mentioned above are not definitive for example, Lin (1994), Vedder and Gallaway (1998). Therefore, considering the disagreements among researchers on

this subject, this study aims to evaluate the relationship between macroeconomic stability and public sector governance across the sizes of governments in developed and developing countries. Through public spending and transfer payments, the government can enhance investment, output and employment and also control inflation. During a recession, economic stability can be achieved by reducing government savings. It is important to have a stable structure of public spending to decrease fluctuations in output and the national income level. Based on this, government size is the determinant of macroeconomic stability. Keynesian activist aggregate demand policies have been used by many developing and developed countries to mitigate the effects of global crises. Moreover, through public spending and transfer payments, inflation can be controlled and investment and employment can increase, thereby reducing economic fluctuations caused by poor public sector management and a lack of policy coordination. (Tanzi, 1991).

Nations with more efficient markets tend to have greater market trust and less government intervention. However, governments may intervene to achieve a more equitable distribution of income or for improved risk management. First and foremost, government interventions are justified by the provision of public goods. The majority of economists agree that government action is necessary for the so-called pure public goods, which include security, justice and defense. It is not evident from the theory on the optimal amount to spend on infrastructure, justice, or protecting people and their property, nor on the ideal amount to spend on defense.

The adverse effects of macroeconomic stability and socioeconomic and political divergence among nations are mitigated through better governance quality with a smaller government size. A stable political environment ensures the long-term sustainability of public sector governance and its size. Effective institutions are essential to ensure that macroeconomic policies are correctly implemented to stimulate economic growth and enhance individual quality of life (Acemoglu and Robinson, 2010; Acemoglu et al., 2005).

The governments are enabled to collect taxes at a lower cost with better fiscal structures. According to Kleven (2014), Scandinavian countries experience substantial economic activity and greater tax collection rates due to their superior social and legal systems. Political institutions also play a crucial role, as a high level of political instability significantly affects current public expenditure decisions. Countries with inadequate governance may experience a negative impact from the size of the public sector on economic growth. However, this link can become positive if economies reach certain levels of institutional quality.

The existence of macroeconomic stability is necessary for the success of financial reforms, policy alterations and the implementation of free and energy subsidies (Khalili Araghi & Ramzanpour, 2002). There is a significant impact on economic growth through macroeconomic stability. Macroeconomic stability has also been considered conducive to economic growth (Frenkel & Khan, 1990; Easterly & Rebleu, 1993).

The size of the public sector is the most frequently used variable, and different researchers have employed various methods to measure government size. Some use taxes, while others use public spending. Additionally, employment is used by some to describe the size of the government. Since the late 19th century, public investment as a percentage of overall public spending has continually decreased from roughly 20% to well below 10% of total expenditures in the 2010s for developed nations. This is supported by De Bortoli and Gomes (2014) noted sharp decline in public investment in developed nations over the past four decades.

The variations in public spending result from different levels of development as well as differing perspectives on the proper function of government. Production declines are more pronounced in nations with small public sectors of their economies. For instance, in nations like Hong Kong, Mexico, Taiwan and China, where public spending accounts for about 18–20% of national income, the overall loss of production between 2008 and 2009 was 10%. On the other hand, the decline in output was 2% and 1% lower in Norway and France, where public spending accounts for almost 40% and 50% of national revenue, respectively. (Mohanty and Zampolli, 2009). International Monetary Fund studies show that the fundamental reason for stagnation in the majority of countries is economic instability. Therefore, it is anticipated that measures for stabilizing the macroeconomic environment and implementing structural reforms will help open the door to rapid economic growth (Norouzi, 2001). 'Belgium, Denmark, Finland and France' had the highest percentages of public spending exceeding 50% of GDP in 2017. The majority of non-European nations recorded public spending that was less than 40% of GDP; Ireland and Singapore even reported spending that was less than 30% of GDP. Deficits remained high in the US, France, Japan, Italy and Spain, where public debt was significantly higher than it was before the global crisis. The coronavirus crisis at the beginning of 2020 also affected many nations. The majority of developed nations indicated a significant rise in expenditure shares in 2020. Expenditure ratios were predicted to rise by more than 7% of GDP on average in 2020. In 2018, general public spending accounted for 42% of GDP. Public

expenditure ratios in developing economies in Europe and Asia were generally comparable to developed nations with smaller government sectors. Public spending in the majority of Eastern European nations ranged from 30 to 40 percent of GDP, while China and Russia were in the same category. In 2018, public spending in developing nations averaged 31.3% of GDP and in several of these nations, it was even less than 20%. In the same year, Europe recorded the highest public expenditure ratio, reaching around 44.3% of GDP. In a large portion of Northern and Southern Europe, this percentage was closer 50%. Public spending accounted for 30.5% in Asia/Oceania and 36.6% in Latin and North America. Interestingly, Brazil reports the highest expenditure ratio among the major emerging economies outside of Europe, at 41.6%, which is closer to industrialized nations. Africa's spending ratios ranged from considerably below 20% in Ethiopia and Nigeria to over 40% of GDP in South Africa, with an average of 27.3%. Most developed nations have relatively minimal amounts of interest and subsidies. 'The relationship between public sector governance and economic stability is also influenced by public debt'. Although governments can produce money to monetize their obligations, eliminating the need to pay interest, debt is not the only way that governments can finance their operations (Martin, 2009). Public debt refers to the country's total debt, which includes loans owed by local, state and federal governments. This represents the amount of public spending financed through borrowing rather than revenue (Makau, 2008).

Debt is a mechanism used by developing economies to finance infrastructure, including investments in transportation, railroads, electricity and education. (Greer, (2013)) focused on this issue and stated that state and municipal governments can increase their financial capacity to finance the construction of new buildings and other tangible assets by taking on debt. Governments typically take out short-term loans to cover shortfalls and long-term loans for infrastructure or domestic investments to promote prosperity. The ratio of domestically incurred debts has been utilized for development initiatives to promote economic growth. The government will suffer serious consequences if it is unable to control or maintain the balance between debt and economic growth. Because fewer resources are available to fund development initiatives and internal debt servicing, it is detrimental for economic growth (Abbas and Christensen, 2010). A government's external debt results from loans from the World Bank or IMF to other nations. (Klein, 1994) pointed out that the primary cause of rising debt is the reliance on outside resources to supplement capital formation. The degree to which significant public debts are likely to negatively impact capital accumulation, productivity, and slow down economic growth is a crucial question. Numerous factors, such as higher long-term

interest rates, potentially more future distortionary taxes, inflation, more uncertainty and increased crisis susceptibility, could cause this.

Public debt can exert pressure on public finances and increase the risk of fiscal instability, potentially undermining macroeconomic stability. However, if managed effectively, public debt can support macroeconomic stability by providing a source of funding for government activities and enabling governments to respond to economic shocks. Public sector governance, public debt and macroeconomic stability are interconnected. Public debt levels can influence public sector governance, which encompasses the efficiency, accountability and transparency of government institutions and decision-making processes. Individuals and businesses may struggle to balance investment and consumption when burdened with high amounts of debt, making it more challenging for governments to absorb adverse shocks. Additionally, high debt levels have the potential to increase sensitivity to shocks and intensify and spread asset price and macroeconomic shocks globally.

The causes behind the debt held by governments are diverse. Firstly, counter-cyclical fiscal policy should be implemented to mitigate the welfare costs associated with severe decreases in employment and productivity during downturns. Tax smoothing can also be utilized to prevent the deadweight loss associated with recurrently raising tax rates. Governments may incur debt through asset purchases or other expenditures that will benefit future generations. In some cases, governments borrow money to provide assets to the private sector. During a recession, higher government borrowing mitigates the impact of a significant negative shock. Importantly, this argument suggests that higher government debt is associated with improved macroeconomic stability. However, it appears that there are limitations to the capacity to stabilize the economy, which could increase macroeconomic instability. Ricardian behavior of individuals and enterprises may render fiscal policy less effective at high government debt levels. Government borrowing may also cause crowding out. Concerns about the government's solvency arise at extremely high debt levels (Corsetti et al., 2011).

High levels of public debt can exert pressure on public sector governance by increasing the need for effective debt management and reducing the resources available for other government activities. This can give rise to challenges such as fiscal imbalances, low investment and inflation, which may undermine macroeconomic stability. Indebted countries face governance challenges due to external interference by donor agencies and internal constraints on resource utilization. On the other hand, public sector governance encompasses institutions responsible for managing and directing the use of public resources and ensuring

accountability. From a preferred perspective, government debt is a significant characteristic of a country's monetary system, contributing to the formation of its reputation in the worldwide marketplace. Public debt and public sector governance are interconnected concepts within the field of economics and public finance. The total amount that a government owes its creditors, including bonds and loans, is referred to as public debt. On the other hand, public sector governance encompasses institutions responsible for managing and directing the use of public resources and ensuring accountability.

A well operating public sector governance system can aid in the sustainable and responsible management of the public debt. Transparency, accountability, and sound economic management are examples of good governance techniques that can help lower the likelihood of corruption and poor management. Additionally, strong governance can ensure that public debt is used for productive investments that generate economic growth and reduce poverty, thereby contributing to debt sustainability in the long time. Conversely, poor governance and mismanagement can lead to an increase in public debt, as governments may borrow to finance activities that are not productive. Furthermore, ineffective governance may result in a lack of transparency and accountability in the public debt management, making it difficult to assess its sustainability. In summary, public debt and public governance are closely linked and effective public sector governance is crucial for sustainably managing public. Public debt also affects indicators such as the Human Development Index (HDI) and foreign direct investment (FDI).

As the government debt increases, more of the budget is allocated to interest payments, which can affect local and foreign investors. Unmanageable government debt can pose a threat to economic progress. High public debt affects the government's capacity to implement fiscal plans. Macroeconomic stability comprises several components, including a sound financial system, a sustainable external balance of payments, low and stable unemployment and inflation rates and sustainable private (business and household) debt. Balance of payments (BOP) imbalances have the potential to increase external debt. Debt risks are prevalent in developing nations when lending is on the rise.

Public debt has both positive and negative impacts on public sector governance. On one hand, public debt can be used to fund government investments in infrastructure, education and healthcare. However, excessive amounts of public debt can constraint a government's ability to spend, leading to spending cuts, tax hikes and reduced public services which can negatively impact public sector governance. Governments must engage in responsible debt management practices, such as monitoring liabilities and ensuring that debt is used for

productive investments. This can help ensure that public debt is utilized in a manner that promotes good governance and sustainable economic growth.

Fiscal policy can influence macroeconomic variables through borrowing. Given that the world average public debt-to-GDP ratio is likely to increase soon, it is important to evaluate whether public sector debt has a favorable or adverse effect on macroeconomic variables such as economic growth, poverty, investment, and education. Strong public sector governance can enhance macroeconomic stability by facilitating effective management of public debt. Research suggests that a larger public sector may lead to macroeconomic instability due to inefficiencies in resource allocation and higher levels of public debt. Conversely, well-governed public sectors have been found to improve macroeconomic stability by efficiently providing public goods and services. Good governance is closely associated with higher per capita income, lower infant mortality rates levels and higher literacy, according to the World Bank (1999). The three key principles of public sector governance are, Accountability Integrity and Openness. Furthermore, the level of public debt has been proven to influence macroeconomic stability, with higher debt levels indicating a greater risk of macroeconomic instability. Developing Asia particularly lags behind in terms of the quality of public service provision with corruption and bribery leading to disparities in both the of quality and quantity of services provided.

Asian governments often have weak institutions, as evidenced by the lack of improvement indicators in social welfare, such as school enrollment, road infrastructure, life expectancy and infant mortality rates. Additionally, better governance can enhance the effectiveness of current public expenditure on basic services. There exists a strong relationship between democracy and good governance, with the latter promoting a more efficient division of efforts, productive investment and implementation of social and economic policies. To stimulate their economies, both developing and developed nations have implemented Keynesian activist aggregate demand policies. In developed nations, approximately 4% of GDP, or 12% of total spending, is allocated to education. Unlike developing Asia, Sub-Saharan Africa faces government failures attributed to challenges in poverty reduction and improving social indicators. Most Asian developing countries struggle to achieve high ranks in governance due to the presence of informal and inefficient institutions. To stimulate their economies, both developing and developed nations have implemented Keynesian activist aggregate demand policies. In developed nations, approximately 4% of GDP, or 12% of total spending, is allocated to education. In developing nations, public health spending typically

represents slightly less than 10% of total expenditures or 3.4% of GDP on average. Conversely, in developed nations, particularly in Europe, public health spending exceeds 6% of GDP. In poor and emerging economies, it is less than half (2.3% of GDP), while in Africa it is "only 1.5% of GDP". In general, countries with higher life expectancy tend to allocate more resources to public health. In developed countries, direct taxes on labor income and profits account for more than one-third of all spending, or 15.2% of GDP.

In contrast, indirect taxes have a greater influence in developing and emerging economies, where direct taxes account for over one-third of overall spending (9.8% of GDP). When considering the quality of institutions, both large and small countries are essentially similar. However, the impact of institution quality is more significant in smaller countries, as they are inherently more vulnerable. Similar to larger nations, smaller ones with stable macroeconomic conditions are open to innovation and skill development through collaborations and allow certain forms of foreign direct investment.

The "SUR" (Seemingly Unrelated Model) is used to examine the mediating role of public sector size and public debt on macroeconomic stability, capturing both direct and indirect effects in the context of public sector size and public debt. This study will examine the relationship between public sector governance and economic stability in the context of public sector size and public sector debt. Certain countries are excluded from the analysis because of data unavailability. Previous research has mainly focused on examining the relationships between public sector governance and growth, inflation and investment, often neglecting the mediating role of the public size between public sector governance and macroeconomic stability. Some work has been conducted on public governance efficiency and macroeconomic stability by (Bilan et al 2019) and several scholars have discussed how public spending affects macroeconomic stability (Amuka et al 2016; Debrun and Kapoor,2010; Melnyk,2019, Edwards,1996). Additionally, discussions on how public size affects macroeconomic stability have been put forward by (Gali 1994). However, no one has yet elucidated the intervening role of public size in public governance and macroeconomic stability. Some scholars have focused extensively on the relationship between public debt, governance and growth (Musa et al.,2023; Abbas et al.,2021), while many others discussed the impact of public sector governance on public debt (Tarek and Ahmed, 2017; Assoum and Alisanto, 2023). (Sutherland et al., 2012; and Leon et al., 2019) discussed how public debt affects macroeconomic stability, yet none have elucidated the mediating role of public debt in public governance and macroeconomic stability. The purpose of this study is to comprehensively fill this gap. Existing literature has

not thoroughly examined the relationship between public sector governance and macroeconomic stability, including the indirect effects of public size and public debt. Without considering this aspect, the linkages between public sector governance and macroeconomic stability provide only a partial understanding. Therefore, our study contributes significantly by addressing this crucial missing piece, which has been overlooked in previous research on governance-stability relationships. Additionally, this research innovatively creates a public sector governance index using Principal Component Analysis (hereinafter PCA), a statistical approach, instead of relying on subjective assessments as previous studies have done. Lastly, this study utilizes recent data to explore the problem with a larger sample size, encompassing 102 countries (both developing and developed) between 1996 and 2021 providing a more robust experimental environment.

Our findings demonstrate that macroeconomic stability is positively impacted by public sector governance, concurrently fulfilling a monitoring role in improving the efficacy of macroeconomic conditions. Regarding the mediating influence of public size and public debt on the governance-stability relationship, the findings show that in developed countries, smaller governments significantly contribute to good governance within the correlation between public sector governance and macroeconomic stability. Conversely, larger governments and weaker institutions have a detrimental impact on developing countries. The disparity between developed and developing countries becomes evident when analyzing the mediating impact of public size and public debt.

1.2 Literature Gap

A previous study conducted by Bilan (2019) focuses on the relationship between macroeconomic stability and public governance, emphasizing the significance of political and social variables in determining macroeconomic stability globally. Additionally, scholars such as Amuka et al. (2016) have scrutinized the effect of public sector spending on macroeconomic stability, particularly focusing on the role of government capital expenditure as a primary source of inflation in developing nations like Nigeria.

Debrun and Kapoor (2010) explored the 'relationship between fiscal policy and macroeconomic stability', concluding that fiscal stability predominantly relies on automatic stabilizers. Melnyk (2019) also investigated how fiscal decentralization impacts macroeconomic stability by improving the macro environment. Gali (1994) examined the

impact of the size of the public sector on macroeconomic stability in the context of the real business cycle, underlining the stabilizing role of public spending compared to income taxes.

Ahmet et al. (2021) examined the association between public sector size and macroeconomic stability, revealing that changes in the public sector size influenced economic growth and inflation. In contrast, Pevcin (2020) examined the relationship between public size and the effectiveness of public sector governance and found that larger states do not consistently perform better than smaller ones in terms of government quality, which it is particularly evident in Europe, where the quality of government does not appear to be improving and independent from government size.

However, despite this direct correlation, there remains a significant gap in the literature on the indirect link between public sector governance and macroeconomic stability through the mediating role of public sector size.

The discussion of Sutherland et al. (2012) and Leon et al. (2019) provide insight into the complex relationship between public sector debt and economic stability. According to Sutherland et al. (2012), debt accumulation may support real activity in the short term, but excessive debt can undermine the balance sheets of firms, households and governments. This susceptibility has the potential to amplify and propagate macroeconomic and asset market shocks, eventually leading to more severe recessions. In line with this, Leon et al. (2019) finds that a high public debt-to-GDP ratio, especially around 75%, can lead to a slowdown in economic growth, while a ratio around 35% can increase growth volatility.

Moreover, the relationship between public sector debt, governance and economic growth has been studied by researchers such as Musa et al. (2023) and Abbas et al. (2021). Musa et al. (2023) showed that public sector debt can enhance financial growth in the context of good governance, especially in the medium to high quantiles. This highlights the importance of governance in promoting economic progress. Conversely, Abbas et al. (2021) emphasized that although public debt negatively influences financial development, institutional quality can have a positive impact.

Scholars such as Tarek and Ahmed (2017) and Assum and Alisanto (2023) have examined the impact of governance on public sector debt. While emphasizing the importance of good governance for effective public debt management, Tarek and Ahmed (2017) also emphasize that public debt management challenges often arise from politicians undercutting

costs associated with poor governance and weak macroeconomic management. Assoum and Alisanto (2023) goes on to explain the nonlinear relationship between per capita income and public debt, which is influenced by the governance quality. They introduce the concept of governance threshold, indicating the minimum level of good governance necessary for public debt to positively affect income. Furthermore, Abbas and Sultan (2023) emphasize the relationship between governance indices such as political stability and corruption control and public debt, suggesting that government efficiency and adherence to the rule of law can positively impact public debt dynamics.

While discussions on the link between governance and stability have been extensive, the mediating role of public debt has been largely overlooked. This research gap highlights the necessity for further research to fully comprehend that how public debt mediates the relationship between governance and macroeconomic stability. Addressing this gap is crucial for a comprehensive understanding of the factors influencing governance-stability dynamics and for guiding effective policy interventions. Achieving macroeconomic stability in emerging economies require a breakdown of government spending by sector, a task that only a few studies have attempted. Improved governance can reduce the vulnerability of the economy to various shocks and enable private and public sector policymakers to effectively manage negative shocks when they arise, thereby reducing the likelihood of macroeconomic instability.

There are still gaps in research concerning the correlation between public governance and macroeconomic stability, indicating areas where further research is needed. While existing studies have mainly focused on short-term associations between public governance and economic stability, there is a need for deeper exploration into their long-term effects. of public governance on economic stability. Such research can provide a more complete understanding of the role of government in maintaining stability over longer periods of time. Although good governance is associated with stability, it remains unclear how this association differs across contexts and countries.

Further inquiry is necessary to explore variations in public sector governance and economic stability across countries and regions, shedding light on key contextual factors influencing this relationship. This deeper understanding could illuminate how governance can be used to promote sustained stability. Governance, while important in promoting stability, likely interacts with various factors such as public debt, government size, corruption levels and

institutional quality. Exploring these interactions and their impact on stability across different contexts is essential.

The majority of studies have focused on individual regions, but there is also a need for more comparative studies examining the relationship between governance and stability within specific countries and regions. Such comparative analyses are crucial for identifying best practices and areas requiring improvement. Moreover, to assess the level of development in this regard, this study will conduct a comparative analysis involving both developed and developing economies.

1.3 Problem Statement

The relationship between public sector governance and economic stability may be affected by the mediating role of size of the public sector and government sector debt. Understanding this mediating role is critical to fully understanding these dynamics, guiding policy decisions, and advancing scholarly knowledge. The purpose of this study is to bridge this knowledge gap and contribute to the existing literature on public sector governance and economic stability. The challenge lies in determining the relationship between public sector governance and its impact on macroeconomic stability. Questions arise regarding how governance practices within the public sector affect economic stability, and what measures can be taken to mitigate negative effects and enhance positive ones. Macroeconomic stability is a key objective of all economic policies, as it is a primary indicator of the economy's health. Public sector governance plays an important role in the economic stability and governance of any institution or country (Mandl et al., 2008).

The public sector size and public sector debt plays a mediating role in the relationship between public sector governance and the macroeconomic stability of the economy in our study. Although the direct link between public sector governance and macroeconomic stability is well understood, a research gap exists on the indirect link between public sector size and government debt. This study aims to fill this knowledge gap by examining the impact of public sector size and public sector debt on the relationship between macroeconomic stability and public sector governance.

During this study, the following research questions will be addressed:

1) How does public sector size serve as a mediating variable effecting macroeconomic stability and public sector governance?
2) How does public sector debt mediate the relationship among macroeconomic stability and public sector governance?
3) Describe the relationship between public sector size, public sector debt, macroeconomic stability and public sector governance?

By answering these questions, this study will help to understand the complex relationships between these variables and provide insight into the impact of public sector size and public debt on macroeconomic stability and public sector governance. This information will be valuable to policymakers who wish to promote economic growth and economic development in their countries by ensuring macroeconomic stability and effective public sector management.

1.4 Research Objective

The primary objective is to examine the effect of public sector governance on economic stability, particularly when public sector size and public debt play a mediating role. Specifically, several research objectives have been identified:

1) To empirically examine the relationship between public sector governance and macroeconomic stability.
2) To examine the mediating/indirect impact of public sector size on the relationship between governance and stability
3) To examine the mediating/indirect effect of public debt in the governance-stability relationship.
4) To examine the interplay between public sector governance, public sector size, public debt and macroeconomic stability.

1.5 Contribution of The Study

It is well known that the relationship between public governance and macroeconomic stability is affected by the size of the public sector and the public sector debt. Many studies examine the impact of public sector governance on macroeconomic performance or economic growth, while others focus on independently assessing the impact of public sector size on macroeconomic performance. However, this study seeks to make several novel contributions that have not been explored previously.

Although the direct link between public sector governance and macroeconomic stability is well established, uncertainty remains about the indirect relationship between governance and stability when public sector debt and public sector size act as mediating factors. This study aims to address this gap by examining the mediating effects of public sector size and public sector indebtedness.

The mediating role of the public sector in the relationship between governance and stability in developing and developed countries is a critical issue that has been largely ignored in previous research prior to this study.

Similarly, the mediating role of the public sector debt in the relationship between governance and stability in developing and developed countries is another important aspect of this study. In developing countries, high public debt is a major obstacle and contributes to reduced economic stability. In addition to the size of the public sector, the quality of public sector governance also has a significant impact on this relationship. Weak institutional quality exacerbates the negative effects of high public debt on economic stability in developing countries. In contrast, developed nations tend to have smaller public sector debt levels alongside better institutional quality. This study has been explored how poor institutions worsens the detrimental impact of public debt and public size, while stronger institutions in developed nations mitigate the risks.

The empirical evidence generated by this study adds valuable insights to existing knowledge and lays the groundwork for future research endeavors. Furthermore, this study holds significant implications for policymakers. Effectively managing public sector size and public debt can promote good governance and stability in the public sector, thereby fostering economic stability and growth.

1.6 Organization of the Study

This is structured into seven chapters. The subsequent chapter is based on literature review encompassing public sector governance, public sector size, public debt and macroeconomic stability, outlining the existing research on their interaction. The third chapter presents theoretical modelling. Chapter four explains the data and methodology used in order to achieve the aims related to research questions. Chapters five and six explain the findings and discussion respectively, and the final chapter contains conclusions, recommendations and future guidelines.

Chapter 2

2 LITERATURE REVIEW

This chapter elaborates the research apprehensions raised in Chapter 1 related to the relationship between public sector governance, public sector size, public sector debt and macroeconomic stability. It aims to identify potential gaps in existing research on the linkages between public governance and macroeconomic stability, particularly through the indirect influence of public sector size and public sector debt, following the integration of underlying theories.

2.1 Theoretical Literature

Classical economists such as Smith (1776), Mill (1848) and Ricardo (1817) believed that public sector debt would have a negative impact on economic growth. According to Ricardian equivalence, an individual's or household's consumption is based on the present value of their after-tax lifetime income. The theory suggests that government spending, whether financed through taxes or borrowing, has an equal impact on the economy. Therefore, when the government lowers taxes to stimulate economic activity, people will save more money by investing in bonds. Therefore, Ricardo concluded that public debt has no effect on economic growth. In contrast, Keynesian theory states that when public bonds are treated as net assets by the private sector, deficits suppress private spending, transaction demand, interest rates, and prices. This view also suggests that the effects of expansionary fiscal policy can be amplified, thereby promoting capital formation and accelerating economic growth.

Adams (1898) posited that government spending and output consistently expand in equal proportions. Wagner (1958), on the other hand, argued that government spending would outpace output growth. He attributed public sector enlargement to social and economic progress and argued that the increase in public sector was inevitable and could destabilize the economy and create challenges. Keynes, on the other hand, advocated for government intervention in the economy through regulations to address such issues. Wagner's law of growing state activity explains that as an economy develops, the size of the state relative to the economy will also increase (Musgrave et al., 1958). Classical economists explain this trend through the idea of the invisible hand, suggesting that deviations from full employment will eventually be corrected by the financial system. They argue that the government's role in

providing defense, justice and public works is essential and any deviation from this role destabilize the economy and generate difficulties. In this regard, Keynes suggests that the government should intervene in the economy by adhering to regulations.

Galbraith (1958) proposed "Theory of Social Balance" to explain the active participation of the state in the economy. The theory emphasizes the importance of an ideal separation between the public and private sectors to provide financial resources to meet the needs of both sectors. By alleviating social inequities within society, the issue of economic instability issue can be resolved. To accomplish this, the government ought to ensure widespread access to social services among all lower-income groups and endeavor to mitigate income inequality, unemployment rates and poverty. The government should increase public spending to support these groups while fulfilling these responsibilities.

Meade (1958) highlighted that the consequences of "deadweight debts" would be: (i) an increase in household income to preserve the Pigou-effect; (ii) a boost in work and enterprise incentives; and (iii) potentially enabling a reduction in future income taxation owing to the budget's capacity to save interest payments. With multiple countries experiencing significant budgetary imbalances, the bankruptcy of Lehman Brothers in 2007, which triggered the global financial crisis, was accompanied by a government debt crisis. Greece was the epicenter of this phenomenon, later extending to Europe's periphery, including Portugal, Spain, Italy and Ireland. While the primary macroeconomic concern laid the foundation for policymakers' and economists' arguments, the root cause of the fundamental issue in policy and economic discussions remains unidentified. Despite numerous government efforts to address the issue, poor economic performance persists and societal expenses have risen.

The impact of public sector debt on economic growth is subject to theoretical discussion. Keynesian believes that demand-side stimulation, new investment and job creation contribute to economic growth and have a positive impact on the spending multiplier. Classical and neoclassical theorists have opposed the Keynesian view, arguing that while government debt can be beneficial in a crisis, it also raises interest rates and creates a shortage of capital in the private sector through a crowding-out effect, ultimately inhibiting economic growth. In contrast, proponents of New Keynesian theory argue that public debt helps countries generate capital and make significant investments, stimulating the demand side through a multiplier effect. Therefore, there is a large debate about the link among public sector debt and economic growth based on various theoretical perspective of growth.

According to Tinbergen (1952, 1956), the free-market system is incapable of generating economic growth. Tinbergen's theory was influenced by the notion that structural issues such as incomplete information, monopolistic markets and market rigidities in developing and underdeveloped nations would impede the free market mechanism from operating at its full capacity. Tinbergen highlights the role of government planning in efficiently allocating resources and equitably distributing the nation's income. Systematic institutional strategies are necessary for implementing planned reforms aimed at promoting economic growth and development (Mıhçı, 1996).

Tinbergen, renowned for his contributions to development planning and welfare economics, emphasizes the significance of public economic institutions in ensuring macroeconomic stability. The government achieved public economic objectives through the establishment of public economic institutions, which involved the nationalization of numerous private firms in post-World War II Europe. Through these institutions, the government regulates the market economy while also producing private goods. Tinbergen argues that nations with greater public sector involvement in the economy outperform those where the market economy predominates, aiming to ensure economic stability and mitigate cyclical fluctuations (Şener, 2014). Public sector debt has long been an important topic of academic interest, particularly given its relationship to economic growth. The conventional wisdom among "saltwater" economists is that while aggregate output may rise temporarily, long-term investment will fall, inhibiting economic growth.

According to Musgrave's theory, achieving financial balance is most effectively done by guaranteeing efficiency in aid allocation and fairness in income distribution. The stages of economic growth and development are reflected in the varying public expenditures according to the Development Model proposed by Rostow (1960) and Musgrave (1969). In this model, public spending is regarded as a function of economic growth. Consequently, early economic development witnesses substantial public spending to initiate the infrastructural investments necessary for accelerating industrialization. This theory suggests that as the economy progresses to the next phase, public spending will decline. The mobility of private savings becomes less of a concern during the second phase of rapid expansion. Therefore, as the private sector expands, so does the scope of government operations.

Barro (1974) argues that people save an appropriate amount of money in anticipation of any future burden resulting from public debt, which does not impede investment or economic

growth. This is a theory based on the hypothesis of permanent income and the rational behavior of economic agents. The term "Ricardian equivalence" refers to this field of study, named after David Ricardo. A large number of studies have been conducted on different views on the relationship between public debt and economic growth, mainly focusing on the theory of "Ricardian equivalency".

Previous research endeavors to offer empirical evidence that either challenges the notion or theoretically opposes it: (Barskey, 1986; Feldstein ,1988; Hayford ,1989 and Kotlikoff et al.,1990). Nonetheless, Barro's theory of "Ricardian equivalence" finds support in certain studies. Theoretical studies of the relationship between government debt and economic growth often conclude that such a relationship exists.

However, few studies are on the favor of Ricardian equivalency theory of Barro. (Evens, 1988 and 1991). Conversely, other studies challenge the Ricardian equilibrium with a negative debt-growth relationship (Barskey et al, 1986; Leiderman and Razin, 1988 and Feldstein, 1988). Furthermore, several investigations have yielded contradictory findings (Haug, 1990). Although the topic requires more research, researchers have recently examined the relationship between debt and growth from different perspectives. Several studies have shown that high levels of government debt can have harmful long-term effects. Increased indebtedness exposes a country to sovereign risk and long-term interest payments (Gale and Orszag, 2002; Kumar and Baldacci, 2010; Corsetti et al., 2013; Jacobs et al., 2019). Other studies examine how high government debt distorts the channel of tax increases (Barro, 1979 and Dotsey, 1994). Inflation is caused by an increase in debt (Sargent and Wallace, 1981; Barro, 1995 and Cochrane, 2011). Elmendorf and Mankiw (1999) argue that monetarists believe that the macroeconomic effect of financing debt through higher interest rates inhibits private investment. Ultimately, public debt can have a negative impact on economic growth.

According to Doğan, (2006) proponents of supply-side economics claim that the economic downturns stem from the inadequate functioning of the market economy. Therefore, they suggest that the main objective of government economic policy should be to implement changes that increase the efficiency of market mechanisms and ensure that the economy grows at a rate that maximizes its potential.

The public uncontrolled expansion of the public sector and extensive government intervention disrupt the dynamics of capitalist accumulation, growth and productivity.

Economically inefficient outcomes may arise if the government not only provides public goods and services but also allocates revenue through taxation. In open marketplaces, competition and guarantee steady economic growth are ensured primarily by the private sector.

However, Aizeman (2007) advocates that government investment in infrastructure should be reduced. Excessive public sector debt can limit the capability to pursue discretionary countercyclical policies, potentially increasing economic fluctuation and hindering development. When elevated debt levels impact the banking industry, leading to a monetary crisis and a subsequent economic instability, the situation becomes severe (Burnside, 2003).

Diamond (1965), Saint-Paul (1992), and Aizenman et al. (2007) have found a negative relationship between government debt and economic growth. This relationship is mainly attributed to two factors: (i) the crowding out effect of rising real interest rates in financial markets on private investment; (ii) public debt is viewed as an intergenerational burden, resulting in a reduction in the capital stock of future generations. Buchanan (1958) raises the question of who pays the public debt and suggests that borrowing to finance public spending will ultimately burden future generations, as the government may have to raise taxes to service the debt. Barro (1974) believes that fiscal stimulus is an ineffective way to stimulate the economy. This argument is based on the Ricardian equivalence theory, which states that increases in debt-financed government spending are offset by increases in private saving resulting from expected tax increases.

Aktan, (2009) explained that according to supply-side economists, an inadequate relationship between production and supply is the primary cause of economic instability. They argue that, in addition to steadily increasing the money supply and implementing tax laws that encourage saving and investment, the government should minimize social spending. They suggest that high productivity, growth rates and low inflation can be achieved through an output and supply-oriented program that focuses on reducing public spending, income and corporate taxes and implementing legal and institutional liberalization measures.

Public debt issuance is considered an important tool for financing public expenditure and stimulating aggregate demand. Classical and Keynesian models, on the other hand, consider this to be crucial to maintaining high levels of aggregate demand and steering the economy towards full employment (Sardoni, 2013).

Furthermore, the concept of debt overhang holds that when future debt increases exceed a country's ability to repay, expected debt service costs will hinder domestic and foreign investment, ultimately hampering economic growth (Bal and Rath, 2014). According to the common view of the debt-growth relationship, public debt stimulates aggregate demand and promotes short-term growth.

2.2 Empirical Literature

2.2.1 Public Sector Governance and Macroeconomic Stability

To ensure macroeconomic stability, the government budget must be financed sustainably. The overarching objective of macroeconomic policy is to contribute to economic and social well-being equitably and sustainably. Maintaining macroeconomic stability is crucial for global development, yet improvements in monetary wealth and stability are not universal across all developing nations. The concept of macroeconomic stability has been characterized differently by various scholars, leading to a lack of clear, concise, or consistent definitions.

Two important studies by H.C. Adams and Wagner provided a deep understanding of the relationship between public spending and macroeconomic stability, particularly the about public sector expansion. According to Adam (1998), public spending and production increase at a constant rate. In contrast, public spending will increase more than the output by (Wagner, 1958) posits that public spending increases more rapidly than output. Empirical investigations into the impact of total government spending on economic stability have been conducted by researchers (Magazzino, 2011; Ogbole, 2014; Ezirim et al., 2008; Gali, 1994). Classical economists argue the theory of the invisible hand, suggesting that even in the face of deviations, the economy returns to full employment. They advocate for the government's role to be limited to providing defense, justice and public works efficiently, cautioning against assuming additional roles that could destabilize the economy and lead to crises. Conversely, Keynes emphasized the need for government intervention to mitigate fluctuations and promote stability through fiscal and monetary policies.

Fiscal policy holds significant importance both conceptually and practically in a nation's development. Various aspects of fiscal policy and its role in supporting macroeconomic stability have been widely discussed in the literature. Sharp and Khan (1980)

studied the effectiveness of automatic stabilizers in the United States. They found that automatic stabilizers play a crucial role in maintaining stable prices and production during different stages of economic expansion. The study emphasized the importance of distinguishing how automatic stabilizers influence prices and output during periods of expansion and contraction, respectively

Focusing on inflation the World Bank (1990) defines a stable macroeconomic environment as having low and predictable inflation, a stable and cost-effective exchange rate, low interest rates, a positive balance of payments and a stable and sustainable fiscal policy. Macroeconomic stability is further defined as the ability of an economy to grow, accelerate economic advancement, mitigate shockwaves and manage risks. While the definition of macroeconomic stability may vary, it typically revolves around an economy's capacity to control inflationary pressures. Inflation is widely recognized as one of the most commonly used indicator of a nation's economic management effectiveness. High inflation rates often hinder efficient resources allocation and reduce investment levels. Despite some countries preferring higher inflation rates, there is no consensus on an ideal inflation rate Consequently, higher inflation may signal a loss of government control over economic management (Fischer, 1993).

Given that institutions serve as a tool for managing conflicts, Rodrik (2000) underlined the significance of institutional quality for smaller countries in mitigating the impact of shocks. Pryor's (2001) theory posit an inverse relationship between public size and laissez-faire, possibly stemming from the inclination of citizens in larger states towards enhanced protection against potential abuses of larger businesses. As a result, smaller states are expected to exhibit lower levels of regulation.

According to Streeten (1993), it is much easier to implement supervision in smaller states and collective action issues can be resolved easily in these states. Ghura (1995) stated that the cost of public consumption has negative impact on monetary growth. The analysis was executed using aggregate collection and cross-sectional records for 33 African nations. They concluded that high-income countries had a high investment ratio, a low inflation rate and excessive export growth.

According to Mauro (1998), inefficient institutions with burdensome bureaucracies cause delays in the expansion of new products and impede the transfer and implementation of new technology. Economic researchers have highlighted the link between country size and

government interventionism. For example, Alesina and Warcziarg (1998) argue that government size is negatively related to country size and positively related to trade openness. They found that smaller countries are more open to trade and have a larger share of public consumption in gross domestic product. Moreover, they show that these empirical patterns are consistent with existing theoretical models explaining the emergence and disintegration of states. While larger states can afford to shut down, smaller governments have more incentive to stay open. Regional and cultural minorities can afford to break up because as trade liberalizes, political boundaries do not necessarily reflect market size. Rodrik (1998) found a significant and positive relationship between trade openness and government size. He resolves this paradox by arguing that government spending is used to provide social protection to offset the risks of trade shocks faced by open economies. This clearly shows that public consumption and public expenditures have a risk-reducing effect on the economy when external risks are high. Goldsmith (1999) argues that activist governments can play a role in buffering the vulnerabilities of small states. This should therefore have an impact on the ideal size of the welfare state, as shown by contextual risks (Eichner and Wagener 2002).

Fan et al, (2000) have examined the lack of unanimous agreement in the debate regarding government spending and macroeconomic stability. Keynesian advocate for increased public expenditure during economic downturns and its reduction during periods of monetary prosperity. The governance of the public sector affects macroeconomic stability both directly through institutional reforms and indirectly through investments in education, health and infrastructure like roads, highways and dams.

Tanzi and Schuknecht, (2000) explained that regulations were increasingly used to address externalities believed to have detrimental effects on people or the environment. There is no doubt that the economic role of the state has changed, and economic growth is seen even in countries that are still considered market economies.

Noord (2000) utilized a production function approach to examine how the macroeconomic environment affected the government budget components in OECD countries. The implementation of automated stabilizers in the 1990s led to a decrease in cyclical volatility. The study found that by reducing abrupt changes in the economy and tax or expenditure rates, fiscal stabilizers can improve long-term economic performance. Treisman (2000) employed a panel data set of 87 nations from 1970 to 1980 and found no apparent association between inflation and decentralization. Theoretical approaches propose three competing hypotheses

regarding the potential relationship between decentralization and macroeconomic outcomes: commitment theory, collective action theory and continuity theory. King and Ma (2001) demonstrated that decentralization has a detrimental impact on macroeconomic instability in industrialized nations. However, they found this reliance not significant for the entire sample across 49 countries from 1973 and 1994. Akai and Sakata (2002) used a comprehensive data set that took into account factors such as culture, level of economic development, and historical differences in the United States to standardize the actual effect of fiscal decentralization upon economic development.

According to Fan and Rao (2003), the impact of various public expenditures on growth varied in 43 developing countries from 1980 to 1998. The study found that agriculture and health spending are conducive to economic growth in Africa. In Latin America, only health spending is significant to growth. Growth was enhanced by structural adjustment programs in Asia and Latin America. However, macroeconomic adjustments have no detrimental effect on total government spending. It is recommended that governments should cut down on unproductive spending on defense.

The author (Neyapti, 2004) comes to the same result, arguing that fiscal decentralization has statistically negative consequences on inflation, regardless of the country's high or low inflation rate. However, Feldensteina and Iwata (2005) reached the opposite conclusion based on the analysis of the vector autoregressive (VAR) model in China from 1955 to 1996 and claimed that there is a negative relationship between inflation and decentralization.

Macroeconomic stability remains a predicament growth in a one-of-a-kind country consistent with the World Bank Report (2006). There is an association between monetary development, monetary integration and monetary growth on South Asia and Asia-Pacific region. A stable macroeconomic framework facilitates the smooth flow of funds between savers and investors, which increases growth.

Looking at the importance of institutional quality in supporting long-term growth, much emphasis has been paid to this topic during the previous year. Top-quality institutions eliminate uncertainty and encourage trade by creating a more open environment. Economists distinguish between economic institutions (such as property rights, contracts, and patent laws) and political institutions (such as democratic or nondemocratic institutions, election rules, and regulations).

Both institutions are believed to promote greater efficiency and development (Rigobon and Rodrik, 2005).

Keynesian economists, for example, frequently contend that social preferences for greater government and redistribution to address market imperfections such as Wagner's rule of governments generating superior goods are reflected in the size of government. In the 1990s, several nations, like Sweden, Canada and others, drastically cut back on public spending without experiencing any noticeable repercussions (Schuknecht and Tanzi, 2005).

Montiel and Serven (2006) tested the implementation of macroeconomic reforms during the 1990s on the idea of developments, including macroeconomic guidelines and the proliferation of monetary crises. They play an important role in assessing the development and effectiveness of monetary, economic and trade policies in the changing policy environment to improve growth and macroeconomic stability. Economists see slow growth and multiple crises as signs of flaws in the reform approach.

Martinez-Vazquez and Mcnab (2006) claim that decentralization has a positive effect on price stability in developed countries. The authors use a composite index combining inflation and unemployment rates as a measure of macroeconomic stability. Nonetheless, they were unable to conduct a more extensive analysis due to a lack of relevant data for 52 developed and developing nations from 1972 to 1997.

Shah (2006) compared decentralized and centralized fiscal systems (the Brazilian federation and the Chinese unitary system) and concluded that the latter has the greatest potential for improving macroeconomic management. Afonso and Gaspar (2007) show that distortionary tax financing leads to additional burdens (unwanted welfare losses), thereby increasing the costs associated with inefficiency.

In his analysis, Thornton (2007) examines 19 countries between 1980 and 2000 and concludes that there is no statistically significant relationship between revenue decentralization and the impact of inflation. At the same time, the author focuses on revenue sharing among local governments to provide a more meaningful assessment of the relationship between fiscal decentralization and economic growth.

Khalid et al. (2007) have proposed the response function and transmission mechanism of fiscal policy of Pakistan from 1965 to 2006. The study discovered that during the boom, pro-

cyclical fiscal policy responds effectively to business cycle changes. It is concluded that Pakistan's fiscal policy transmission mechanism is ineffective, while the country's contemporaneous reaction system is functional but unfocused.

Good governance in the public sector contributes to macroeconomic stability by reducing inflation, increasing economic growth and promoting fiscal discipline, according to the results. Ensuring macroeconomic stability and sustainable economic growth in developing countries can be achieved with effective public sector governance. Improving public sector governance is important for promoting macroeconomic stability. An overview of governance and its role in improving economic success is given. According to this study, power is exercised through the management of a country's economic and social resources. Good governance is important in promoting economic growth, reducing poverty and ensuring macroeconomic stability. The public sector plays vital role in promoting good governance and improving economic performance (OECD, 2008).

Rothstein and Teorell (2008) have investigated the relationship among the governance quality and economic growth. The authors examined the impact on economic growth by using a comprehensive measure of government quality including characteristics such as the transparency and accountability and rule of law. According to the findings, good governance is linked to economic growth and government quality is an important factor in economic performance. According to Ocampo (2008), "economic stability" encompasses good fiscal policies, price stability, a sustainable debt ratio, private sector balance sheets, a thriving community and a functioning real economy.

Aktan, (2009) stated that high productivity, a high growth rate and low inflation can be achieved, in particular, by an output and supply-oriented program that is based on lowering public spending, income and corporation taxes and implementing legal and institutional liberalization policies. Karagianni (2009) uses Wagner's law in several European countries to show the non-linear causality between revenue and public expenditure.

According to Mohanti and Zampoli, (2009), government expenditure can result in balance and macroeconomic stability depending on the spending pattern. On the one hand, it can bring stability by investing in development functions such as the provision of public goods and services, employment and social security. On the other hand, public expenditure can

destabilize the economy if financed by public debt. Public spending funded by money creation can lead to tax inflation (Miron, 2010).

Mehanna et al. (2010) studied the relationship between public governance efficiency and economic growth in the Middle East and North Africa (MENA) between 1996 and 2005. In the context of macroeconomic stability, public governance plays two roles: first, it can prevent opportunistic behavior when allocating resources; Second, in the context of government imbalances, lack of accountability and transparency and high levels of corruption, these risks accelerating the spread of negative macroeconomic effects caused by external shocks and slowing down the restoration of macroeconomic stability after the crisis. etc. They also highlight the statistically significant and positive impact on growth of a number of Worldwide government indicators, including voice and accountability, government effectiveness and corruption control.

Iqbal and Nawaz (2010) studied the impact of fiscal decentralization in Pakistan on the macroeconomic stability of the country using the misery index (the sum of inflation and unemployment as a measure of macroeconomic stability). The benefits of decentralization measures implemented by the Pakistani government indicate that fiscal decentralization has a beneficial and statistically significant impact on macroeconomic stability.

Furceri (2010) investigated how social spending helped OECD nations stabilize their output shocks between 1980 and 2005. The findings indicated that social spending evens out variations in output. Between 1990 and 2006, Debrun and Kapoor (2010a) examined the connection between macroeconomic stability and fiscal policy for 49 developed and emerging nations. They discovered that in developing economies, automatic stabilizers are ineffective while effective in advanced economies. It is concluded that in mature countries, automatic stabilizers always help macroeconomic stability. Ali and Ahmed (2010) investigated how Pakistan's economic growth was affected by fiscal policies between 1972 and 2008. They discovered a long-term correlation between economic growth and the fiscal deficit. The fact that Pakistan experiences expansionary fiscal contraction due to politically motivated and ineffective government actions that impede growth is indicated by the negative and substantial coefficient of fiscal deficit.

Kakar (2011) investigated how Pakistan's economic growth was impacted by budgetary variables between 1980 and 2009. The findings demonstrated that fiscal policy plays a critical role in promoting sustainable economic growth, even though its effectiveness is greater over the long term than in the short term.

Alguacil et al. (2011) took into account the importance of internal and external macroeconomic stability and the quality of institutional environments to explain the impact of foreign direct investments on 26 developing countries.

Loto (2011) evaluated the impact of government spending from 1980 to 2008 on Nigeria's economic growth. The study examined the five primary economic sectors: security, health, transportation, telecommunications and agriculture. The findings highlight that Nigeria's public spending has a negative impact on economic growth. Due to cointegration, agricultural spending has a much smaller negative impact, while transport and communications have a positive impact.

Khan (2011) examined the effect of fiscal variables on Pakistan's economic growth. He applied Granger Causality, the Error Correction Model and Johansen Cointegration on data ranging from 1980 to 2009. Empirical findings showed that fiscal policy has a major impact on the nation's sustainability and rate of economic growth. Long-term fiscal policy is more successful than short-term interest rate control, resulting in steady economic growth. For both wealthy and emerging nations, macroeconomic stability and growth are significantly influenced by fiscal policy. Since the structures of industrialized and developing nations vary, so does the function of fiscal policy. The fiscal policy objective in developing countries is to transform resources from wasteful to beneficial usage.

Ismail and Hussain (2012) examined how government spending affected employment, inflation and productivity between 1971 and 2009 in Pakistan's economy. They discovered that shifts in economic activity have no bearing on current spending or development.

Another important study by Audu (2012) on the Nigerian economy found that fiscal policy has a considerable effect on the economy from 1970-2010. The study found, by using co-integration error correction mechanism, that there is a relationship between exports and GDP.

Vasilyeva and Kasianenko (2013) showed that innovation is an important indicator of a progress of any nation and economic stability. Macroeconomic stability is discussed by Krasnyak et al (2015), Lyulyov (2015), Blanco-Encomienda and Ruiz-Garca (2017). It is characterized by the sustainable development of all economic sectors (business sector, transport systems, renew able resources), etc.

Risquete and Ramajo (2015) use a vector autoregressive error correction mechanism on the Spanish economy from 1978 to 2009 to evaluate the effect of public policies upon the performance of Spanish economy that is a positively correlated with public revenue. Conversely, public spending can have an adverse effect in long run as compared to the short term. Many authors (e.g. Manso et al., 2015; Pilia, 2017; Zelazny, 2017; Lyeonov et al., 2018) use basic indicators such as GDP growth, unemployment rate, inflation rate and government budget balance to GDP and current turnover size balance to GDP to study the economic development of low-income countries and middle-income countries.

Udoka & Anyingang, (2015) reveal that public capital and recurrent expenditure lead to financial growth in Nigeria. Sadly, the causal relationship among government capital and recurrent expenditure in Nigeria was not found in later studies by Ojarikre et al. (2015). Government spending and macroeconomic stability differ from country to country. In cross-country analysis, it is found that spending on health and agriculture is beneficial for African economic growth. But in Asia, spending on education and agriculture can raise economic increase. On contrary, in Latin America, economic growth is caused by health spending. In Pakistan's economic system evaluation, a negative relationship is found between government spending and financial development. Researchers seek to provide information about the relationships between state and government size.

For example, Jetter and Parmeter (2015) acknowledge that time period and country sample change results when using other datasets, but also point out that more open economies do not necessarily have larger governments. Conversely, country size may be related to government size, since smaller countries generally have larger governments.

Osmond Okonkwo and Godslov (2015) employed the error correction model (ECM) to found the concept that fiscal decentralization and levels of fiscal dependence significantly affect macroeconomic stability of Nigeria using the Misery index as an indicator of macroeconomic stability. Many researchers have also shown how decentralization can improve

macroeconomic stability. According to Makreshanska and Petrevski (2015), decentralized governments tended to reduce inflation in 11 former transition countries in Central and Eastern Europe (CEE) between 1997 and 2001.

Gnip (2015) looked at how tax and spending shocks affected several macroeconomic factors in Croatia between 1966 and 2011. The results show that output responds negatively to tax shocks and positively to government spending shocks. Ricci-Risquete and Ramajo (2015) examine the impact of fiscal policy on the Spanish economy from 1978 to 2009. The range of techniques used to assess macroeconomic stability depends on two factors: first, on the complexity of defining the essence and content of the concept of economic stability and second, on a thorough study of all the interactions between the indicators used.

Furthermore, Bayar (2016) discovered a statistically significant and favorable relationship between economic growth and Worldwide Government Indicators. According to the author, the reduction in corruption influences economic expansion. Simultaneously, the least impact is seen in attaining political stability in the nation, which is a crucial measure of the effectiveness of public governance.

Keynes believed that higher public spending would result in higher output and aggregate demand (Corsetti et al., 2016). Therefore, boosting public spending during recessions will be successful in boosting the economy (Amuka et al., 2016). While Keynes advocates raising public spending through open budget policy (raising aggregate demand) during recessions, it promotes cutting back on spending when overemployment occurs, that is when aggregate demand exceeds aggregate supply. Amuka et al., (2016) explained that in periods of high consumption and income levels, public spending is increased. Because of the prevalent assumption that the government should have a limited function, the size of government was relatively minimal in the late nineteenth century. This situation changed during the two world wars and the creation of the welfare state, especially after 1960, which led to a sharp increase in government spending and taxation in industrialized countries.

According to Khalid (2017), stable macroeconomic conditions encourage healthy financial markets and infrastructure. How intermediaries efficiently transfer money between savings and investors, promoting economic expansion. Furthermore, a stable macroeconomic environment encourages globalization, integration, investment and financial development, all potential avenues for economic expansion.

According to Kmetová et al. (2017), a key component that leads directly to macroeconomic stability is the implementation of valid and effective tax systems that comply with EU regulations. According to Žigman (2017), fiscal councils are crucial for ensuring macroeconomic stability by regulating fiscal policy and minimizing political interference in public finance administration. Dzomira (2017) acknowledged that public sector stability is prerequisite for macroeconomic stability. He recommended reducing governance and financial risks in the public sector. However, price level stability is key element of macroeconomic stability paradigm.

Fiscal decentralization has been identified by Chygryn et al. (2018) as the primary driver of social and economic progress. However, in addition to more conventional factors such as labor, capital, technological progress and natural resources, the institutional environment of public governance is also considered by the academic literature as a key factor for macroeconomic stability (Alguacil et al., 2011; Rodrik, 2014; Arif and Ahmed, 2017; Salter, Tarko, 2017; Yimer,2017). Keynes suggests that monetary and fiscal policies be used by the government to meddle in the economy. According to the Keynesian philosophy, fiscal policy, particularly public spending, is given greater weight than monetary policy in preserving economic balances. At this stage, the issue of the public sector's size in the economy's ability to maintain macroeconomic stability arises (Sen et al., 2018). Vasylieva et al. (2018) have used a modified Cobb-Douglas production function to demonstrate how macroeconomic stability impacts the country's economic growth. Other explanatory factors of the Cobb-Douglas production function include macroeconomic stability, economic openness and foreign direct investment.

According to Bilan et al. (2019), there is a relationship between social and political variables and macroeconomic stability in eleven European nations. By using Fishburne's technique, they found the effect of public sector governance on macroeconomic stability, which includes public sector governance stability index. The findings indicate that the stability of public sector governance will be assessed through the connection between society and governance. The number of countries increased dramatically during World War II. We now live in an era of small states. More than a third of the world's 215 countries are currently small countries. The obvious benefits of increasing the size of government include larger domestic markets, which means less dependence on international trade, a more diversified business structure, and a richer human resource potential in terms of numbers and skills. It also has

political and social advantages such as enhanced military security, greater negotiating power than other states, greater government accountability, greater potential for internal redistribution, etc. Larger countries may also face problems arising from population heterogeneity, the need to focus on different preferences, increased expenditures such as allocations, and weak links between people, making it difficult to implement uniform and sustainable policies. Therefore, there are diseconomies of scale, mainly due to management costs and congestion. In addition, providing products and services and protecting property rights helps to stimulate financial prosperity and macroeconomic stability.

The direct relationship between public sector governance and macroeconomic stability has been extensively studied by many researchers. However, the indirect relationship between public sector governance and macroeconomic stability through the public sector size does not exist.

2.3 Public Sector Governance and Public Size

Improved governance quality with a smaller government size can mitigate the adverse effects of macroeconomic instability and political and socioeconomic disparities. The long-term sustainability of public sector governance guaranteed by stable political environment. Public sector size may have a detrimental impact with bad quality governance on economic growth in countries. However, this relationship becomes positive when the institutional quality of the economies reaches a certain level.

Rodrik (2000) has drawn that satisfactory of establishments is critical in smaller states to balance the influences of shocks. Democracy plays vital role for creating good institutions. Public sector governance effects macroeconomic stability directly and indirectly. In direct way good institutional reforms and an indirect way public investment is made on education, health, roads, highways and dams etc., Fan et al, (2000). Varoudakis et al. (2007), take into account how fiscal institutions function in figuring out the net benefit or cost of any size of government. Improved fiscal structures enable nations to collect taxes at a lesser cost.

Economists study the optimal size and role of the public sector in the economy between public spending and GDP (Dossel and Valadkhani, 2003; Karimi et al., 2016). Some political economists emphasize the importance of institutions in determining the size of government and attribute the failure of political markets to governments that are too big but not successful enough. The factors contribute to the public size include voting regulations (Husted and Kenny,

1997), interest group competition (Becker and Mulligan, 2003), party preferences (Braeuninger, 2005), political centralization (Fiva, 2006), and the extent of openness and globalization (Shelton, 2007; Rodrik, 1998; Potrafke, 2009; Dreher et al., 2008). Compared to underdeveloped nations, advanced nations have various need for their governments to act and varied capacities for intervention. This distinction has long been acknowledged for developing nations compared to countries with less efficient markets, those with more efficient markets have greater market trust and fewer reasons for government intervention since revenues obtained are seen as legitimately earned incomes rather than rent.

Furthermore, Olsson and Hansson (2011) emphasize that there is a negative relationship between the size of a country and its level of legal stability, because institutional quality tends to be beneficial for the welfare of local communities. The causality between public sector governance and public sector size has been explored.

Dzhumashev (2014) found that the quality of governance, levels of public spending, and economic development have an impact on bureaucratic corruption and economic growth. Research shows that the relationship between corruption and governance improves the efficiency of public spending, which in turn determines the growth effect of corruption. For example, corruption increases economic efficiency only when the size of government exceeds the optimal level. This means that corruption can be used to accelerate growth. The study also concluded that the prevalence of corruption decreases as economic growth increases. Because when the economy grows, wages rise, which increases the cost of private rent-seeking and reduces corruption.

(Brito, 2015) points out that currently 1/3 of the 215 countries in the world are quite small and we live in the era of small countries. Developed economies are obsessed with outsourcing, while developing countries have stricter rules for government intervention. A large government may have adverse effect on export performance of a country by reducing output growth (Bournakis and Tsoukis, 2016). According to Holden and Sparrman (2018), a 1% increase in government spending reduces unemployment by 0.3%, after using data from 20 OECD countries to assess the impact of government size on unemployment. Furthermore, previous research has explored the relationship between public size and quality of governance.

The facts from the World Economic Outlook (2020) raise questions about the actual decline in gross domestic product (GDP), especially for some smaller European countries (such

as Iceland, Latvia, Estonia, Lithuania, Slovenia, Croatia, San Marino, etc., especially if we compare them with other large countries. Data from many countries in the region show a positive relationship between good governance and competitiveness, but a negative relationship between public sector size and competitiveness. The authors discovered that governance had a greater influence on competitiveness than the public sector size. According to the findings, reducing the size of the public sector could boost competitiveness.

Many researchers have discussed the link between public sector governance and public sector size separately, but the connection between public sector governance and macroeconomic stability through public sector size is missing.

2.4 Public Size and Macroeconomic Stability

The link among public sector governance and economic stability can be influenced by the public sector size. A big public sector can put strain on public sector governance and diminish the efficacy of government operations. Strong public sector governance can offset the negative consequences of a big public sector while also promoting macroeconomic stability.

The size of the public sector can affect public governance in both positive and negative ways. On the positive side, a bigger public sector can provide more resources for government institutions to carry out their responsibilities, which could result in better public sector governance. A large public sector also can offer extra opportunities for specialization and professionalization, which can enhance the quality of government decision-making and implementation. On the negative side, a larger public sector can lead to increased bureaucratic complexity and reduced accountability, which could undermine public sector governance. A big public sector size can also cause a burden on public finances, which could lessen the resources available for different government activities and decrease the capacity of public institutions to perform their responsibilities efficiently. The impact of public sector size on public sector governance is therefore complex and depends on a variety of factors, including the nature of the government agency and the level of transparency and accountability. Overall, maintaining an appropriate balance between the size of public sector and public sector governance is crucial to improving government efficiency and maintaining macroeconomic stability. Smaller countries have more freedom to invest and tend to be subject to far fewer regulations than larger countries. Public sector size is therefore expected to mediate the relationship between public sector governance and macroeconomic stability. Historical data

shows that government spending improved significantly over the course of the 20th century, driven by spending on social security, education and healthcare. Public spending in high-income countries tends to be much higher and to focus more on social protection than in low-income countries. Recent research on government spending shows that governments often rely on the private sector to provide and control goods and services. Most scholars underline the role of the public sector size in determining economic growth. However, their findings differ significantly regarding the nature of public sector governance effects and size on macroeconomic stability. According to the literature, different researchers have used different methodological and normative approaches. Some economists argue that the size of the public sector prevents monetary expansion when it approaches a threshold due to inherent government inefficiencies. More taxation and governmental spending are necessary to achieve this goal. Raising tax rates will result in a deadweight burden and a higher tax rate leads to less production. The square of the tax increases the individual taxpayer's loss of utility (Dupuit, 1844).

In his research on the United States, Scully (1989) finds significant evidence that the size of the public economy boosts employment. Peacock and Wiseman (1961) explain that World War I led to a significant increase in government spending and revenue, with participating countries Germany, France, Italy, and the United Kingdom experiencing the highest spending rates. In these countries, as incomes continued to be high after the war, governments spent more than a quarter of gross domestic product. According to research on the optimal size of government (Vedder and Gallaway, 1998), government spending in some developed countries is less than 20%.

Lindauer and Velenchik (1992) proposed two ways that government spending can improve economic performance, contributing to the discussion on government spending and economic stability. The first occurs when the government produces goods and services. The other is when it makes sense for the government to spend money to fix market imperfections. Inferentially, well-executed government spending promotes economic stability.

Gali (1994) studied the relationship between output volatility and government size over the period 1960–1999 using a real business cycle model of OECD economies. The results show that government purchases stabilize the economy, while income taxes destabilize it. The study concludes that there is a negative relationship between government size and output volatility

in real business cycle models. Results display that as automatic stabilizers, low tax charge and high government spending are associated with low output variability.

Scully (1994) showed that ultimate tax payment, or equivalently, public sector size tiers range from 19 to 23 percent. The study also found that New Zealand's average starting tax charge was 19.7 percent of GDP between 1927 and 1939. Furthermore, government spending on public goods such as defense and asset protection has also been found to stimulate economic growth. But to some extent, public investment will become inefficient due to excessive social spending. Therefore, improvements in the tax system are needed to finance transfers and other government social spending, as both can have a negative impact on financial growth.

Guesh (1997) studied the impact of the size of government on economic growth and monetary and political development in emerging countries. It uses panel data to study the links between 59 growing economies. The results show that in non-democratic socialist countries, an increase in public size has a threefold additional effect on economic growth. The overall result is that a 1% increase in government size slows economic growth by 0.143%.

Tanzi and Schuknecht (2000) find that the government was relatively small in the late 19th century. However, this changed during the two world wars and the rise of the welfare state, which led to rapid increases in government spending and taxation in developed countries. Especially the years after 1960. Additionally, regulations were used more frequently to address externalities that were thought to have detrimental effects on people or the environment. Without a doubt, the state's economic role has shifted. In nations that were still regarded as market economies, it has grown. The strengthening of the economic role of government advocated by Keynesian economists will inevitably lead to controversies. Conservative and libertarian economists of the Chicago School, the Austrian School, and the emerging public choice school have vigorously denounced the growing role of government. They argue that this hinders economic progress, creates inefficiencies, reduces people's motivation and that independence will come to depend on the "nanny state". These critics argue that the state reduces economic dynamism and growth by reducing incentives for individuals and increasing their dependence on government. For example, Keynesian economists often argue that society prefers more government and redistribution to address market imperfections, such as "Wagner's law that government produces more goods, which is reflected in the size of government. They explain that if the purpose of the policy is to advance various unweighted socioeconomic indicators, a level of 30 to 35 percent of GDP in public spending might define

acceptable limits. Shortly before World War II, the share of government spending in today's rich countries had risen to an average of 23.4%, partly due to the global economic crisis and partly due to preparations for war. Since 1870, the share of government spending has nearly doubled, from 1/9 to nearly a quarter of GDP.

Kandil (2001) investigates the asymmetric effects of US government expenditure shocks. According to the study, a rise in public spending raises interest rates, which reduces private consumption and investment spending, lowering the rate of output and inflation. Research carried out by the International Monetary Fund suggests that the primary cause of stagnation in the majority of nations is economic instability. As a result, it is anticipated that the implementation of strategies to stabilize macroeconomic conditions and implement structural reforms will have a positive impact on achieving high levels of economic development (Norouzi, 2001).

Fatas and Mihov (2001) looked at the OECD nations' business cycle volatility and government size between 1960 and 1997. They find that economies with larger governments influence the stability of production. Silgoner, Reitschuler, and Cuaresma (2003) study the impact of fiscal stabilizers on economic fluctuations in EU countries between 1970 and 1999. They find that fiscal stabilizers moderate business cycle fluctuations. When instrumental variable estimates were used to take the potential endogeneity of government size into account, this effect was not statistically significant. Some findings contradict each other, suggesting that public size has a favorable effect on economic development (Ram, 1986; Kormendi & McGuire, 1985; NORAD, 2000), while Cameron (2002), Khalili Araghi and Ramzanpour (2002), Lando (1994) and others contend that government spending harms economic development. Therefore, it is impossible to establish a universal law or principle governing the relationship between the size of government and economic development in various countries, nor can the conclusions drawn from it be applied to other countries.

Fan and Rao (2003) employ a cross-sectional study to look into the relationship between agricultural, educational and health expenditures and macroeconomic stability in 43 developing countries. Data shows that Africa's agricultural and health spending is higher than Asia's agricultural and education spending, and only Latin America's health spending has a positive impact on economic development. Furthermore, in addition to ensuring security from the perspective of minimal government intervention, the government can also have a significant impact on economic management and performance as it is one of the most important economic

sectors of any country. Therefore, it can have both positive and negative effects on private sector production and, ultimately, on the overall level of economic output (Doessel & Valadkhani, 2003).

Doessel & Valadkhani, (2003) discuss the government, which is a large economic sector in every nation and, in addition to providing security with a view toward minimal government involvement, can have a big impact on economic management and output. Therefore, it can have both positive and negative impacts on private sector production and, ultimately, overall economic output.

Sjoberg (2003) studied the relationship between public investment, spending and GDP growth rate between 1960 and 2001. The Armey curve is used to evaluate this relationship. Research shows that small government cannot promote economic growth. Furthermore, research shows that excessive government spending hinders economic growth. The study found that investment is positively correlated with GDP growth, while consumption is negatively correlated.

Pevcin (2004) studied the significant negative impact of government spending on economic growth using 12 European economies. Furthermore, according to research, the optimal size of government is between 36% and 42%. Koskela and Viren (2004) studied the relationship between size of government and output volatility in 91 countries from 1980 to 1999. They find a negative nonlinear relationship between size of government and output volatility in OECD countries. They discovered that, the relationship between government size and production volatility is strongly negative in both large and small public sectors.

Berument and Dogan (2004) used the 'Hodrick-Prescott (HP) filter' to analyze the asymmetrical impact of government expenditure shocks on Turkish output from 1987 to 2000. The data revealed that, whereas a government expansionary shock reduces private consumption and investment.

Some researchers argue that there is an adverse relationship among size of government and economic stability and discovered that there is a nonlinear relationship between public size and macroeconomic stability (Gali, 1994; Fatas and Mihov, 2001; Viren, 2005; Andrés, Doménech and Fatas, 2008; Mohanty and Zampolli, 2009; Li, 2010; Koskela and Viren, 2004). While, Silgoner, Reitschuler and Cuaresma (2003) found that automatic stabilizers are strong in developed economies, Debrun and Kapoor (2010a) observed that automatic stabilizers are

good in developed economies. The second line of reasoning argued that automatic stabilizers are crucial for maintaining macroeconomic stability and production stability, and that the stabilization effect increases with increases in social spending (Furceri, 2010; Fatas and Mihov, 2012). For at least two reasons, government spending can play a significant role in stabilizing output and overall demand. First, a higher percentage of individuals employed in the public sector, as well as increased provision of public goods and services, may be associated with higher government spending shares. Government spending should be more stable than other components of aggregate demand, thus reducing overall fluctuations in aggregate income and output. A second possibility is that a higher proportion of government spending provides pensions and unemployment compensation to larger number of citizens reflects a more generous social security system.

Most research on public spending and public sector management has focused on the efficiency of the public sector (Gupta and Verhoeven, 2001; Afonso et al., 2005; Hauner, 2008). These studies often focus on specific socioeconomic sectors and initiatives supported by governments. They gauge "efficiency" by associating certain socioeconomic benefits with public spending. For example, the effectiveness of the education sector is often measured by school enrollment (about public spending), whereas the health sector uses infant mortality. Aside from the estimates found in the corresponding scientific studies, it is frequently challenging to locate databases devoted to gauging the overall effectiveness or caliber of the public sector when comparing different nations. In addition to pointing to political market failure as the reason why governments become larger and less effective than it should be, some political economists have also emphasized the influence of institutions in determination of government size. Voting laws (Husted and Kenny, 1997), interest group competition (Becker and Mulligan, 2003), party preferences (Braeuninger, 2005), political centralization (Fiva, 2006), the predominate income distribution (Meltzer, 1983) and the level of openness and globalization all have an impact on the size of government (Shelton, 2007; Rodrik, 1998; Potrafke, 2009; Dreher et al., 2008). Numerous studies have evaluated the effects of increased state economic involvement on macroeconomic performance and other goals. Social democrat economists tended to downplay the detrimental effects of a larger government role, whereas conservative economists tended to identify more unfavorable outcomes. In summary, it is challenging to draw firm conclusions on whether nations with higher levels of spending, like many European nations, have performed worse overall than nations with lower levels of spending, like the Anglo-Saxon nations.

Furthermore, previous study (Afonso, Schuknecht, and Tanzi, 2005, 2010a) focused on the potential quantitative relationship between a variety of important socioeconomic factors and level of public spending. They found that if these indicators reflected the desired objectives, then it was possible to reduce government spending. According to a study on the assumed optimal size of government (Vedder and Gallaway, 1998), government spending in some developed countries is estimated to be less than 20%.

Although the optimal size varies from country to country, some estimates range from 30% to less than 40% (Tanzi and Schuknecht, 2000; Pecvin, 2004; Facchini and Melki, 2013; Fort and Magazzoni, 2010; Afonso and Schuknecht, 2019) and Schuknecht, 2020). Real government spending tends to be much higher, suggesting that significant cost savings are possible in many countries, even taking into account the need for some spare capacity in the provision of specific public goods such as healthcare or protection against major shocks and emergencies. It is worth noting that in the 1990s some countries, including Sweden, Canada, etc., made significant cuts in public spending without obvious negative effects (Schuknecht and Tanzi, 2005).

Viren (2005) investigated the relation among output volatility and government size in 208 countries globally between 1960 and 2002. The findings indicated that there is no meaningful correlation between automatic stabilizers and the government size. Research found that the growth of the government does not cause the stability despite the erratic nature of government spending.

Furthermore, Afonso and Gaspar (2007) provide numerical evidence demonstrating how financing via distortional taxes results in extra burden (deadweight loss), which increases the expenses associated with inefficiency. The aforementioned reasons have an impact on the quantity and makeup of public spending as well as the design of the tax systems required to pay for it.

Berg (2007) studied the relationship between government size and economic growth in rich OECD countries between 1970 and 2005. The results show that focusing on institutional qualities such as economic freedom and globalization can mitigate the negative effects of taxes and public spending. The results show that GDP, taxation and government spending have a significant impact on economic growth.

Saville (2008) could not discern any benefits from government spending because, in his view, the government functions as a large parasite that feeds on the health of its host economy at a faster rate when it is in good health and at a slower pace during downturns. He contends that increasing government spending during an economic slump will exacerbate the situation. It is found no unanimous agreement on the association among public spending and economic stability. Moreover, empirical studies have also yielded a variety of results. According to Ezirim et al. (2008), increasing public spending raises inflation in the United States, according to the cointegration and Granger causality tests. Using panel data, Tagkalakis (2008) examined the uneven impact of financial policies on private consumption over boom-and-bust business cycles for 19 OECD nations between 1970 and 2002. The findings showed that financial policies had a greater impact on private spending during recessions than during prosperous times.

Andres, Doménech, and Fatas (2008) studied the impact of government size on output volatility in OECD countries. They found a negative relationship between the size of government and output volatility from 1960 to 1997.

Vladimirov and Neicheva (2008) revealed that Bulgaria's government budget played a stabilizing role between 1998 and 2004, just before the country joined the EU. They noted a negative relationship between taxes, government spending and real GDP growth rates. They conclude that for large government sectors, balanced budgets ensure the long-term sustainability of public finances but do not guarantee growth.

Han and Mulligan (2008), in a time series analysis of data found that increasing the size of the public sector during war (an increase in defense spending) would lead to an increase in inflation, thus destabilizing the economic system, whereas, an increase in public spending other than defense spending reduced inflation in the United States from 1870 to 1995 and in the United Kingdom from 1721 to 1990.

Feldmann (2009) argues that when the public sector outnumbers the private sector, labor markets become less flexible in countries and that their capacity for job creation decreases, using data from 58 developing nations from 1980 to 2003.

Mohanty and Zampolli (2009) inspected the relation between output volatility and size of government from 1970 and 2008 in OECD countries. They found an adverse relation among output volatility and size of government. Baunsgaard and Symansky (2009) investigated

whether OECD nations could strengthen their automatic stabilizers without increasing their governments between 1995 and 1999. They found a direct relationship between the effectiveness of automatic stabilizers and changes in taxation and public expenditure.

Gholami, (2009) argued that spending is necessary to carry out the aforementioned government activities and fulfill imposed roles. Therefore, government spending is linked to GDP growth, a dimension often overlooked in the literature. Given governments' significant participation in the economy, economists frequently debate the appropriate function and scope of governments. Many empirical studies investigated the linkage among size of public sector and economic development. Using the Auto-regression Model, Komeijani and Nazari (2009) examined how Iran's economic development was impacted by the size of the Iranian government. They concluded that government expenditure was consistent with Keynes' economic theory and had a favorable impact on economic growth. The extensive government involvement in the economy suggests that disagreements about the proper scope and size of government (Gholami, 2009). The implementation and impact of fiscal policy differ in developing nations compared to high-income nations, where the latter experience highly persistent government consumption shocks that last for up to six quarters, whereas gains in government consumption are significantly more transitory. Economic theories do not provide a clear relationship between government spending and economic growth. Nonetheless, it is anticipated that governments support economic development by building the necessary infrastructure and offering services acceptably and effectively (Komeijani & Nazari, 2009). Therefore, by utilizing the financial tools at their disposal, governments may shift the demand curve and achieve key goals like increasing production or reducing employment, containing inflation and promoting economic stability. In this context, "financial policies" refers to a group of governmental actions about taxation, spending and transfer payments that can be used to achieve the stated goals. As such, financial policies, as dynamic components of macroeconomics, build upon the revolution in economics that Keynes started. The primary problem with Keynes' theories is that they emphasize increasing government involvement in economic, investment and production sectors to achieve full employment.

Li (2010) examined the 'link among government size and changes in output' in China from 1994 to 2007. The findings demonstrated that the taxation system has no effect in reducing economic fluctuations, nor do provincial and extrabudgetary revenues or central

government fiscal transfers. According to Miron (2010), a smaller government is better for growth and that significant government spending on unending expenses is ineffective.

Thornton (2010) studied the relationship between output volatility and government size in emerging economies between 1970 and 2001. The results show that there is a significant positive relationship between government size and output volatility. Debrun and Kapoor (2010b) studied the contribution of governments to the induction and absorption of shocks in developed and developing countries from 1970 to 2006. They discovered that in industrialized nations, automated stabilizers serve as shock absorbers.

Hearth (2010) established the non-linear relationship between government expenditure and economic growth in Sri Lanka during the period 1959-2003. The Army curve is used for the evaluation, which shows that government spending and monetary growth are positively correlated up to a certain threshold, but negatively correlated above that threshold.

Rahbar and Sargolzaei (2011) examined the impact of government spending on economic development from 1984 to 2007 using ARDL and VAR models. The findings revealed that a short-term increase in government spending is related to a slower rate of economic development.

Wang and Abrams (2011) used panel data to study 20 OECD nations and concluded that higher public sector sizes are associated with higher unemployment rates. The authors proposed that public health insurance, unemployment benefits, compensation and private government-funded insurance plans make workers more likely to resign and less likely to look for work. Fatas and Mihov (2012) studied the cyclical behavior of fiscal policy in 23 OECD countries from 1960 to 2011. They found a strong negative relationship between economic fluctuations and the size of government.

According to Attari and Javed (2013), increased governmental expenditures impede Pakistan's economic development. Amuka et al. (2016) employed vector auto regression model to examine the elements of government spending that contributed to macroeconomic stability in Nigeria from 1971 to 2010.

Samanipour et al. (2016) found that fiscal capital expenditure on monetary services is the primary motive of inflation. Sector-wise analysis has been conducted and found that the government must spend on the economic sector if it wants to achieve macroeconomic stability. Using the threshold regression approach for Iran, a small government regime has a negative

impact on inflation while a large government regime has a favorable impact. Garry and Valdivia (2017) found that expanding the public sector increased national income in their studies of Mexico, Central America and the Dominican Republic from 1990 to 2015.

According to the study by Kovacı et al. (2018) used a dynamic analysis of panel data from 28 EU countries and find that the size of the public sector has a statistically significant positive impact on unemployment. However, they find that in 15 EU countries the negative effect of the size of the public economy on employment is confirmed, while in 13 EU countries the effect is not statistically significant.

According to Holden and Sparrman's (2018) panel data analysis on the impact of public economic size on unemployment for 20 OECD nations, a 1% increase in public spending lowers the jobless rate by 0.3%. In their investigations by utilizing the GMM approach and data for the years 2000–2017 for 20 African nations, Onuaho and Agbede (2019) discover that while spending on defense and health increases unemployment, spending on infrastructure and education lowers it. Using a VECM approach for the period 1970–2010, Nguyen (2019) finds that while increasing the share of government spending in national GDP reduces inflation in China, it increases inflation in Indonesia and India.

Özer (2020) used the Toda and Yamamoto causality test and the Fourier-Shin cointegration test to analyze the relationship between the unemployment rate and the size of the Turkish public sector economy. According to the study's findings, for every unit increase in public spending, the unemployment rate rises by 0.45.

In 2020, Sağdıç and Yıldız used the panel ARDL bounds testing approach to investigate 26 development zones in Turkey. The study's findings demonstrate that public spending has a short-term beneficial impact on the unemployment rate and a long-term negative impact. Kutasi and Marton (2020) reported that social security expenditures negatively impact economic development in 25 European Union countries using the GMM method, while health and education expenditures positively impact.

Tanzi (2020a and 2020b) has explained how funds are allocated and taxes are gathered hold greater significance than the amount of money spent and taxes collected. Nevertheless, the rise in foreign debt made it harder for foreign investors to see clearly and gave them a pessimistic outlook for the future of the economy, which drastically decreased the amount of investment in a nation. Furthermore, it was shown that while the government's

greater presence resulted in lesser private sector engagement, the government's size had a detrimental impact on attracting foreign direct investments. On the other hand, GDP and FDI had a positive relationship, meaning that more production would raise future investment and consumption. The alternative as implemented by the US and certain other nations of having average-tested programs that are exclusively available to a limited number of people and pairing them with "tax expenditure" lowers taxes and spending but creates additional challenges (Tanzi. 2020a).

Finally, the 2020 COVID-19 outbreak has highlighted a problem: the mainstream literature on ideal country economic functions only discusses marginal changes in equilibrium caused by political markets and equilibrium scenarios. (Tanzi, 2020c). Stated differently, it has not addressed systemic shocks when the state's role could become particularly significant. We are aware that the role of the government shifts and becomes especially significant during large-scale conflicts. Other anti-market measures include rationing, price controls, resource allocation, extremely high marginal tax rates and others. Disasters such as significant wars, natural disasters, depressions, revolutions, pandemics and others can cause shocks to a nation's economic systems. Reduced government involvement might not be the best option in a society where existential shocks happen regularly. These shocks frequently highlight significant holes in the state's role. However, it's also unclear if greater funding for the government would go toward strengthening nations' defenses against significant shocks. The coronavirus epidemics serve as an example of this: both nations with sizable public sectors and those with smaller ones find it difficult to combat the problem. Taking these factors into account, it is not surprising that there is no definitive conclusion regarding the ideal size and extent of government.

The study by Nepram et al. (2021) using panel data analysis in India concluded that the size of the public sector economy increases the unemployment rate. Afonso et al. (2021) use the panel cointegration and causality test to find a positive association between the economic size of the public sector and both unemployment and inflation in a sample of eight emerging economies. Public expenditure ratios quadrupled again during the course of the following 60 years, with some noticeable waves each time. After World War II, war spending decreased and other spending increased. As a result, by 1960, the overall spending ratio had only slightly grown to 27.9% of GDP. This reflected the expansion of public services like infrastructure and education as well as the accumulation of fundamental safety nets throughout earlier decades.

Some European countries have the largest public sectors, with Austria and France accounting for almost 35% of GDP. In Switzerland, Japan and Spain, total public spending remains less than 20% of GDP. During World War II, revenue and expenditure had largely matched, resulting in a substantial decline in public debt throughout the industrialized world due to robust growth and moderate inflation. Public spending increased in just 20 years at an unparalleled rate between 1960 and 1980, averaging 15 percentage points of GDP. Numerous countries actively created welfare states and public services that are now universal systems, during the peak of Keynesian economics, governments in. In small European countries such as Austria, Belgium, the Netherlands, Denmark and Sweden, public spending exceeds 50% of GDP, although the average share in the sample of reporting countries is 43%. The governments of a different set of nations, the majority of which were non-Europeans, were still "only" taking in one-third of the country's resources, albeit this was still significantly more than in 1960. Perhaps the largest divergence from previous periods of peacetime was the increasing mismatch between revenue and expenses.

Budget deficits in 1980 and beyond were severe and persistent. Both budget deficits and rising real interest rates have been accompanied by increases in national debt. For the majority of countries, the substantial rise in sovereign debt that began in the 1970s persisted throughout the ensuing decades. Skepticism about "big" government and the previously mentioned shift toward a more market-friendly intellectual climate caused a significant slowing in the dynamics of public expenditure in the 1980s and 1990s. The average spending rate in 2000 did not change significantly compared to 1980. In the 1990s, many countries implemented spending reforms, resulting in significant decreases in spending as a percentage of GDP, exceeding 5% in Belgium, Ireland, Netherlands, Sweden and the United Kingdom. In contrast, Finland, France, Italy, Portugal, Spain and Japan recorded larger increases in public spending as a percentage of GDP. Although the 2000s were highly turbulent, pro-government and Keynesian ideas saw a significant resurgence overall. The financial crisis led to an expansion in public expenditure ratios, which followed the boom years of the early 2000s. Many European nations implemented significant spending cuts and reforms. In 2017, the total government spending as a percentage of GDP was only slightly higher than in 2000 (43.9 vs. 42.7%).

The direct relationship between public size and macroeconomic stability has been discussed separately by many researchers, but the indirect relationship between public sector governance and macroeconomic stability via public size is missing.

2.5 Public Sector Governance and Public Debt

An economy's ability to function depends in part on its level of positive indebtedness, according to political economics theory and research. Previous studies have two explanations for this positive effect: as argued by Barro (1979), first is the countercyclical impact of public sector debt, the second is the role of public sector debt in the redistribution of wealth, as explained by Cukierman and Meltzer (1989), Debotoli and Nunes, (2008). Leff (1964) argued that corruption generally reduces bureaucracy and increases economic growth. Others agree, such as Wei (2000), Huntington (1968), Johnson (1975), Nye (1967), Wedeman & Looters (1997), and Wei (2001). Scully (1988) argues that higher rates of economic growth result from the presence of freer institutions, such as those governing personal and corporate freedoms.

The debt hypothesis, proposed by the authors Persson and Svensson (1989) and Alesina and Tabellini (1990), states that different countries seek different levels of public debt as a result of agreements and political decisions taken under the same economic conditions. Several previous researchers considered corruption as one of the six characteristics of governance proposed by Kaufman. North (1990) defines institutions as social rules or artificial constraints that shape human interactions. Strong institutions can encourage greater investment, leading to stable long-term economic growth. It is also clear that effective institutional controls can monitor the types of activities that interest groups engage in when there are distortions and unproductive appropriation of resources. Furthermore, effective institutions can also be implemented by governments laws that have direct or indirect effects on businesses, reducing uncertainty for economic decision makers and providing incentives for creative and productive efforts.

According to Shleifer and Vishny (1993), high levels of corruption cause credit resources to be diverted from valuable initiatives such as health and education and directed towards potentially ineffective initiatives such as infrastructure and defense. They also noted that inefficient and dishonest public sector organizations tend to divert funds away from high-value investment areas such as health and education and into lower-performing areas such as defense and unnecessary infrastructure projects.

The French government is dedicated to enhancing both local and foreign investment and United States has demonstrated the critical role of institutional governance in increasing the investment level in the nation, as reported in Fanto (1995).

Prior research has identified the significance of corruption and there are plenty of studies on this subject. Many researchers have studied the impact of corruption on economic growth, most of them highlighting a negative relationship (Mauro, 1998; Mo, 2001; Tanzi & Dawoodi, 2000).

According to certain research, corruption lowers investment and foreign direct investment (Brunetti et al., 1997; Campos & Lien, 1999; Abed & Davoodi, 2000). Corruption has also been shown to harm economies by fueling inflation (Al-Marhubi, 2000 and Blackburn et al., 2008) and by increasing the size of the shadow economy (Friedman, 2000; Johnson et al., 1997 and Schneider, 2010).

Government spending is another cause for concern as it is linked to corruption in public finances. Mauro (1998) examined the various components of public spending and illustrated that how corruption undermines spending on health and education. He said some public spending projects are more likely than others to attract illegal rents and bribes, thus fueling corruption in the public sector.

It is argued, through the literature on the macroeconomic effects of public debt, that the use of debt to finance short-term consumption will lead to positive growth (Elmendorf and Mankiw, 1999). This study examines the traditional theory of public debt, which emphasizes short-term aggregate demand and long-term crowding out effect.

It addressed a theory of debt neutrality which explained the theoretical and empirical debate over Ricardian equivalence. Finally, they explored the alternative normative perspectives on how the government should use its borrowing authority. So, unsustainable levels of consumption will raise government debt levels, which could eventually result in negative growth rates. In addition, we would anticipate less investment in nations with poorer public sector management than in those with strong institutions. Uncertainties affect the investment climate when weaker institutions exist. Additionally, public monies would be reallocated to unproductive industries that encourage theft rather than productivity.

Parker (1999) stated that the foundation of excellent governance determines the caliber of regulations. By striking a balance between responsibility, transparency and consistency, a well-functioning regulatory framework enhances investor trust. Government spending, corporate laws, interest rates, minimum wage and investment subsidies all have a significant role in shaping the investment climate by guaranteeing political stability and influencing the

choice of investment decisions (Williams, 2002). Corrupt governments typically borrow more money than those with lower levels of corruption (Jalles, 2002). The entire economy could be harmed by excessive borrowing brought on by corruption. This is because these activities are motivated by rent-seeking. Aside from corruption, the effects of other aspects of governance on public debt have also been included in several past publications. Other aspects of governance may be related to one another, reinforcing the idea that the rule of law protects property rights and mitigates the adverse impact of corruption. Voice and Accountability have a good association with growth (Kaufmann,2010), can improve a country's ability to absolve debt (Neumayer, 2002), and can strengthen a country's borrowing power through its integrity (Schultz and Weingast, 2003). Political stability enhances macroeconomic stability overall and enhances the economy's legal framework by granting validity to issued contracts (Rajan and Zingales, 2003).

Patillo et al. (2003) found that in countries with inadequate policies, the negative impact of debt on economic growth is more pronounced in highly indebted countries. When funds raised through the national debt are used for wasteful spending by corrupt states, the national debt has a negative impact on the economy. According to Giocchini et al. (2003), the quality of a country's governance can increase the risk of failure. This suggests that growing corruption is not good for economic growth because it creates uncertainty. In any case, corruption undermines the link between national debt and economic growth. In a corrupt country, public debt can have a negative impact on economic growth, however, in a non-corrupt country, there could be a positive relationship between the two factors. The impact of public debt on economic growth varies from country to country. While national debt is not a major problem in itself, it can become one when combined with corrupt activities or untrustworthy institutions. Furthermore, high debt levels may make the economy vulnerable to asset price swings, exacerbating shocks and macroeconomic instability. Most empirical data support the detrimental impact of government debt.

In recent years, governance has emerged as a key area of study for determining its influence on economic growth (Grindle, 2004). Economic expansion is thought to require good governance (Kaufmann et al,2005). In order to check the linkage among public sector debt and public sector governance, most scholars use institutional and political elements. National debt accumulates through governance (Woo, 2006). Stable political systems and well-functioning institutions not only reduce output volatility, but also increase real GDP growth and reduce the

likelihood of sovereign debt crises (Mehlum et al., 2006). Furthermore, an effectively functioning regulatory framework is one of the main factors of economic success (Jalilian, 2007). Financial stability is largely influenced by political institutions (Haber et al., 2008; Roe and Siegel, 2011). At the same time, other studies have shown that the institutional environment influences the growth of corruption (Acemoglu et al., 1998; Aidt, 2009; De Rosa, 2010; Meon and Sekkat, 2005; Meon and Weill, 2010; and Shleifer and Vishny, 1993). Mendez and Sepulveda (2006) found that there is a non-monotonic relationship between corruption and economic growth. When the incidence of corruption is low, corruption is positively correlated with economic growth; when the incidence of corruption is high, corruption is negatively correlated with economic growth. The level of corruption driving economic growth is well above zero. However, studies that investigate the influence of corruption on debt are more closely related to public debt.

Since the government spends most of its public funds on industries like highways rather than public hospitals and schools, some public investments can be misappropriated by dishonest people (De la Croix and Delavallade,2011). The influence of institutions is significantly underestimated, as are many studies on the relationship between public debt and economic growth (Jalles 2011; Gonzales-Fernadez and Gonzalez-Velasco 2014), with the exception of Cooray (2017). Few researchers have studied how government debt affects economic growth. Several studies (Caner et al., 2010; Kumar and Woo, 2010; Checherita and Rother, 2010; Cecchetti et al., 2011) have adopted the arguments of Reinhart and Rogoff (2010) and found effects of excessive growth of public sector debt and found a non-linear relationship. There hasn't been much research to show that debt slows growth in other sectors. An exception is Cecchetti et al. (2011) because most of their conclusions are ambiguous. Although these studies report significant consequences, particularly when public debt exceeds more than 75% of GDP (Égert, 2012), establishing a solid threshold is challenging. It goes without saying that various institutions exist in our society. For example, Kim (2017), Cooray et al. (2017), Benfratello (2018), Grechyna (2012) and Mauro (1998) argue that corruption has a negative impact on economic growth. In this case, the government's primary source of funding is borrowing, resulting in higher interest rates and a greater economic burden. Corruption impacts the economy through the incorrect allocation of government resources.

To estimate debt threshold levels, Cordella et al. (2010) examined the relationship between debt and growth, considering debt and political/institutional quality in a sample of

developing countries. The study found that countries with strong policies and institutions experience debt overhang when the net present value of debt exceeds 20%-25% of GDP. However, beyond 70-80%, the debt becomes irrelevant. Countries with weak policies and institutions may have lower thresholds, but evidence of debt overhang is limited. Debt may not always work. Even efficient governments may have difficulty meeting the needs of their citizens by financing consumption through debt (Jalles 2011). The study explained that the quality of governance, particularly anti-corruption and democracy, are seen as factors influencing the relationship between external debt (borrowing opportunities/constraints) and economic growth for a sample of 72 developing countries between 1970 and 2005. Countries appear to be better at exploiting and managing debt and have lower levels of corruption. Furthermore, in countries with lower levels of corruption, debt has both positive and negative effects on economic growth, as predicted by the nonlinear hypothesis. These institutions determine the amount of debt and the allocation of the funds raised. Corruption as a moderating variable role in the relationship between public debt and economic performance, while Pattilo et al (2011) examined the quality of government policies. As mentioned earlier, corruption may have an impact on public debt, public spending and economic performance.

However, Presbitero (2012) found, through an analysis of some low- and middle-income countries from 1990 to 2007, that public debt has a negative impact on output growth before it reaches 90% of GDP. Furthermore, at this threshold, the impact of debt on growth is negligible. This non-linear effect can be attributed to country-specific characteristics, as debt overhang limits growth only in countries with effective macroeconomic policies and solid institutions. According to the International Monetary Fund, global government debt will reach 256% of GDP by 2020, of which emerging markets will account for 140%. Despite the increase in the debt-to-GDP ratio, empirical evidence on its impact is mixed. Countries with poor infrastructure tend to borrow excessively, wasting collateral resources and transferring them to less productive regions, where poor public governance results in higher financing costs.

Melecky (2012) argues that well-managed public debt can lower financing costs and limit economic risks, but well-designed techniques are more likely to develop in countries with better institutional frameworks. Presbitero (2012) obtained opposite results using a sample from developing countries. Most studies confirm that institutional variables play an important role in determining the impact of debt on financial growth. Park's (2012) findings are also consistent with that point of view. According to his findings, corruption can divert bank

allocations from welfare to non-productive projects, thus damaging the efficiency of private investment and economic growth.

Kourtellos et al. (2013) show that the negative effects of debt are related to institutional imperfections. According to Lau et al. (2013), confusion in government policies due to corruption could be reduced. A growing number of recent studies have examined higher level of public debt and supported the notion of a nonlinear relation among public debt and economic growth (Reinhart and Rogoff 2010; Marchionne and Parekh 2015; Ahlborn and Schweickert 2018).

Dauda and Podivinsky (2014) examine whether debt promotes or hinders monetary growth in Malaysia and whether this is determined by institutional qualities such as the Political Rights, Civil Liberties and Monetary Freedoms index. Institutional quality is critical for adequate allocation and allocation of debt towards high value-added sectors.

Investments have been hampered by the perception that Indonesia, Thailand and the Philippines are the most corrupt, as stated by Azam and Emirullah (2014). Justesen and Bjornskov (2014) demonstrate that corruption negatively impacts poor people. Multilevel regressions conducted in 18 nations found that poor people are far more likely to have to pay bribes to government officials. According to Gonzales-Fernadez and Gonzalez-Velasco (2014), corruption has a clear and significant positive impact on the public debt of the Spanish sovereign government. The quality of the public sector can influence the debt-growth ratio in several ways. For example, countries with lower public sector quality, lower revenue mobilization rates, poor fiscal management and lower transparency tend to borrow more, thus increasing the likelihood of rising public debt (Heylen et al., 2013; Fernandez and Velasco)., 2014).

Dort et al. (2014) suggested that with robust institutions investment increases economic growth. Berggren et al. (2015) revealed a positive relationship in 35 European countries between institutional quality, instability and economic growth.

Megersa and Cassimon (2015) studied 57 developing countries and argued that debt is harmful to economic growth and can be controlled through effective public sector management. Furthermore, governance is critical to ensuring the rule of law and the provision of goods and services (Awaworyi, Ugur, & Yew, 2015).

Masuch et al. (2016) study that the negative impact of high initial debt (over 60%) can be mitigated by creating strong long-term growth institutions in European countries, but this impact is strong for changes in institutional quality indicators. Corruption ultimately undermines macroeconomic stability due to poor governance (Bosco, 2016). Égert (2016) shows how institutions and regulations affect productivity in OECD countries. Overall, a large body of research shows that governance affects the overall level of public debt and macroeconomic stability. The six dimensions of governance show a certain degree of interdependence. Through the distribution of government expenditure and rent-seeking practices, weak governance raises the level of public debt. The iniquities like excessive taxes, political unpredictability and corruption hurt enterprises. One factor that has been mentioned as preventing investments in the countries is corruption.

According to D'Agostino et al. (2016), there are significant detrimental effects on economic growth from the connections between corruption and military spending as well as between corruption and investment. Nevertheless, there is a counterargument that highlights the favorable effect of corruption on growth. Likewise, in case of Malaysia, upon the relationship among political instability and GDP, found that following political instability, it takes time for investment to return to its original equilibrium (Nazeer and Masih, 2017). Therefore, good governance encourages foreign investment in a country, while bad governance in some cases discourages foreign investment. The relationship between institutional variables and foreign direct investment (FDI) has attracted much attention in recent years.

Kim et al. (2017) examined a sample of seventy-seven advanced and developing nations and corruption control is used as a measure of institutional quality. It is found that growth is typically hindered by rising debt in more corrupt countries but is more favorable in transparent ones. Borrowed funds have the potential to stimulate the economy's financial system if employed effectively and moderately. If they are used excessively and irresponsibly, they will have a slowing effect. Empirical studies show that corruption is associated with an increase in public debt, as governments in corrupt countries borrow more (Cooray et al., 2017; Benfratello et al., 2018). There is chance of greater economic sustainability performance in economies with strong governance. The above-cited studies affirm that sound public institutions are a crucial issue in determining the effect of debt on financial development, which ensures properly functioning government policies and effectively manages public debt. This validates our hypothesis that nations with more powerful governments can have greater debt-to-GDP ratios

without negatively impacting financial growth. Foreign investors usually invest directly in countries with stronger economic systems. If the free market cannot function properly, government intervention in the economy will inevitably increase and the market mechanism will be unable to develop its resources or create new competitive advantages. Furthermore, Cooray et al. (2017) show that increasing corruption leads to an increase in public debt.

Shitu et al. (2018) found a bidirectional causal relationship between external debt and economic growth which is negative. The study found that there is a positive correlation between corruption and economic growth and there is a one-way causal relationship between the variables.

Similarly, Shahor (2018) stated that a debt ratio of less than 90% of GDP is good for the economy. The study also discovered that having a large debt burden is bad for the economy, particularly when it exceeds 130% of GDP. Good governance is believed necessary for improving citizens' quality of life and promoting the nation's competitiveness. Effective regulation maintains competitiveness, accountability reduces corruption and good governance protects property rights, all of which promote investment (Fraj, et al., 2018). As a result, everyone agrees that sound fiscal and monetary policies enable efficient and effective debt management. This is due to excellent governance. Therefore, good governance is an important tool for economic growth.

In a recent study, Ndoricimpa (2020) examines public debt thresholds for African countries using advanced panel smooth transitions regression methods. According to the analysis, there is no feasible threshold amount of public debt that can benefit growth and debt undermines the economy. Government debt has been shown in several studies to be detrimental to long-term growth because it has an impact on investment upon repayment (Hammudeh et al., 2020; Dey and Tareque, 2020 and Kharusi and Ad, 2018).

Sharaf (2021) found that debt sustainability is one of the biggest challenges facing most countries and that economies tend to sustain fiscal deficits through cyclical government debt, which has little or no long-term impact on economic growth. According to Abbas et al. (2021), public sector debt will have a negative impact on the economy at a low level of governance while with strong governance, public sector debt will have a favorable influence on economic growth.

Yasar (2021) studied how external debt affects GDP growth in developing countries using the ARDL econometric model. According to the study, institutional rigidities, insufficient governance and poor debt management all lead to fund leakage from public debt, making foreign debt detrimental to economic growth.

According to Mohsin et al. (2021) Debt has a positive impact on economic growth in developing countries during economic downturns by promoting capital formation and new investment. Many emerging economies rely on domestic and foreign borrowing to finance budget deficits. For various reasons, developing countries often find it difficult to manage their public debt to stabilize the macroeconomic situation. According to Asteriou et al. (2021) and Shittu et al. (2018), some developing countries exhibit twin deficits as they have destabilized fiscal balances and current account balances due to short- and long-term borrowing from various sources. Good governance pushes developing countries to use public debt to promote economic growth by ensuring government efficiency, reducing corruption and improving the quality of regulation (Nguyen, 2021). Countries are encouraged to improve governance and benefit from public debt, as this benefits the long-term relationship between debt and growth. According to the debt overhang hypothesis (Kharusi, 2018), public debt reduces GDP growth in commonwealth-independent countries (Yasar, 2021) and negatively affects growth in low-income countries. In contrast, during global recessions, government debt in emerging markets stimulates capital formation and new investment, increases employment and aggregate demand, and improves economic growth. In Latin American countries, stable policies and government efficiency improve the debt-to-growth ratio (Azam, 2022), and other researchers have also confirmed that good governance drives the debt-to-growth ratio in developing countries. The term good governance was coined by the World Bank in 1989. Since then, it has been used and applied in various disciplines. In recent years, the quality of governance has had a significant impact on economic growth. Many international organizations, including the Conference on Asia-Pacific Economic Cooperation, the World Bank, the United Nations, the Organization for Economic Co-operation and Development and the International Monetary Fund, support this view.

The direct relationship between public sector governance and public debt has been extensively explored by many researchers, but the indirect relationship between public sector governance and macroeconomic stability via public debt remains largely unaddressed.

2.6 Public Debt and Macroeconomic Stability

Several scholars have explained the connection between public sector debt and economic stability. There are positive, negative and non-linear relationships between two variables. A reduction in the quantity of loanable funds in the market increases the cost of capital for private borrowers, reduces the demand for investment and affects capital accumulation, growth and well-being (Diamond 1965).

Patillo et al. (2002) focus mainly on the external debt of developing countries by examining a large data set of 93 countries from 1969 to 1998. They found a nonlinear relationship between national debt and economic development and a negative relationship between external debt and GDP per capita growth and the net present value of debt reaches 35-40%. The average debt effect is negative for 160-70% of exports.

Most studies support neoclassical and endogenous growth models by showing a nonlinear negative relationship between public debt and economic growth (Diamond, 1965 and Saint, 1992). Previous research has shown that higher debt affects not only capital accumulation but also GDP growth. These effects are attributed to higher interest rates and expected future taxes (Barro, 1979 and Dotsey, 1994), higher inflation and greater uncertainty about policy decisions. Growth has been shown to be negatively impacted by public debt. Furthermore, the authors recommend that nations keep their debt levels below a certain minimum threshold. Larger public sector debt leads to increase volatility and reduce future growth by limiting the ability to pursue countercyclical fiscal policies. Public debt jeopardizes macroeconomic stability. All governments have made sustained growth one of their top priorities, and in order to accomplish sustainable growth, they must keep the amount of public debt under control.

Chalk and Tanzi (2002) explained the various mechanisms through which debt influences economic growth. Higher debt levels are associated with higher expected future taxes, which could reduce expected after-tax returns on capital. In particular, excessive public debt affects private investment and therefore economic growth through upward pressure on interest rates.

Various studies, including those by (Asiedu, 2003; Dessy & Vencatachellum, 2007; Fatás & Mihov, 2013), indicate that high-quality institutions and policies are necessary to promote investment, sustainable growth and further reduce excessive debt. Debt can have a

negative impact on growth, starting from neutral or favorable to growth, until it causes growth to slow down. Clements et al. (2003) study the relationship between growth and public debt using panel data for 55 low-income countries from 1970 to 1999. They find that external public debt has a negative impact on growth when it approaches 20–25% of GDP.

Schclarek (2004) uses panel data to study the relationship between public debt and GDP per capita growth for 24 industrialized countries and 59 developing countries from 1970 to 2002. The analysis found no clear evidence that greater level of public sector debt is related with lesser GDP growth in developed nations. Research has repeatedly demonstrated a negative relationship between debt and growth in developing countries. Kameda and Nakata (2005) argue that the main structural changes coming to the national budget involve the tax system.

According to research by Reinhart and Rogoff (2008), significant inflationary episodes and foreign debt crises frequently originate from the accumulation of a substantial domestic debt burden. Growth and debt appear to be weak at normal debt levels. Countries might experience a 1% lower median growth rate and significantly lower average growth rates with public debt exceeding 90% of GDP. Surprisingly, the relationship between public debt and economic growth is consistent across both developing and developed countries. This is not the case with inflation. With the exception of the United States, our analysis finds no relationship between high debt and inflation in developed countries. In contrast, in emerging nations, larger amount of public sector debt principals to higher inflation. Previous studies have adopted different approaches upon the relation among public sector debt and basic indicators, such as analyzing debt sustainability based on a subset of structural variables (Wyplosz, 2007). While Reducing debt to a safe level before it becomes distressing is advisable, but it can be costly for growth and employment. There is a trade-off between a quick debt repayment and the related costs. Therefore, Careful consideration of country-specific factors is necessary when weighing the trade-off options.

Panizza (2008) argues that currency and maturity mismatches, rather than internal or external debt, serve as the underlying cause of vulnerabilities. The real exchange rate volatility in developing nations can instigate instability in GDP growth, capital flows and debt eruptions, rendering them vulnerable. Countries transitioning from external to domestic debt may trade currency mismatches for maturity mismatches. The shift to domestic borrowing impacts financial stability by putting pressure on investors and banks to absorb excessive governmental debt.

Reinhart and Rogoff (2010) studied the relationship between public debt and economic development in 20 developed and developing countries between 1970 and 2009. In rich countries, there is no significant relationship between debt and economic development as long as public debt does not reach 90%. However, research demonstrates that the speediness of economic development of low-income nations with external debt above 60% and 90% is significantly lower. Countries with external debt above 90% are likely to experience higher inflation rates. This study therefore suggests that public debt may not be entirely harmful and supports the validity of the debt threshold analysis for economic growth

According to Mehl and Reynaud (2010), due to the short maturity of domestic debt the government faces a significant risk of default. The study uses a large set of 33 emerging markets from 1994 to 2006 and separately examines the determinants of these sources of risk, including the size of the economy, the breadth of the domestic investor base, fiscal strength and rate of inflation are linked to the risk components of public debt albeit to different extents, and have different consequences depending on the source of risk. By making the composition of emerging economies' domestic debt more secure by underlining the need for monetary credibility, inflation alone affects all types of risky debt. Given the rapid expansion of local bond markets, monitoring the risk profile of public debt in developing countries has become increasingly important for global financial stability.

Both industrialized and emerging nations have been accruing government debt since the early 1900s, and this trend continues (Checherita-Westphal et al., 2010). The average amount of public debt increased throughout the 20th century by almost 66% as compared to the previous century. As of now, industrialized countries' public debt to GDP ratios averaged about 110%, while developing countries' ratios were closer to 65%. Debt is frequently perceived as having double -edge sword. Debt promotes welfare and economic prosperity when judiciously accumulated. On the other hand, excessive borrowing, dependency and carelessness can have disastrous results, potentially causing both individuals and businesses to experience financial disaster and bankruptcy. In addition to causing financial catastrophe, excessive public debt makes it more difficult for governments to provide the essential services to their citizens. There is an inverted U-shaped relationship between public debt and GDP, that is, the public debt-to-GDP ratio has a detrimental impact on the economic growth of nation until it surpasses a certain threshold, and then public sector debt has a favorable effect on growth of the economy. The non-linearities among public sector debt and development of

economy are the subject of another area of research which focuses on specific aspects of public sector debt.

Patillo et al. (2011) used dataset from 100 emerging nations, showed a nonlinear relationship between the net present value of external debt and economic growth. They argue that the marginal impact is negative when the net present value of debt exceeds 20% of GDP. While some (Batdelger & Kandi, 2012; Craig, 2015) provide evidence to support this idea, others (Linnemann & Schabert, 2010; Boyer, 2012) provide evidence against it. Evans (2012) derived situations in which expected irrational behavior has no impact on the validity of Ricardian equivalence. Furthermore, recent studies (Wong, 2012; De Castro & Fernández, 2013; Konya & Abdullaev, 2014; Dumiter, 2016) have examined whether this concept applies to specific countries. The opposite view is presented by Choi and Holmes (2014) who argue that long-term datasets have a combination of two mechanisms: non-Ricardian equivalent mechanisms and Ricardian equivalent mechanisms. If fiscal imbalances worsen, even modest public debt can support economic growth. Researchers use unit root and cointegration analysis to analyze the sustainability of public budgets in OECD countries, taking into account endogenous discontinuities. The results show that sustainability of public finances is rather difficult to achieve (with the exception of Austria, Canada, France, Germany, Japan, the Netherlands, Sweden and the United Kingdom) due to cointegration (unsustainability) between public revenues and expenditures. Only Australia, Belgium, Germany, Ireland, the Netherlands and the United Kingdom improved primary balances after the worsening of the debt-to-GDP ratio between public debt and primary balances in 12 countries; Most research on public spending and public sector management focuses on the "efficiency" of the public sector (Gupta and Verhoeven, 2001; Afonso et al., 2005; Hauner, 2008). In the process, these studies frequently focus on certain socioeconomic initiatives and industries that receive funding from the government. They gauge "efficiency" by associating certain socioeconomic benefits with public spending. For example, the effectiveness of the education sector is often measured by school enrollment (in relation to public spending), whereas the health sector uses infant mortality. Large debt accumulations may eventually result in less economic activity because they may drive away private capital investment or force governments to cut back on spending on public debt service while raising unfair taxes. Furthermore, with such high debt, a government may have more difficulty in dealing with future tragedies such as financial crises, natural disasters, or wars. In more severe cases, there is explicit debt repudiation or inflation

as a form of bankruptcy. Advanced economies have a long history of default. (Reinhart, Reinhart, and Rogoff, 2015).

Borrowing domestically consumes private savings that could otherwise be allocated for lending in the private sector (Ayres and War, 2010). Because of the enormous quantity of debt held in short-term instruments, there is a strong relation between domestic debt and interest in shallow financial markets. In shallow financial markets, having a substantial amount of domestic debt in short-term securities directly correlates with interest rates. In less developed countries, governments employ public debt to finance their expenditures. However, the interest payments consume a significant portion of government revenue. Borrowing by governments consumes private savings that could be used for lending in the private sector. Although many previous studies have found a negative relationship between public debt and economic growth, conflicting opinions exist. This study highlights the importance of the nature, intentionality and non-linearity of the relationship between debt and purpose. Some argue that using borrowed money for public investments can stimulate the economy. According to Modigliani et al. (1998), Creel and Fitoussi (2002), Le Cacheux (2002), Blanchard and Giavazzi (2004), the Golden Rule of Public Finance (GRPF) is a valid concept. The basic idea of the Golden Rule is that public borrowing is only harmful if it is used for direct spending rather than for building public capital. In other words, the nature and purpose of the government loan are important considerations. However, opinions are divided regarding the applicability of the GRPF. The advantages of the GRPF are discussed by Balassone and Franco (2000), Buiter (2001), Buti et al. (2003), Minea and Villieu (2009).

Emmanuel (2012) investigated the impact of public debt on economic growth by assessing its value and proportionality on Nigerian economy. To calculate the value effect, external debt, domestic debt, total debt and budget deficit are used. To analyze the long-term impact of debt factors on economic growth, the Cobb-Douglas model was used. Cointegration techniques has used to obtain dynamic versions of functional relationships. The study found that borrowing and budget deficit have a positive impact in the short term, while debt has a significant negative impact on economic growth in the long term. It is found that the coefficients of the error correction mechanism indicate that the short-term equation converges more slowly to reach long-term equilibrium. The study found that while borrowed funds had a positive impact on the Nigerian economy in the short term, in the long term, poor debt management led to a slowdown in economic growth.

Mbate (2013) develops a cross-national dynamic model to study the impact of domestic debt on economic development and private sector lending in 21 Sub-Saharan African (SSA) countries between 1985 and 2010. System-GMM Results show that there is a non-linear relationship between domestic debt and economic growth, with the maximum turning point being 11.4% of GDP. Furthermore, domestic debt will crowd out private sector borrowing with an elasticity of -0.3% of GDP, limiting capital accumulation and private sector growth. Several empirical studies on debt and growth have identified the threshold beyond which debt negatively affects GDP growth (Baum, Checherita-Westphal, & Rother, 2013). These threshold effects range from 70 to 90% of GDP, depending on the sample and definition of debt, and are important for both private and public debt (Cecchetti, Mohanty, and Zampolli 2011). Countries have different "sources of vulnerabilities, particularly in developing countries with weak capital markets" and currency fluctuations, so the effects need to be examined individually. On the one hand, the real exchange rate's volatility, which may have detrimental effects on the economy, raises questions about external debt in these countries.

According to Castel-Branco (2010, 2014, 2017), using public debt to finance government expenditure has higher social and economic costs. Debt service strains government resources, restricts public spending and hinders social and economic initiatives. Second, competition for financial resources between the public and private sectors inhibits investment, hinders production and economic growth, and increases the cost of financial capital. Thirdly, the financial sector may prioritize financial transactions and speculation over productive activities. Fourthly, governmental investment tends to prioritize high-profit projects over developing national manufacturing capability. As of now, the Japanese government's outstanding debt is at 695 trillion yen, or 139.5% of GDP. Three dynamic models of the IS-LM type were built in this work and the eigenvalues of their differential systems were estimated. Next, we verify if the enormous level of public debt defies the economic stability requirements for Japan. This study estimated that there is a saddle-point equilibrium, indicating instability in Japan. Additionally, our modeling demonstrates that significant tax reform would be necessary to bring back economic stability. In actual terms, this means that in addition to allowing income taxes and resident taxes to grow by 0.033 each, the government must boost the consumption tax rate from 5% to 15%. This translates to tax increases of almost 8.3 trillion yen.

Spilioti (2015) examined the relationship between public debt and economic development using approximately 40 years of data for Greece starting from 1970 and taking into account different levels of economic growth. Empirical evidence shows that debt has a

positive and statistically significant impact on GDP growth. The analysis is conducted using indicators of fiscal policy, openness and other control variables related to demographic characteristics. High levels of debt tend to erode investor confidence, which directly affects local and foreign investment in a country, especially in low-income countries. Therefore, a decrease in investment will lead to a decrease in a country's economic growth. "Furthermore, access to public loans will lead to lower interest rates and greater investment in buildings and equipment, so entrepreneurs (private investors) will have to deal with lower capital costs, which could encourage innovation and prospect of new discoveries. For the benefit of the entire economy. However, in some cases, domestic and foreign investors have begun to question the government's willingness and ability to repay its debt.

Afonso and Alves (2015) studied the impact of public debt on real GDP per capita growth in 14 European countries between 1970 and 2012. The authors conclude that public debt has negative effects. Debt servicing has a significant negative impact on both short- and long-term economic growth. Debt-to-GDP ratios have an inverted U-shaped relationship with economic growth and have a greater impact on economic performance than the debt itself.

Woo and Kumar (2015) used large panel data for advanced and emerging economies over the period 1970 to 2008 to study the long-term impacts of initially higher levels of public sector debt on economic growth, and found a significant adverse relationship between government debt and subsequent growth. This implies that there is evidence of non-linearity, as debt-to-GDP ratios above 90% have a significant negative impact on growth. The negative impact is mainly due to the slowdown in capital accumulation, which leads to a decline in labor productivity growth. Extensive robustness tests validate the results. It is important to analyze not only the structure of the economy but also the composition of debt and debt payments to assess the impact of public debt.

Massarongo (2016) finds that the change in the composition of Mozambique's debt between 2005 and 2016 from concessional debt to commercial debt, including foreign and public sector has had significant economic consequences. According to Francisco and Semedo (2016), recurring budget deficit in current accounts is often addressed by debt rollovers or money issuance.

The study conducted by Wani & Kabir (2016) attempted to determine the relationship between public debt and economic expansion in Afghanistan. The financial years 2008-2012 were considered in the investigation. The study uses regression analysis to determine the relationship between national debt and economic growth. "Domestic debt is characterized by

higher interest rates, compared to external debt, which is often negotiated on favorable terms and therefore expensive to maintain. Effective management of public debt can promote economic growth, stability and reduces financing cost; while reducing financial risks, external or domestic debt may have a favorable or adverse effect on economic growth. Maximizing profits on domestic debt can benefit the government and promote economic progress. However, if this were not the case, this could have a negative impact on the country's economic growth.

Research by the International Monetary Fund (2016) highlights that the impact of public debt on economic growth is widespread throughout the world. The debt growth rate of some rich countries has exceeded 50%, while the debt growth rate of other countries such as Greece, Italy and Japan have exceeded 50%. Some other countries are above 100%. Due to rising debt levels, many countries, especially poor and developing ones, are facing budget deficits and unstable growth.

(Kim, 2017) believes that public debt is a prerequisite for sustainable growth and that the government's primary objective is to achieve sustainable growth. Achieving sustainable debt levels consistent with sustainable growth is a challenge for countries. Growth relies on short-term government debt rather than long-term production and is unsustainable. Many countries are experiencing an accumulation of public debt and debt burdens.

Furthermore, many developed and developing economies are still seriously threatened by the debt overhang (Lopes, 2017). Moreover, certain research shows that the debt-growth ratio in developing nations is not only determined by the amount of debt and relationship between these two is significantly influenced by institutional quality and policy.

The study by Alzahrani (2018) investigates that government debt affects a range of macroeconomic and well-being metrics in both industrialized and developing nations. In other words, the study looks at the relationship between government debt and GDP per capita', foreign and domestic investment and HDI in both ASEAN and G7 countries between 1995 and 2015. The government debt of ASEAN countries has a negative effect on macroeconomic and wellbeing measures, despite the fact that the data show a favorable association between government debt and macroeconomic indicators in G7 countries. The "allocation effect," "threshold effect," and "institutional quality effect" are a few theories as to why the debt has a different effect on the economies of ASEAN and the G7. Scholars have different opinion

regarding the inverted U-shaped relationship among public sector debt and growth rates. There are researchers that seem to disagree with the conclusion straight away.

The existing literature, nonetheless, does not study the role of these conditional variables in modifying the public sector governance and macroeconomic stability nexus. This study fills a majority of these gaps of the prevailing literature through taking a massive sample of evolved and emerging economies and by analyzing the role of public sector governance and macroeconomic stability by mediation of public sector size and public debt. The direct relationship between public debt and macroeconomic stability is explained by so many researchers, the indirect relationship between public sector governance and macroeconomic stability via public sector debt remains understudied.

2.7 Summary

This chapter summarizes the theoretical and empirical literature on the relationship between public sector governance, public sector size, public sector debt and macroeconomic stability. This chapter is divided into five sections. The first section explains the relationship between public sector governance and macroeconomic stability. The second section explains how public sector size and macroeconomic stability are related. The third section of this chapter establishes the relationship between public sector governance and public sector size. Section 4 elaborates the relationship between public sector governance and public sector debt, followed by a theoretical explanation of the relationship between public debt and macroeconomic stability.

To summarize, maintaining macroeconomic stability is critical for promoting economic and social well-being in any country. However, obtaining and maintaining such stability needs careful management of a public sector governance. The literature reviewed emphasizes the complexities of defining and achieving macroeconomic stability, with differing views on the role of government intervention, fiscal policy and public sector governance. While some argue for active government involvement in economic stabilization measures such as fiscal stimulus during downturns, others believe that government action should be limited to avoid inefficiencies and distortions in resource allocation. Studies have also looked at the relationship between public sector size, fiscal decentralization, and economic stability, with varying results across countries and regions. While some argue that decentralization can promote stability by encouraging accountability and efficiency in public expenditure, others warn that it can lead to

fragmentation and inefficiency if not managed correctly. Furthermore, the quality of public sector governance and institutions is critical to ensuring macroeconomic stability. Effective governance can help manage risks, decrease corruption and promote openness and accountability, all of which are necessary for long-term economic stability.

The research demonstrates how better governance, combined with smaller government size, can mitigate the negative impacts of macroeconomic volatility and sociopolitical inequality. For the long-term viability of public sector governance, this study highlights the importance of a stable political environment.

Furthermore, the research examines the relationship between government size and macroeconomic stability. Some studies find a negative relationship between government size and output volatility, while others highlight the role of automatic stabilizers in ensuring stability. However, results vary across economic models and countries.

The considerable literature on the relationship between public sector debt, governance and macroeconomic stability indicates a complex interplay of factors that affect economic development and fiscal sustainability. Research has shown that public debt has the ability to boost economic growth via countercyclical effects and wealth redistribution mechanisms. However, there is negative impact of corruption, poor institutional quality and excessive borrowing on economic performance. Furthermore, bad governance contributes to misallocation of public funds, worsening fiscal deficits and debt levels. According to studies, countries with good governance frameworks manage their debt more effectively and get better economic outcomes. The link between government sector debt and economic growth is discovered to be non-linear, with debt thresholds exceeding which growth is severely impeded. Institutional quality is critical in defining these boundaries, with well-governed countries able to tolerate larger debt levels without negative consequences. Furthermore, the influence of public debt on macroeconomic stability differs according to governance quality. While excessive debt can destabilize economies, particularly in poorly managed countries, efficient governance can reduce these risks and support long-term debt levels.

Our work fills a gap in the existing literature by inspecting the indirect relationship between public sector governance and macroeconomic stability, as mediated by public size. While previous research has examined the direct relationships between macroeconomic stability and factors like public governance, public spending, fiscal policy, but few studies has

addressed how public sector governance affects macroeconomic stability through its interaction with public sector size.

Existing research highlights the role of governance in managing public sector debt and promoting economic growth. However, the role of public debt in mediating the relationship between governance and macroeconomic stability has received less attention. While some studies focus on the short-term relationship between public governance and economic stability, more research is needed to examine the long-term effects of governance on stability. Comparative studies across countries and regions can also assist uncover best practices and areas for improvement in governance-stability dynamics.

Our research seeks to fill these gaps by investigating the indirect relationship between public sector governance and macroeconomic stability, as mediated by public sector size and public sector debt. In addition, our research is conducting a comparative analysis across developed and developing economies to better understand variations in this relationship across contexts. Through this approach, we hope to contribute to a more sophisticated understanding of how governance influences macroeconomic stability and to inform policy decisions that support long-term economic growth.

CHAPTER 3

3 THEORETICAL FRAMEWORK AND METHODOLOGY

3.1 Theoretical Background and Specification of the Model of Government Expenditure

According to Wagner's theory, various levels of government exhibit a natural tendency to expand their operations. He believed there was a correlation between economic growth and government activities. Thus, Wagner emphasized long-term trends rather than short-term shifts in public spending. It is projected that in the future, public expenditures will slow down compared to national income, despite prior periods of more pronounced increases.

The following Cobb-Douglas production form provides the functional form of this relationship as follows:

$$y = \gamma(G/y)^{\alpha}\,(1-\tau)^{\beta} \quad \text{..... (3.1)}$$

The shares of the public and private sectors are denoted by "α" and "β" correspondingly. The production in equation (1) is non-linear. G stands for government spending, and Y stands for GDP. "γ" represents total factor productivity, while "τ" represents the tax to GDP ratio. Equation (1)'s log transformation is provided by;

$$lny = ln\gamma + \alpha \ln(\tfrac{G}{Y}) + \beta\ln(1-\tau) \quad \text{..... (3.2)}$$

This can be simplified as follow:

$$= \alpha\left(\frac{G}{Y}\right)\left(\frac{1}{Y}\right) = \alpha G^{-1}$$

Taking the second derivative now in relation to G gives us;

$$\partial^2 lnY/\partial G^2 = -\alpha G^{-2}$$

This demonstrates that the first derivative has a positive value, whereas the second derivative has a negative value, as indicated by its negative sign. This shows that public spending has a positive effect on economic growth, but this influence diminishes with time, meaning that it effects growth at a slower rate in the future. Aa a result, the relationship

becomes non-linear between "economic growth" and "public expenditure". Since public investment on infrastructure, communications, and other things is more productive at this level, it is believed that hike in the tax rate accelerates economic growth when government expenditure is modest. In contrast, tax increases are associated with slower rates of economic growth at higher levels of government spending because mostly spending at this level goes toward welfare programs, which do not encourage economic growth (Scully, 1994; Heerden, 2008 and Husnain, 2011).

Economic growth is negatively impacted by the size of the government. Since our main goal is to measure the mediating function of public size in the link between public sector governance and economic stability, the marginal impact of public size can be computed using the following formula:

Indirect effect through the channel of public size can be shown as:

$$\Theta = \frac{\partial MI}{\partial PG} = \frac{\partial MI}{\partial PS} * \frac{\partial PS}{\partial PG} = \frac{\partial MI}{\partial PG} = \alpha_1 ß_2$$

3.2 Theoretical Framework and Specification of the Model of Public Debt

Regarding the theoretical component of relationship between the public sector debt and economic growth, the Ricardian equivalence theorem is relevant. As the government debt is repaid through future taxes, the assumption posits that the interaction between public sector debt and economic growth is neutral. The model employed in this study starts with a neoclassical growth model. It states that an increasing level of public debt lowers down long-term economic growth. It is believed that the neoclassical growth model is a crucial framework for representing the aggregate production function.

$$Y = f(K, L)$$

Where labour is represented by 'L', capital stock by 'K' and total production by 'Y'. The concept of convergence emerges as a result of the existence of heterogeneity among nations and the examination of this production function, which unveils multiple stable states. This model asserts that due to their high return on capital, poorer countries expand faster than those with greater values, as they strive to attain a steady-state (Sala-i-Martin et al., 2004 and Mankiw et al., 1992).

The debt hang hypothesis which contends that current investment is discouraged if a nation's debt burden is so high and it cannot be repaid, is one among the many factors supporting the convergence. This will therefore lead to a slowdown in growth of economy and make recovery more difficult. The debt-growth relationship is explained as an inverted U-shaped relationship, as supported by (Pattillo, 2002). Nevertheless, our model incorporates public debt (D), as explained by (Cunningham, 1993), where 'D' shows percentage of public sector debt to GDP.

The equation showing link among public sector debt and growth which can be written as:

$$Y = f(K, L, D)$$

In this model economic growth is influenced by macroeconomic stability. Based on data derived from cross-country analysis, certain developing nations are expanding faster at the moment in order to capitalize on their opportunity to catch up, while other developing nations are expanding at a slower pace. Since measuring the mediating function of public debt in the governance-stability relationship is our primary objective, the marginal impact of public debt can be calculated using the following equation:

Indirect effect through the channel of PD can be shown as

$$\Theta = \frac{\partial MI}{\partial PG} = \frac{\partial MI}{\partial PD} * \frac{\partial PD}{\partial PG} = \frac{\partial MI}{\partial PD} = \lambda_1(\eta_2)$$

3.3 Methodology

3.3.1 Mediation Analysis

This study uses mediation analysis to examine how our independent variable, public sector governance, influences the dependent variable, macroeconomic stability, through the mediating variable, public size and public debt. The goal of mediation analysis is to clarify the nature of the connection among the variables, rather than merely describing how they interact (Hayes & Preacher, 2014).

Figure 3-1: Causal Association Among Public Sector Governance, Public Sector Size and Macroeconomic Stability

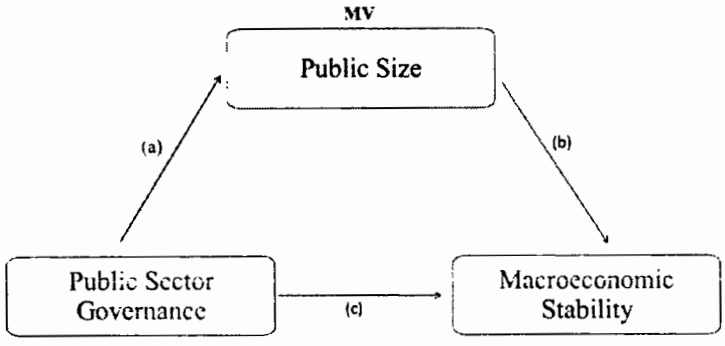

Figure 3-1 has demonstrated the process where independent variable, (PG) public sector governance, influences the dependent variable, macroeconomic stability (MI), through a mediating variable (PS) public sector size. The diagram portrays the casual relationship among overall public sector governance, public sector size and macroeconomic stability. We The impact of public sector governance on macroeconomic stability has been decomposed into two effects (direct and indirect). The direct impact of PG on MI is represented by "c" and product "ab" is showing indirect effect via mediating variable i.e. public sector size. Hayes & Preacher (2014) hypothesized that regression analysis may be used to quantify and experimentally estimate all of these pathways.

Figure 3-2: Causal Association Among Public Sector Governance, Public Debt and Macroeconomic Stability

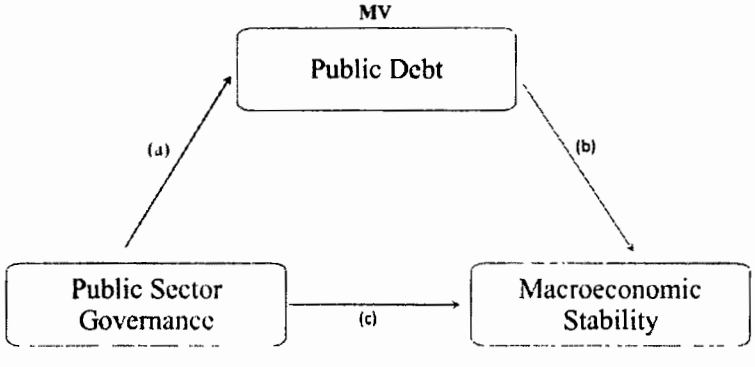

Figure 3-2 illustrates the process by which our independent variable public sector governance (PG), influences on dependent variable macroeconomic stability (MI), through a mediating variable public debt. The diagram depicts the casual relationship among overall public sector governance, public debt and macroeconomic stability. The impact of public sector governance on macroeconomic stability has been decomposed into two effects (direct and

indirect). The direct impact of PG on MI is represented by "c" and product "ab" is showing indirect effect via mediating variable i.e. public sector debt.

3.4 The Seemingly Uncorrelated Regression (SUR)

The SUR model is helpful for the estimation of both the direct and indirect effects of the independent variables on the dependent variable. Seemingly Unrelated Regression (SUR) is a statistical technique that permits for estimation of several equation systems concurrently. It is a sort of multivariate regression where each equation is a separate regression model, yet all equations share some common variables. The time period "apparently unrelated" refers to the reality that the equations may appear independent of each other, but the common variables enable a more comprehensive analysis of the statistics. SUR is useful for studying facts whilst the relationships between variables are complex and cannot be easily defined by using a single regression equation. The SUR version is a generalization of multivariate regression employing a vectorized parameter model. The OLS estimates are derived while disregarding any correlation among the error terms of exclusive equations.

However, the SUR estimator could be useful for efficient parameter estimates if the error terms are contemporaneously correlated. Seemingly Unrelated Regression (SUR) estimator has been developed by Zellner (1962) for estimation of model fashion $p > 1$ with the property of $E(e_{it}\, e_{jt}) \neq 0$ for various regressor matrices in each equation e.g. $(x_i \neq x_j)$. To simplify, all the equations are consolidated into a single equation. Which is written as$y = x\beta + \epsilon$, and$y = (y_1', y_2', \ldots . y_p')$ described as the dependent variables, x is a diagonal matrix whereas, $\beta = (\beta_1', \beta_2', \ldots . \beta_p')$ and$\epsilon = (\epsilon_1', \epsilon_2', \ldots . \epsilon_p')$ show stacked error vector of equations. However, the SUR version allows non-zero covariance among the error terms.

$$c(\epsilon_j, \epsilon_k) = \eth_{jk}\, I_n$$

This covariance is showing the improvement in efficiency of GLS as compare to the LS estimator of every β_j.

$$v(y) = \Sigma \otimes \mathrm{IN}$$

The very important assumption about this model is that SUR estimates are unnecessary where the error terms across equations are uncorrelated. According to Zellner (1962), when contemporaneous correlation is evident, jointly estimated equation models like the SURE method are more effective than independent equation solution techniques. This is because

independent equation solution methods, such as multiple regression models, are susceptible to simultaneous bias. The SURE model, is also known as multivariate regression or Zellner method, which estimates the parameters of system, handles heteroscedasticity and contemporaneous correlation in the errors across equations.

$$y_1 = \alpha_{11} + \alpha_{12}x_{12} + \alpha_{13}x_{13} + \cdots \alpha_{1k}x_1\ k_1 + e_1 \ldots\ldots\ldots\ldots (1)$$

$$y_2 = \beta_{21} + \beta_{22}x_{12} + \beta_{23}x_{13} + \cdots \beta_{2k}x_2\ k_2 + e_2 \ldots\ldots\ldots\ldots (2)$$

$$y_M = \Omega_{M1} + \Omega_{M2}x_{12} + \Omega_{M3}x_{M3} + \cdots \Omega_{Mk}x_M\ k_M + e_M \ldots\ldots (m)$$

The OLS equation by equation procedure is fully efficient in the absence of contemporaneous correlation between errors in different equations. However, as demonstrated by Zellner (1962), the equations are related and joint estimation rather than equation by equation estimation leads to more precise estimates of the regression coefficients when error terms are correlated across the equation. SUR estimation is more appropriate than the OLS equation by equation procedure when there are high correlation coefficients of the residuals among the equations. SUR also use multiple regressions to address the issue of multicollinearity between public sector governance, public sector debt, public size, and economic stability.

CHAPTER 4

4 EMPIRICAL MODEL AND DATA SOURCES

The selected sample period for the research, and discussion of data collection are explained in this section. In this chapter, the method employed for analysis of data and estimating results is finally outlined.

4.1 Empirical Models

This study aims to explore the linkage among public sector governance, public sector debt, public sector size, and macroeconomic stability in emerging and developed countries during a 25-year period, from 1996 to 2021. The following summarizes the relevant empirical models that were applied in this study.

4.2 Relationship between Public Sector Governance and Macroeconomic Stability

The following is a general model for studying the direct impact of public sector governance on macroeconomic stability.

$$MI_{it} = ß_0 + ß_1 PG_{it} + \beta_2' EMP + \beta_3' POP + \beta_4' FDI + \varepsilon_{it} \quad (4.1)$$

Direct and Indirect Effects of Public Sector Governance

We have developed the following econometric models in order to reflect the direct and indirect effects of public sector governance (PG) on macroeconomic stability (MI), as illustrated in Figure 3.1. Latif et al (2017) also used this method while estimating the mediating effect.

$$PS_{it} = \alpha_0 + \alpha_1 PG_{it} + \alpha_2' EMP + \alpha_3' POP + \alpha_4' FDI + \varepsilon_{1it} \quad (4.2)$$

$$MI_{it} = ß_0 + ß_1 PG_{it} + ß_2 PS_{it} + \beta_3' EMP + \beta_4' POP + \beta_5' FDI + \varepsilon_{2it} \quad (4.3)$$

Where PS is public sector size, PG represents public sector governance *and* the control variables such as employment rate, population growth and foreign direct investment. Whereas ε_{1it} is the error term in equation (4.1). MI is macroeconomic stability Index considered as a dependent variable. Whereas ε_{2it} is the error term in equation (4.2). Using equations (4.2) and (4.3), we calculated the direct and indirect effects of PG on MI as follows:

Direct Effect

$$\frac{\partial MI}{\partial PG} = \beta_1 \text{ using equation 4.3}$$

Indirect Effect Through the Channel Of Government Size

There are several techniques available that can be used to evaluate indirect effect such as (i) causal step approach (Baron & Kenny, 1986); (ii) the product of coefficient approach (Sobel, 1982); (iii) the joint significance test and (iv) Hayes and Preacher (2014) estimation of indirect effect. However, the mentioned techniques are only suitable for cross- sectional data only. The process involves two functions in order to capture the indirect impact of public sector governance on macroeconomic stability through public size (1) PS (mediating variable)- Function and, (2) macroeconomic stability (dependent variable)- Function. Therefore, the indirect effect can be modeled as:

Indirect effect through the channel of PS through '4.2' and '4.3' equation

$$\Theta = \frac{\partial MI}{\partial PG} = \frac{\partial MI}{\partial PS} * \frac{\partial PS}{\partial PG} = \frac{\partial MI}{\partial PG} = \alpha_1 ß_2 \qquad (4.4)$$

The sign of the above-mentioned indirect effect can be influenced by the sign of $\alpha_1 and\ ß_2$.

Where; θ = Indirect effect- quantifying changes in the public sector governance and altering macroeconomic stability through the public size change.

$\frac{\partial PS}{\partial PG}$= This model stems the public size (mediating variable) as a function of public sector governance (PG).

$\frac{\partial MI}{\partial PS}$= This model stems the macroeconomic stability (dependent variable) as function of public size (mediating variable).

Relationship Between Public Sector Governance and Macroeconomic Stability

The following is the general model used to investigate how public sector governance directly affects macroeconomic stability.

$$MI_{it} = ß_0 + ß_1 PG_{it} + \beta_2' EMP + \beta_3' POP + \beta_4' FDI + \varepsilon_{it} \qquad (4.5)$$

Direct and Indirect Effects of Public Sector Governance in the Presence of Public Debt

In order to capture the direct as well as indirect effect of public sector governance (PG) upon macroeconomic stability (MI), as shown in figure '3.2', we will employ our economic model '3.2' as follows:

$$PD_{it} = \eta_0 + \eta_1 PG_{it} + \eta_2' EMP + \eta_3' POP + \eta_4' FDI + \mu_{1it} \quad (4.6)$$

$$MI_{it} = \lambda_0 + \lambda_1 PG_{it} + \lambda_2 PD_{it} + \lambda_3' EMP + \lambda_4' POP + \lambda_5' FDI + \mu_{2it} \quad (4.7)$$

Where PD is public debt, PG represents public sector governance *and* the control variables such as employment rate, population growth and foreign direct investment. Whereas μ_{1it} is the error term in equation (4.6). MI is macroeconomic stability Index considered as a dependent variable. Whereas μ_{2it} is the error term in equation (4.7). By using equations (4.6) and (4.7), we have to compute the direct and indirect effect of PG on MI as shown below:

Direct effect

$$\frac{\partial MI}{\partial PG} = \lambda_1 \text{ using equation 4.7}$$

Indirect Effect through the Channel of Government Debt

Indirect effect through the channel of PD through '4.6' and '4.7' equation

$$\Theta = \frac{\partial MI}{\partial PG} = \frac{\partial MI}{\partial PD} * \frac{\partial PD}{\partial PG} = \frac{\partial MI}{\partial PD} = \lambda_2(\eta_1) \quad (4.8)$$

The sign of the above-mentioned indirect effect can be influenced by the sign of $\lambda_1(\eta_2)$

Where; θ = Indirect effect- quantifying changes in the public sector governance and altering macroeconomic stability through the public sector debt change.

$\frac{\partial PD}{\partial PG}$= This model stems the public debt (mediating variable) as a function of public sector governance (PG).

$\frac{\partial MI}{\partial PD}$= This model stems the macroeconomic stability (dependent variable) as function of public debt (mediating variable).

4.3 Variables Description

Table 4-1: Variable Description

Variables	Definition	Source
MI	Macroeconomic stability Index	Index made by five variables inflation, GDP growth, fiscal balance, current account balance, and interest rate.
PG	Public Sector Governance	WGIit – integrated index of the Public Governance efficiency (voice and accountability (WGIViA), political stability (WGIPS) and lack of violence, Government Effectiveness (WGIGE). rule of law (WGIRL) and control of corruption (WGICC), regulatory quality (WGIRQ)
PS	Public Sector Size	Govt final consumption expenditure taken as a percent of GDP (public spending consists of development spending like health, education, infrastructure and energy, as well as non-development spending like security and law and order maintenance etc.
PD	Public Debt	General government gross debt (GGGD) in terms of GDP is from the World Economic Outlook (WEO) database of the International Monetary Fund (IMF). It is defined as consolidated general government gross debt at nominal value outstanding at the end of the year, according to the Maastricht Treaty. It includes debt liabilities, currency, and deposits, debt securities and loans.
POPG	Population Growth	(Annual percentage of population growth)
FDI	Foreign direct Investment	Net Foreign Direct Investment inflow per GDP (NFDIGDP)
EMP	Employment rate	Percentage of total labor force

4.4 Sample Period

The study has examined the data of developing and developed nations. So, annual data for the years range from 1996-2021 is considered to measure the link among public sector governance and macroeconomic stability directly and indirectly using mediation analysis. The dataset covers a time span of 25 years and includes 102 countries to see the significant effect of public sector governance on macroeconomic stability of world economies in the presence of public size and public debt.

4.5 Data Source

The data for this study was collected from multiple sources, including the World Bank, International Monetary Fund and Worldwide Governance Indicators database. The countries were further categorized into low-income and high-income groups to ensure the reliability of the findings. We will use a quantitative approach, employing panel data analysis techniques. The variables which contribute to macroeconomic stability index includes inflation, GDP growth, fiscal balance, current account balance and interest rate. The study employs SUR model to capture the direct and indirect effect of public sector governance over macroeconomic stability and integrated index of public governance efficiency by worldwide government indicators for estimating public sector governance (Kaufmann et al., 1999; and Kaufmann et al., 2004). These were namely voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption. Principle component analysis will be used for index construction.

4.6 Research Design

The variables incorporated in this study to test the hypotheses, include public sector governance, public sector size, public debt, and macroeconomic stability. This study, in particular, evaluates how public size and debt affect the relation among public sector governance and macroeconomic stability. Furthermore, the mediating effect of public sector size and public debt on the effectiveness of public sector governance and macroeconomic stability is verified in the next section.

4.7 Construction of Variables

The variables are explained in this section. These variables include (1) public sector governance, (2) public sector size, (3) public sector debt, (4) Macroeconomic stability and (5) control variables.

4.7.1 Measurement of Macroeconomic Stability Index

Research on the relationship between macroeconomic stability and public sector governance is scarce. Macroeconomic stability is considered by several authors as the sustainable development of all economic sectors, including the corporate sector, the transportation system, and renewable resources. (Krasnyak et al., 2015). Index is made by

variables like GDP growth, inflation rate, unemployment rate, foreign debt and budget deficit (Zaman and Drcelic., 2009). Principle component analysis method will be used for index construction. The macroeconomic stability index is composite index that measures the stability of macroeconomic environment of a country. It is made by combining several indicators of macroeconomic performance into single measure. Herrera and Maldonado (2022), used variables such as inflation, nominal exchange rate depreciation and fiscal balance to GDP for index construction. The index in our study is made from five variables including inflation, GDP growth, fiscal balance, current account balance, and interest rate. These indicators are converted into principal components, a new set of uncorrelated variables that summarize the salient characteristics of the data. The most important feature is summarized in the first principal component is used as MSI. This method is more complex than simple averaging or weighted averaging, but it may provide a more comprehensive measure of macroeconomic stability by encapsulating the underlying data. A macroeconomic stability index can be created by including several variables, although the specific variables may vary based on the purpose and methodology of the index.

Commonly used variables include inflation rate, which is an important indicator of macroeconomic stability because high inflation rates can negatively impact purchasing power, business investment, and cause economic uncertainty. The GDP growth rate serves as a key variable, reflecting the overall health of the economy. The Unemployment rate is another significant variable, as high unemployment rates may indicate economic instability and lead to social and political unrest. Fiscal balance, which is the difference between government revenues and expenditures, can also contribute to macroeconomic stability when there is a positive fiscal balance. Another crucial factor is the current account balance, which is the difference between imports and exports. A positive current account balance shows that a nation is exporting more goods than it is importing. Interest rates can encourage savings and discourage borrowing, which may contribute to macroeconomic stability. Overall, these variables can be combined in various ways to create a macroeconomic stability index.

4.7.2 Measurement of Worldwide Governance Indicators (WGI) Index

Almost every country has its own narrative of governance challenges. Well-governed institutions help to reduce the risk of economic instability and the vulnerability of the economy, as governance plays a key role in economic growth.

Table 4-2: General Indicators of Good Governance

Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption
bureaucratic quality	market friendly system	Incidence of crime	Use of public power for private gain
competence of officials	adequate supervision	Judicial ethics	
		effectiveness	
		and independence	
political independence	accounting standards	risk of expropriation	
		by the government	
		Enforcement of	
		government contracts	

Source : La Porta et al. (1998) and Kaufman and Kray (2002)

Good governance enables businesses and households to cope with negative shocks as they arise. Singapore and Australia performed relatively well, in part because their businesses, banks, public institutions and national economies remained in good shape despite severe external shocks during the East Asian financial crisis. Depending on the stage of the business cycle and the political system, weak governance could have macroeconomic consequences.

4.7.3 Measurement Of Public Sector Size

There are many methods to measure the size of the public sector. (a) The proportion of GDP devoted to government spending; (b) The total number of government employees and (c) The GDP devoted to government revenue (Barro, 1990, Tanzi, 1995). (d) The proportion of public debt to GDP (e) Asset size owned by the government. In this study, public sector size is estimated by final consumption expenditure as percentage to GDP. Public expenditures have been segregated into two groups: current expenditure and development expenditure, aimed to capture the impact on macroeconomic stability.

4.7.4 Measurement Of Public Debt

There are several ways to measure the public debt. (a) External debt per cent of GDP; (b) public and publicly guaranteed external debt plus domestic public debt; (c) Public debt of central governments with respect to annual nominal GDP (Leon et al.,2019). This can be measured by several ways including Gross Public Debt, Net Public Debt, Debt-to-GDP Ratio, Debt Service Ratio and Debt per capita, Debt Maturity Structures and Public Debt in Foreign Currency. In this study public debt is estimated by government debt as a percentage of GDP (Westphal and Rother,2012).

4.8 Control Variables

This study incorporates employment rate, foreign direct investment and population rate to control for possible impact on public sector governance and macroeconomic stability. As the foreign direct investment increases, it stimulates growth more than domestic investment. However, there is limited evidence, according to Mansfield and Romeo (1980) and Haddad and Harrison (1993), suggesting that foreign direct investment (FDI) accelerates economic growth in developing countries, specifically in Morocco. Additionally, Carkovic and Levine (2002) argue, FDI flows have no exogenous effect on growth in financially sophisticated (developed) economies. According to the "Malthusian" or "Orthodox" school of thought, high population expansion is viewed as dangerous as it tends to outpace any reaction brought about by advancements in technology and capital accumulation (Coale & Hoover, 1957; Ehrlich & Holdren, 1969). For the G-7 countries, Padalino and Vivarelli (1997) discovered a positive correlation between GDP and employment. They also estimated the employment elasticities to calculate the growth in the unemployment rate. Regarding GDP, employment elasticities are positive and statistically significant for the entire sample of rich and developing nations. We infer that there is a chance of jobless growth in these countries since the employment elasticity is much lower in emerging nations ranges from 0.11 to 0.15 as compared to 0.43 to 0.48 in developed nations. Haider et al; (2023).

4.9 Estimation methods

The main estimating techniques are described in this section. The panel data set was used for this investigation because it allows for the regulation of unobserved company heterogeneity and has greater flexibility, variety, efficiency, and effectiveness (Verbeek, 2008). In order to capture the country specific variations, heterogenous panel model has been used. For panel data analysis, the one-way random effect and fixed effect are considered as popular methods. An intercept term represents the disparities between cross-sectional units. Biorn (2004) proposed a new approach for dealing with unbalanced panel data, in order to estimate a one-way Seemingly Unrelated Regression system with random effect. On the basis of Hausman's (1978) selection, RE is recommended over FE.

It helps to reduce firm-level heterogeneity and avoid biased estimates. The SUR method suggested by Arlond and Zellner (1962), estimated several individual relationships that are interconnected, with the fact that error terms are correlated. This correlation comes from

different sources like economic fluctuations. SUR model is more suitable compared to other methods like OLS, in two main motivations; first one is to gain efficiency in estimation by combining two seemingly but different equations and second is to impose or test restriction, Moon & Perron (2006). Therefore, we opt SUR model instead of OLS to estimate equations. To capture both the direct and indirect effects of public sector governance (PG) on macroeconomic stability (MI) through public sector size and public sector debt, we will employ our SUR model. SUR is beneficial by minimizing standard errors and controlling for cross-period correlation by estimating equations simultaneously (Cameron & Trivedi, 2009). Finding the intermediary factors in the link among the dependent and independent variables is another benefit of this approach. The issue of multicollinearity between public sector governance, public size, public debt, and macroeconomic stability is mitigated by the simultaneous use of several regressions in SUR model. The key issue in this model is not only endogeneity but also the correlation of the equation's error terms which SUR handles more efficiently than other models.

CHAPTER 5

PUBLIC SECTOR GOVERNANCE, PUBLIC SIZE AND ECONOMIC STABILITY

5 RESULTS AND DISCUSSION

This chapter presents the results after compiling the dataset mentioned in previous chapter. The correlation matrix, key elements of public sector governance, and measurement of public governance and macroeconomic stability are all presented in section 5.1. The descriptive study of the public sector governance, public debt, and macroeconomic stability measurement variables is presented in this section. The models' regression analysis is described below.

5.1 Measurement of Public Sector Governance (PG) and Macroeconomic stability index (MI) for World Economies (Model I)

Principal Component Analysis is used to assess public sector governance, as explained in the methodology section. This index is formulated by using six variables: political stability, voice and accountability, government efficiency, regulatory quality, the rule of law, and control of corruption. Following the decomposition of the eigen values of the correlation matrix, PCA regulates the principal components. It takes into account the input parameters that have a significant impact on the variability of the input data. The final results are regarded valid, and if the correlation matrix is correct, the validity of the principal components is guaranteed. It minimizes the output variable by removing the individual identities of strongly correlated variables. Our goal is to use PCA to summarize the initial input components while retaining all relevant material. In Appendix (Table B-1) correlation matrix has been shown between the public sector governance methods by various input values. The correlation coefficients are significant for p when values with an asterisk are present. Among the selected input variables, principal components analysis tends to minimize variables to capture maximum variation in each set of unrelated components.

Ideally, only one component with the best weight should be selected. The eigenvalues are used to determine weights and optimal as it produces highest variance between variables (Bharath, Pasquariello, & Wu, 2009). Principal component analysis results in minimal output variables. Therefore, we want to apply principal component analysis to compress data in order

to preserve the information. In appendix (Table B-2) shows that only one component represents 92% variation of the governance index.

The macroeconomic stability index is calculated using principal component analysis. Inflation, GDP growth, fiscal balance, current account balance, and interest rates are used as inputs to generate the index. PCA determines the principal components by decomposing the correlation matrix's eigen values. Table B-3 (see appendix) shows the correlation matrix between the input values for several macroeconomic stability indices. Values shown with an asterisk shows significance of data.

Among the selected input variables, principal components analysis tends to minimize variables to capture maximum variation in each set of unrelated components. The (Appendix Table B-4) shows that one component alone represents 66% variation of the macroeconomic stability index.

5.1.1 Regression Analysis for World Economies (Model I)

The effect of public sector governance on macroeconomic stability has been analyzed for world economies. We have dissected the effect of overall public sector governance on macroeconomic stability into direct and indirect effects. The results of our econometric model, which also included the direct and indirect effects of public governance on macroeconomic stability via the size of the public sector, are explained in Table 5-1. To account for their impact on macroeconomic stability, we have also included a few control variables in this case: employment rate, population growth, and foreign direct investment. The results are displayed in table below.

Table 5-1: Impact of Public Sector Governance on Macroeconomic Stability Through the Channel of Public Sector Size.

Variables	Public Size	Macroeconomic Stability
Public Governance	-3.450 (0.022) ***	0.058 (.010899) ***
Public Size	-	-0.0019 (0.000) ***
FDI	-0.00001 (0.186)	-0.00001 (0.186)
Population Growth	-0.00019 (0.915)	-.00019 (0.915)
Employment rate	-0.0006947 (0.09) *	-.00069 (0.090) *

Note. P-value is presented in parentheses with coefficients ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Empirical evidences suggest that, direct effect of public governance on macroeconomic stability is positive ($\beta_{1=0.058}$) is positive and indirect effect of public governance by controlling the mediating effect of public size ($\alpha_1 * \beta_2$) = (-3.45* -0.0019) = 0.0065 on macroeconomic stability

is also positive. It should be noted that public size itself has negative impact on the macroeconomic stability. Therefore, macroeconomic stability is enhanced by controlling the public size and improving the governance. According to empirical findings, public governance and macroeconomic stability have a positive, direct and very significant association. This indicates that for every percentage point rise in governance quality, the stability of the nation increases.

Increasing the size of government impede growth due to heightened spending needs. To generate revenue, the government raises taxes to cover greater spending. This tax hike slows economic activity and increases private investment, which has a detrimental impact on growth rates. [Barro, 1990; Landau, 1983] This is relevant to the results reported in our model. A larger public sector can put strain on public sector governance and diminish the efficacy of government activities. Strong public sector governance can offset the negative consequences of a big public sector while also promoting macroeconomic stability.

Control variables result show negative impact of population, FDI and employment rate on macroeconomic stability. There is an insignificant negative correlation between FDI inflows and macroeconomic stability because inefficient domestic enterprises' production and employment are declining as a result of structural reforms. This has the potential to neutralize or even surpass the positive effects of FDI on the growth of host sector economies. Employment rate has negative and insignificant effect on macroeconomic stability because labor is unskilled causing low productivity.

5.2 Measurement of public sector Governance (PG) and Macroeconomic stability index (MI) for Developing Economies (Model II)

Principal Component Analysis (PCA) is used to evaluate public sector governance. This index is comprised on six variables i.e.: political stability, voice and accountability, government efficiency, regulatory quality, the rule of law and control of corruption. Following the decomposition of the eigenvalues of the correlation matrix. PCA controls the principal components. It exclusively investigates input elements that play a significant effect in the fluctuation of the overall input data. (Table B-7) in Appendix shows a correlation matrix of the input values for various public sector governance methods. Values shown with an asterisk shows significance of data.

It minimizes the output variable by removing the individual identities of strongly correlated variables. Our goal is to use PCA to summarize the initial input components while retaining all relevant material. The (Appendix Table B-8) represents that only one component represents 92% variation of the governance index.

Principal Component Analysis is used to calculate the macroeconomic stability index. Inflation, GDP growth, fiscal balance, current account balance and interest rates are used as input factors to create an index. PCA intends to determine the principal components after decomposing the correlation matrix's eigen values. (Appendix Table B-9) displays the correlation matrix for the macroeconomic stability index's input values. Values with an asterisk denote significant correlation coefficients for p.

It minimizes the output variable by removing the individual identities of strongly correlated variables. Our goal is to use PCA to summarize the initial input components while retaining all relevant material. The (Appendix Table B-10) represents that only one component represents 29% variation of the macroeconomic stability index.

5.2.1 Regression analysis for Developing Economies (ModelI)

In the SUR model, we break down the impact of overall public sector governance on macroeconomic stability into direct and indirect effects. Table 5-2 summarizes the findings of our econometric model, using public sector size as a mediating variable which also considered the direct and indirect impact of public governance on macroeconomic stability. It describes our broad model, which includes both the direct and indirect effects of public sector governance on macroeconomic stability. We have also included some control variables, such as population growth, employment rate and FDI, to reflect their impact on macroeconomic stability.

Table 5-2: Impact of Public Sector Governance on Macroeconomic Stability Through the Channel of Public Sector Size.

Variables	Public Size	Macroeconomic Stability
Public Governance	-10.60(0.000) ***	0.0300 (0.019) **
Public Size	-	-0 0018 (0.000) ***
FDI	0.0001 (0.000) ***	-0.00001 (0.074) *
Population Growth	-0.357 (0.243)	-0.00263 (0.212)
Employment rate	-0.57 (0.000)	-0.0003 (0.410)

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Empirical evidences suggest that, direct effect of public governance on macroeconomic stability is positive ($\beta_{1=0.0300}$) is positive and indirect effect of public governance by

controlling the mediating effect of public size $(\alpha_1 * \beta_2)$ = (-10.60* -0.0018) = 0.01908 on macroeconomic stability is also positive. It should be noted that public size itself has negative impact on the macroeconomic stability. Therefore, macroeconomic stability is enhanced by controlling the public size and improving the governance. Public governance and macroeconomic stability have a positive, direct and very significant link. This indicates that for every percentage point gain in governance quality, macroeconomic stability increases.

In developing economies, public sector governance has a detrimental impact on the size of the government. (Anwar and Hossain ,2016). One of these relationships is very significant, at the 1% level of significance, as indicated by the p-value (0.000). Increasing the size of the government slows growth since it requires more spending. To generate revenue, the government raises taxes to cover greater spending. This tax hike slows economic activity and increases private investment, which has a negative impact on growth rates. [Barro (1990); Landau (1983)]. Bad institutional quality has detrimental effect on macroeconomic stability and if public size is large, it also has negative effect on macroeconomic stability. Good institutions and small public size have positive effect on macroeconomic stability. Weak institutions, corruption and poor public sector management can lead to macroeconomic instability, such as high inflation low GDP growth and budget deficit and balance of payment deficit. The size of the public sector effects the relationship between public sector governance and macroeconomic stability. A larger public sector puts pressure on public sector governance and diminish the effectiveness of government activities.

Effective public sector governance can help to mitigate the negative effects of a large public sector and promote macroeconomic stability. A larger public sector can lead to increased bureaucratic complexity and reduced accountability, which could undermine public sector governance. A big public sector size can also cause a burden on public finances, which could lessen the resources available for different government activities and decrease the capacity of public institutions to perform their responsibilities efficiently. So, the effect of the public sector size on public sector governance is complex and dependent on many factors, including the particular context, the nature of government institutions and the level of transparency and responsibility. Olsson and Hansson (2011) have argued that because the institutional quality reflects the local public good so the country size and the rule of law are incompatible. In developing economies, public sector governance has a detrimental impact on the size of the government. (Anwar and Hossain ,2016). Additionally, larger states may incur costs related to

population heterogeneity because different preferences must be taken into account, which raises costs like distributional ones. Additionally, looser ties between the populace may make it more challenging to develop consistent and long-lasting policies. Consequently, there is a trade-off similar to any organization, the size of the state may result in diseconomies of scale, which are mostly caused by administrative and congestion costs. For developing countries, some in the majority group argue that this is associated with GDP growth as it stimulates private investment, higher interest payment and tax burdens. Increasing the size of government slows growth because of more need of spending. The government imposes additional taxes to fund additional expenditure to increase revenue. This increase in tax decelerates economic activity and leads to private investment which negatively effects the growth rate. [Barro (1990); Landau (1983)]. According to the study (Acemoglu et al., 2005), economic institutions play a less obvious role in developing economies with poor quality of governance. Larger countries may also face problems due to the heterogeneity of their populations, meaning that different preferences must be followed, increasing costs such as distribution, and people may have weaker connections, allowing for more guidance to be implemented uniform and sustainable Politics becomes difficult. This creates a trade-off and, as with any business, there may be economies of scale, mainly due to administrative and congestion costs.

The control variables incorporated in our research, along with the results shown in the table, reveal that employment has a favorable impact on macroeconomic stability whereas population and FDI have a negative impact. There is a negative link between FDI inflows and macroeconomic stability because structural reforms are reducing the output and employment of inefficient domestic enterprises. This can balance out, or perhaps outweigh, the positive impact of FDI on the growth of host-sector economies. Labor is unskilled, resulting in low productivity.

5.3 Measurement of Public Sector Governance (PG) and Macroeconomic stability index (MI) for Developed Economies (Model III)

The assessment of public sector governance is done using Principal Component Analysis (PCA). This index is built on six pillars: political stability, voice and accountability, government efficiency, regulatory quality, the rule of law, and corruption control. After decomposing the correlation matrix's eigenvalues, PCA determines the major components. It takes into account the input parameters that have a major impact on the overall variability of the input data. In Appendix (Table B-13) shows the input value matrix among the of various

public sector governance mechanism. Asterisk-marked values indicate that the correlation coefficients for p are significant.

It minimizes the output variable by removing the individual identities of strongly correlated variables. Our goal is to use PCA to summarize the initial input components while retaining all relevant material. The macroeconomic stability index has been computed by using Principal component analysis. In (Appendix Table B-14), inflation, GDP growth, fiscal balance, current account balance and interest rate are used as input variables to create an index.

Following the decomposition of the eigen values of the correlation matrix, PCA regulates the principal components. In (Appendix Table B-15) correlation matrix has been shown between the macroeconomic stability methods by various input values. Values with an asterisk indicate significant correlation coefficients for p.

It minimizes the output variable by removing the individual identities of strongly correlated variables. Our goal is to use PCA to summarize the initial input components while retaining all relevant material. The (Appendix Table B-16) represents that a single component represents 31% variation of the macroeconomic stability index.

5.3.1 Regression Analysis for Developed Economies (Model III)

In SUR model, we decompose the impact of public sector governance on macroeconomic stability into direct and indirect effects. Table 5-3 summarizes the findings of our econometric model that further comprised of direct and indirect effects of public governance on macroeconomic stability as mediated by public sector size. The table outlines our broad model, encompassing the results of both direct and indirect link between public sector governance and macroeconomic stability. This model describes the effect of public governance, public size on macroeconomic stability. We have also included some control variables such as Population growth, Employment rate and FDI to capture their impact on macroeconomic stability.

Table 5-3: Impact of Public Sector Governance on Macroeconomic Stability Through the Channel of Public Sector Size

Variables	Public Size	Macroeconomic Stability
Public Governance	9.269 (0.79)	0.1045 (0.001) ***
Public Size	-	0.00022 (0.030) **
FDI	0.0001 (0.035) **	-0.00001 (0.446)
Population Growth	4.18 (0.000) ***	-.0044 (0.010) **
Employment rate	-20.08 (0 000) ***	.0038 (0.064) **

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Empirical evidences suggest that, direct effect of public governance on macroeconomic stability is positive ($\beta_{1=0.001}$) and indirect effect of public governance by controlling the mediating effect of public size ($\alpha_1 * \beta_2$) = (9.26 * 0.0002) = 0.0018 on macroeconomic stability is also positive. It should be noted that public size has positive impact on the macroeconomic stability. Therefore, macroeconomic stability is enhanced by controlling the public size and improving the public governance.

According to empirical findings, public governance and macroeconomic stability have a positive, direct and very significant link. This means that for every percentage point gain in governance quality, macroeconomic stability increases. In contrary to developing nations, indirect effect is positive and significant which means public size is affecting positively by improved governance quality on public sector governance and macroeconomic stability relationship.

Economic stability and growth are associated with good governance, and the relationship between governance and growth is more pronounced in countries with better institutions (Arslan and Soylu, 2018). It can be said that we now live in the era of small countries, and more than a third of the 215 countries in the world are extremely small countries (Brito, 2015). Developed economies engage in outsourcing. The World Economic Outlook (2020) predicts a significant decline in GDP, especially for some of the smaller European countries (e.g. Iceland, Latvia, Estonia, Lithuania, Slovenia, Croatia, San Marino, etc.), especially compared to other large countries. This should be reflected in increased social security and spending transfers to provide citizens with the necessary safety net. Smaller states have fewer regulations and, on average, greater investment freedom than larger states. Reducing the size of the public sector can improve competitiveness.

According to Goldsmith (1999), activist governments in small nations serve as a protection against vulnerability. According to Streeten (1993), smaller states make it easier to carry out supervision and handle collective action concerns. Governments are shown to contribute to economic development by building the necessary infrastructure and offering services in an appropriate and effective manner (Komeijani & Nazari, 2009). Through the political stability and size of public spending, economy can achieve long term growth which ultimately leads to macroeconomic stability. Some studies imply that the government size has a positive effect on economic growth (Ram, 1986; Kormendi & McGuire, 1985; NORAD, 2000). Certain advanced countries have lower estimates of government spending of less than

20%, according to research on the ostensibly "optimal" size of government (Vedder and Gallaway, 1998).

The control variables included in our research, as well as the results shown in the table, reveal that employment has a favorable impact on macroeconomic stability whereas population and FDI have a negative impact. The table shows that increasing the population by 1 percentage point reduces macroeconomic stability. Similarly, increasing employment by one percentage point increases macroeconomic stability.

5.4 Correlation Matrix

A correlation matrix has been computed between the world economies' control variables and the macroeconomic stability, public governance and public debt. (Appendix Table B-5) shows the correlation matrix. Correlation coefficients are significant for p by showing values with asterisks. A correlation matrix has been computed between the world economies' control variables and the macroeconomic stability, public sector governance and public size. The goal of each study's correlation analysis may be different. A correlation matrix is employed in this study to verify multicollinearity and record the relationship between independent variables.

The results display an adverse relation between public sector size and macroeconomic stability by showing 26 percent correlation. Additionally, there is an 11% positive correlation between macroeconomic stability and public sector governance. Public size is negatively correlated with public sector governance with correlation coefficient of -0.05. Foreign direct investment is negatively correlated with public size with a correlation coefficient of -0.11 and positively correlated with public governance with a 9% correlation. It suggests that as public size increases, FDI will fall slightly. Moreover, high level of public sector governance is related with higher level of FDI. Its correlation with the study's independent variables is less than 0.70, indicating that multicollinearity is not an issue. Public size has a negative correlation of -.07 with population growth showing that as population increases public size will fall. Similarly, public sector governance has a negative correlation of -.04 with population growth suggesting that population growth is associated with a decrease in public sector governance. Foreign direct investment demonstrates a negative correlation coefficient of -0.11 with population growth showing that as population increases FDI tends to fall. Macroeconomic stability has a positive association with employment rate showing a very weak relation between these two variables with .04 correlation coefficient. Foreign direct investment (FDI) has a 7% correlation with

employment rate. Population growth has 27% correlation with employment rate suggesting a moderate correlation between population growth and macroeconomic stability. Public size has a negative correlation of with employment rate with correlation coefficient -0.29 and it shows that as public size increases, employment rate tends to fall.

A correlation matrix has been computed between the developing economies' control variables and the macroeconomic stability, public governance and public size. Appendix (Table B-11) illustrates the correlation matrix. Values with an asterisk shows the significance of data. The correlation matrix results exhibit variations when it comes to developing nations. The findings indicate that macroeconomic stability and public size are negatively correlated with 0.27 correlation coefficient. Also, positive correlation between public governance and macroeconomic stability with 0.09 correlation coefficient. Public size and foreign direct investment have 11% correlation and public governance and FDI are positively correlated with 0.16 correlation coefficient. Public size and population growth are negatively related with -0.05 correlation coefficient. There is 4 % correlation among employment rate and macroeconomic stability. Public size and employment rate are negatively correlated with correlation coefficient of -0.24. Public sector governance, FDI and population growth are positively related with employment rate showing correlation coefficients .06,.07 and 0.27 respectively.

A correlation matrix has been computed between the developed economies' control variables and the macroeconomic stability, public governance and public size. The asterisks values show significance of data. Appendix (Table B-17) is showing correlation matrix. Macroeconomic stability and public governance have 13 % correlation in developed nations. FDI and public governance are positively correlated with correlation coefficient 0.15, but FDI and public size are negatively correlated showing 6% correlation. Population growth is favorably connected with governmental size showing 69% correlation and adversely correlated with macroeconomic stability, public governance and foreign direct investment showing 8%, 13% and 6% correlation. The employment rate has a positive correlation with foreign direct investment (FDI) showing 8% correlation and a negatively related with population growth and public size.

5.5 Descriptive Statistics

Descriptive statistics, which are utilized in this study to characterize the vast volumes of data, make the data easily readable. The study's descriptive statistics are outlined for the

variables, which include the control variables, macroeconomic stability, public governance and public debt. Appendix (Table B-6) shows the descriptive statistics.

The vast quantities of statistical data are unreadable. Through the use of various methodologies, descriptive statistics enable the researcher to provide an overview of the data. It comprises the total number of observations, the data set's mean and median values, the standard deviation, or measure of dispersion and the greatest and lowest values for each variable in the sample.

The study's macroeconomic stability for world economies has a mean (median), a range of 0 to 1 and a standard deviation of 0.12. The study's descriptive statistics are outlined for the variables, which include the control variables, macroeconomic stability, public governance and public size. Table (B-12) in Appendix shows the descriptive statistic.

The vast quantities of statistical data are unreadable. Through the use of various methodologies, descriptive statistics enable the researcher to provide an overview of the data. Descriptive statistics, which are utilized in this study to characterize the vast volumes of data, make the data easily readable. It comprises the total number of observations, the data set's mean and median values, the standard deviation, or measure of dispersion, and the greatest and lowest values for each variable in the sample. In case of developing nations, the study's macroeconomic stability has a mean (median), a range of 0 to 1 and a standard deviation of 0.12. In case of developed nations (Table B-18 in Appendix), the study's macroeconomic stability has a mean (median), a range of 0 to 1, and a standard deviation of 0.16.

5.6 Summary

The results gained by statistical tests are discussed in this chapter. In order to assess the public sector governance and macroeconomic stability indices, the principal component analysis method has applied. This index is comprised on six variables i.e.: political stability, voice and accountability, government efficiency, regulatory quality, the rule of law and corruption control. Inflation, GDP growth, fiscal balance, current account balance and interest rates are all factors considered while calculating the macroeconomic stability index.

Following the decomposition of the eigen values of the correlation matrix, PCA regulates the principal components. It takes into account the input parameters that have a significant impact on the variability of the input data.

Descriptive statistics presents an overview of the data using a variety of approaches. The study uses descriptive statistics to provide an understandable representation of the large amounts of data.

A seemingly unrelated regression is used to estimate the relationship between public sector governance, public size and macroeconomic stability. The results are quite different in case of world, developing and developed nations. In case of world economies, the empirical results show a strong positive direct relationship between public governance and macroeconomic stability. Each percentage point increase in governance quality results in a rise in economic stability. However, there is a negative indirect effect, demonstrating that increased public size has a considerable impact on both public sector governance and macroeconomic stability, resulting in a loss.

In developing nations according to empirical finding, public governance and macroeconomic stability have a positive, direct, and significant relationship. This means that for every percentage point increase in governance quality, macroeconomic stability rises. It also implies that the indirect effect is positive. It should be noted that public size itself has negative impact on the macroeconomic stability. Therefore, macroeconomic stability is enhanced by controlling the public size and improving the governance. Better governance can mitigate the negative effect of public size as large public size in developing nations has negative effect on governance-stability relationship. A big public sector size can also cause a burden on public finances, which could lessen the resources available for different government activities and decrease the capacity of public institutions to perform their responsibilities efficiently.

In developed nations, direct and indirect relationship between public sector governance and macroeconomic stability is positive. According to empirical findings, public governance and macroeconomic stability have a positive, direct and significant relationship. This suggests that for every percentage point increase in governance quality, macroeconomic stability increases. In contrast to developing countries, the indirect effect is positive and small, indicating that public size has no effect on public sector governance or macroeconomic stability. Because of inefficiencies, corruption, and resource misallocation, the ideal threshold for developing nations is frequently lower (25–30% of GDP) (Tanzi & Schuknecht, 2000). A higher threshold criterion (35–45% of GDP) is sustainable for industrialized countries because of improved productivity, fiscal management, and institutional quality (OECD, 2019).

Governments in developed countries can maintain macroeconomic stability with a relatively small public sector because market-driven economies and private sector efficiency compensate for reduced state intervention.

CHAPTER 6

Public Sector Governance, Public Debt and Macroeconomic Stability

6 RESULTS AND DISCUSSION

This chapter presents the results after compiling the dataset mentioned in previous chapter. The correlation matrix, key elements of public sector governance, and measurement of public governance and macroeconomic stability are all presented in section 6.1. The descriptive study of the public sector governance, public debt, and macroeconomic stability measurement variables is presented and the models' regression analysis is also described below in detail.

6.1 Measurement of Public Sector Governance (PG) and Macroeconomic stability index (MI) for World Economies (Model I)

As mentioned in the previous section, principal component analysis (PCA) is used to evaluate public sector governance. The index is formulated by six variables: political stability, voice and accountability, government effectiveness, regulatory quality, rule of law and control of corruption. After decomposing the eigenvalues of the correlation matrix, PCA regularizes the principal components. It takes into account input characteristics that have a significant impact on the variation of data. It minimizes the output variable by removing the individual identities of strongly correlated variables. The objective is to use principal component analysis to summarize the initial input components while retaining all relevant material.

6.1.1 Regression Analysis for World Economies (Model I)

The effect of public sector governance on macroeconomic stability has been analyzed for world economies. We have dissected the effect of overall public sector governance on macroeconomic stability into direct and indirect effects. The results of our econometric model, which incorporates both the direct and indirect effects of public governance on macroeconomic stability via the public debt, are explained in Table (6-1). To account for their impact on macroeconomic stability, we have also included a few control variables in this case: employment rate, population growth, and foreign direct investment. The results are presented in table below.

Table 6-1: Impact of Public Sector Governance on Macroeconomic Stability Through the Channel of Public Debt.

Variables	Public Debt	Macroeconomic Stability
Public Governance	-30.74 (0.000) ***	0.0661 (0.000) ***
Public Debt	-	0.000036 (0 605)
FDI	-0.00001 (0.888)	-0.00001 (0.888)
Population Growth	0000113 (0.995)	0.000011 (0.995)
Employment rate	.0008621 (0.035)	.00086 (0.035) **

Note. P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Empirical evidences suggest that, direct effect of public governance on macroeconomic stability is positive ($\lambda_{1=0.0661}$) is positive and indirect effect of public governance by controlling the mediating effect of public debt ($\lambda_2 * \eta_1$) = (-30.74* 0.000036) = -0.0011 on macroeconomic stability is negative. It is noted that public debt itself has positive and insignificant impact on the macroeconomic stability and public governance negatively influences the debt.

According to empirical findings, public governance and macroeconomic stability have a positive, direct, and very significant association. This indicates that for every percentage point rise in governance quality, the stability of the nation increases. It further suggests that indirect effect is negative signifying a substantial impact of public debt on public sector governance and macroeconomic stability.

According to empirical studies, governments in countries with higher levels of corruption borrow more money because increasing levels of corruption are associated with an increase in public debt (Cooray et al., 2017; Benfratello et al., 2018). High levels of public debt can strain public sector governance by increasing the need for effective debt management and reducing the resources available for other government activities. Consequently, this may lead to challenges such as fiscal imbalances, low investment, and inflation, which can undermine macroeconomic stability. The concept of a non-linear, inverted U-shaped debt-growth relationship is supported by the increasing number of recent studies that examine the higher stage of public debt (Reinhart and Rogoff 2010; Pattillo et al. 2011; Marchionne and Parekh 2015; Ahlborn and Schweickert 2018). A lot of emerging nations grapple with unstable democracies, authoritarian regimes, and other problems which contribute to bad governance.

Control variables result indicate a negative impact of FDI and positive impact of population and employment rate on macroeconomic stability. There is insignificant negative

correlation between FDI inflows and macroeconomic stability because Inefficient domestic enterprises' production and employment are declining as a result of structural reforms This phenomenon has the potential to neutralize or even surpass the positive effects of FDI on the growth of host sector economies.

6.2 Measurement of Public Sector Governance (PG) and Macroeconomic stability index (MI) for Developing Economies (Model II)

The principal component analysis applied to evaluate the public sector governance explained in Chapter 5. This index is built around six criteria: political stability, voice and accountability, government efficiency, regulatory quality, the rule of law, and corruption control. Principal Component Analysis is used to compute the macroeconomic stability index. Inflation, GDP growth, fiscal balance, current account balance, and interest rates are used as inputs to generate the index. After breaking down the correlation matrix's eigenvalues, PCA analyzes the principal components. It considers input characteristics that have a considerable impact on the overall variability of the input data.

6.2.1 Regression Analysis for Developing Economies (Model II)

In the SUR model, we decompose the effect of overall public sector governance on macroeconomic stability into direct and indirect effects. Table (6-2) describes results of our econometric model, which included both direct and indirect effects of public governance on macroeconomic stability channelized through public debt. The table illustrates our broad model, incorporating the results of direct as well as the indirect links between public sector governance and macroeconomic stability. We have also included several control variables such as population growth, employment rate and FDI to capture their effect on macroeconomic stability.

Table 6-2: Impact of Public Sector Governance on Macroeconomic Stability Through the Channel of Public Debt.

Variables	Public Debt	Macroeconomic Stability
Public Governance	-31.32 (0.000) ***	0.0510 (0.000) ***
Public Debt		0.000036 (0.658)
FDI	0.0001 (0.693)	0.00001 (0.756)
Population Growth	1.88 (0.002) ***	-0.0020 (0.352)
Employment rate	-0.047 (0 000) ***	0.0007 (0.087) *

Note P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively

According to empirical findings, public governance and macroeconomic stability have a positive, direct, and very significant link. This indicates that for every percentage point gain in governance quality, macroeconomic stability increases. Empirical evidences suggest that, direct effect of public governance on macroeconomic stability is positive ($\lambda_{1=0.0510}$) and indirect effect of public governance by controlling the mediating effect of public debt on macroeconomic stability is negative shown by ($\lambda_2 * \eta_1$) = (-31.32* 0.000036) = -0.00112 . It is noted that public debt itself has positive and insignificant impact on the macroeconomic stability and public governance negatively influences the debt. Therefore, in developing nations it is necessary to improve governance for the productive utilization of debt and macroeconomic stability. Public sector governance and macroeconomic stability can be affected by public debt.

Public debt can put pressure on public finances and elevate the risk of fiscal instability, which can jeopardize macroeconomic stability. PG directly enhances microeconomic stability but indirectly in presence of debt, PG is affecting negatively on debt and if debt level is low, it will increase macroeconomic stability in slight way. Low productivity and growth are indicators of poor economic performance, diminishing a nation's ability to pay back its debt. Empirical studies show that as corruption increases with public debt, governments in more corrupt nations tend to borrow more (Cooray et al. 2017; Benfratello et al. 2018). Borrowed funds can stimulate the economy's financial system if handled effectively and sensibly; yet, excessive and irresponsible usage may trigger downturns. Poor economic performance reflects low production and growth, reducing a country's ability to repay debt. High levels of public debt can put pressure on public sector governance by increasing the need for effective debt management and reducing the resources available for other government activities. This can lead to challenges such as fiscal imbalances, low investment, and inflation, which can undermine macroeconomic stability. If the countries are indebted then they encounter governance issues stemming from external interference by donor agencies and internal restrictions on the utilization of resources. HDI and FDI are affected by government debt. The government spends more of its budgets on interest costs, which can affect foreign investors and lowers down investment due to increase in government debt. Moreover, high indebtedness can render the economy susceptible to asset price fluctuations, amplifying shocks and exacerbating macroeconomic instability.

Empirical research validates the negative effect of government debt. The rising body of new research investigates the advanced stages of public debt and supports the notion of non-

linear, an inverted U-shaped debt-growth relationship (Reinhart and Rogoff 2010; Pattillo et al. 2011; Marchionne and Parekh 2015; Ahlborn and Schweickert 2018). Nations with fragile governments frequently borrow excessively, spend mortgage resources irresponsibly, transferring them to far less efficient sectors, and bad public governance results in higher borrowing costs.

According to theory, the ability to boost economic activity by borrowing money for public expenditures is determined by fiscal multiplier, which tends to be low (or even negative) in countries with international trade (Silva et al. 2013, Ilzetzki et al. 2013, and Batini et al. 2014). Effective governance alone is insufficient to mitigate the negative effects of debt. Individuals burdened by substantial debt may be more vulnerable to shocks and may also be at risk for solvency problems, as well as maturity, currency, and liquidity mismatches. The economy may be more vulnerable to swings in asset prices if there is a high amount of debt. High levels of debt can also expose the economy to fluctuations in asset prices, exacerbating shocks and macroeconomic instability. Numerous nations with high debt ratios, including Greece and Sri Lanka, have experienced catastrophic economic downturns (Petrovi´c and Nojkovi´c, 2021). Following the global financial crisis, many governments implemented rescue plans that required to finance the gaps. The public sector debt also increased significantly during this period in an effort to mitigate the impact of the COVID-19 outbreak by donating money to the most vulnerable sectors, including healthcare and others. However, the public sector debt of many emerging countries is difficult to control and it is difficult for these debts to achieve the expected economic development. (Yasar, 2021)

According to Asteriou et al. (2021) and Shittu et al. (2018), numerous developing countries' government budget and current account balances are unstable as a result of accepting short and long-term borrowing from multiple sources, resulting in twin deficits. A high debt burden makes the country macroeconomically fragile. Recent studies have revealed that public debt has detrimental impact on developing countries, attributed to ineffective policies, high levels of corruption, and poor debt fund management, resulting in low income, low savings, and a large tax burden. (Pjani´c et al,2020 and Law et al, 2021). Many emerging nations deal with unstable democracies and other problems that lead to bad governance. Rent-seekers were given the opportunity to swindle public funds by ineffective governance, according to Mauro (1995) and Cooray et al. (2017), whereas effective administration guarantees their proper use. Kaufmann (2011) stated that poor administration opens doors for public servants to misuse

public funds in order to further their political ambitions. In managing public funds, governance is crucial, and public debt is a delicate public fund that must be used carefully if it is to help the country's economy.

According to Cooray et al. (2017) and Nguyen & Luong (2021), effective governance boosts macroeconomic indices by properly allocating debt funds, whereas weak governance can lead to excessive public debt in transitional countries. This has an impact on growth due to high taxation, low savings, and interest payments. Public debt's structural rigidities, inadequate governance, and ineffective debt management all contribute to the adverse effects of foreign debt on economic growth. The persistence of high level of real interest rates in many nations, especially in the late 1990s, which mostly reflected the failure of their stabilization efforts, was a contributing factor to the continuation of high debt. The rapid accumulation of public debt that resulted in some nations, (most notably Brazil) as a result of high real interest rates, undermined perceptions of solvency and macroeconomic stability. According to Presbitero (2008, 2012), public debt in low- and middle-income countries, has a negative impact on output growth until it reaches 90% of GDP. Beyond this point, the effect of debt on growth becomes negligible.

The control variables included in our research, and the results shown in the table, suggest that employment and FDI have a favorable impact on macroeconomic stability, whereas population has a negative effect. The table illustrates that increasing the population by 1 percentage point reduces macroeconomic stability. Similarly, a one-percentage-point increase in employment will result in a significant increase in macroeconomic stability, while FDI has no effect because of strict regulations, permissions, and low productivity in developing countries. Debt repayment is minimal, hence public debt is burdensome.

6.3 Measurement of Public Sector Governance (PG) and Macroeconomic stability index (MI) for Developed Economies (Model III)

In order to measure the public sector governance, Principal Component Analysis is used. For this purpose, six parameters are used in making this index: political stability, voice and accountability, government efficiency, regulatory quality, rule of law, and control of corruption. The principal component analysis is also used to measure the macroeconomic stability index. For this purpose, inflation, GDP growth, fiscal balance, current account balance and interest rate are taken as input variables for making index. It minimizes the output variable

by removing the individual identities of strongly correlated variables. The objective is to use principal component analysis to summarize the initial input components while retaining all relevant material.

6.3.1 Regression Analysis for Developed Economies (Model III)

In the SUR model, we investigate the impact of overall public sector governance on macroeconomic stability into direct and indirect effects. The table explains the results of our econometric model, which also included the direct and indirect effects of public governance on macroeconomic stability via public debt. Table (6-3) depicts our comprehensive model, encompassing both direct and indirect results for the relationship between public sector governance and macroeconomic stability. Furthermore, we have introduced several control variables: Population growth, Employment rate and FDI, to capture their effect on macroeconomic stability.

Table 6-3: Impact of Public Sector Governance on Macroeconomic Stability Through the Channel of Public Debt.

Variables	Public Debt	Macroeconomic Stability
Public Governance	0.00001 (0 752)	0.1054 (0.001) ***
Public Debt	-	0.0001 (0.002) ***
FDI	0.0001(0.559)	-0.00001 (0.559)
Population Growth	-.0020134 (0.244)	-0 00201 (0 244)
Employment rate	.0002542 (0.63)	0.00025 (0.634)

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Empirical evidences suggest that, direct effect of public governance on macroeconomic stability is positive ($\lambda_{1=0.1054}$) and indirect effect of public governance by controlling the mediating effect of public debt ($\lambda_2 * \eta_1$) = (0.0001* 0.0001) = 0.0000001 on macroeconomic stability is also positive. It should be noted that public debt has positive impact on the macroeconomic stability. Therefore, macroeconomic stability is enhanced by controlling the public debt and improving the public governance.

According to empirical findings, public governance and macroeconomic stability have a positive, direct, and very significant link. This means that for every percentage point gain in governance quality, macroeconomic stability increases. In contrary to developing nations, indirect effect is positive, which means use of public debt is productive and influencing positively on relationship of public sector governance and macroeconomic stability. It is suggested that countries with lower levels of public debt, coupled with higher levels of

transparency and accountability in their public sector, tends to experience greater macroeconomic stability.

A well-functioning public sector governance can help to manage the public debt in a responsible and sustainable manner. Good governance practices, such as transparency, responsibility, and powerful economic management, can mitigate the risks of mismanagement and corruption that could result in better tiers of debt. The industrialized nations that have strong institutions and stringent public sector regulations are more successful at boosting the economy by rising debt. Countries with strong institutional frameworks can borrow extra without experiencing a slowdown impact in their economies. Good governance in developed countries can improve macroeconomic indicators by ensuring efficient utilization of the debt. Despite having larger governments and higher tax rates, Kleven (2014) examines the situation of Scandinavian nations that perform better economically by higher quality social institutions (such as trust, social capital, and ethnic homogeneity).

The control variables that we have incorporated in our study and the results shown in table suggest that employment and FDI has favorable impact on macroeconomic stability, whereas population exerts a negative effect. The table indicates that increasing the population by 1 percentage point reduces macroeconomic stability. Likewise, if there is an increase in the employment by 1 percentage point, it will lead to increase macroeconomic stability significantly. This study makes it very evident that, in contrast to underdeveloped nations, industrialized nations utilize their accumulated public debt as productive capital. Unlike in less developed world, public debt in developed nations therefore contributes to GDP growth.

6.4 Descriptive Statistics

Descriptive statistics, employed in this study to characterize the extensive volumes of data, make the data easily readable. The descriptive statistics of the study are outlined for the variables, encompassing the control variables, macroeconomic stability, public governance and public debt. Appendix (Table B-19) comprises the total number of observations, the data set's mean and median values, the standard deviation, or measure of dispersion, and the greatest and lowest values for each variable in the sample. It allows to demonstrate an overview of the data using a variety of approaches. The study uses descriptive statistics to provide an understandable representation of the extensive data. The control variables, macroeconomic stability, public debt, and public governance are among the variables for which the study's descriptive data are

provided. These statistics include all of the observations, the mean and median values of the data set, the standard deviation, or dispersion measure, and the highest and lowest values for every variable in the sample.

The study's macroeconomic stability for global economies exhibits a standard deviation of 0.126558, a range of 0 to 1. Appendix (Table B-21) comprises the total number of observations, the data set's mean and median values, the standard deviation, or measure of dispersion, and the greatest and lowest values for each variable in the sample for developing nations. The macroeconomic stability of developing countries is characterized by a mean (median), a range of 0 to 1, and a standard deviation of in the study. The public debt in developing nations has a mean of, a median, a standard deviation, and, for the smallest and greatest values, respectively. The mean (median) for public governance, with a minimum value of 0.03 and a maximum value of 1 with standard deviation 0.2.

Appendix (Table B-23) comprises the total number of observations, the mean and median values of the data, the standard deviation, or measure of dispersion, and the greatest and lowest values for each variable in the sample for developed nations. The macroeconomic stability of developed countries is characterized by a mean (median), a range of 0 to 1, and a standard deviation. In contrast, the public debt has minimum values, with a mean, a median, and a standard deviation.

6.5 Correlation Matrix

A correlation matrix has been computed between the control variables of world economies and the macroeconomic stability, public governance and public debt as shown in (Appendix Table B-20). The correlation matrix between the control variables of the global economies and public debt, public governance, and macroeconomic stability has been calculated. The findings indicate that public sector governance has a positive correlation with macroeconomic stability and a negative correlation with public debt. The correlation analysis used in each study may have a different objective. This study uses a correlation matrix to document the link between independent variables and confirm multicollinearity. Notably ppublic debt and public governance exhibit a favourable correlation with foreign direct investment. The correlation of independent variables is less than 0.70, indicating that multicollinearity is not a problem. Population growth has a negative influence on foreign direct investment, public governance, and both. Additionally, the employment rate shows a negative

correlation with governmental debt, whereas macroeconomic stability, foreign direct investment, and population growth are positively correlated.

A correlation matrix has been computed between the control variables of developing economies and the macroeconomic stability, public governance and public debt. (See Appendix Table B-22). There are differences in the correlation matrix data for emerging countries. Macroeconomic stability and public debt exhibit a positive link, but the relationship between the two is inverse. FDI and public debt have an inverse relationship, but favorable relation among public governance and public sector debt. The relationship between population growth and public debt is positive, while that of FDI is negative. The employment rate inversely correlates with public debt and a positively correlates with FDI, population growth, and public governance.

Macroeconomic stability and public debt are positively connected in developed economies. (See Appendix Table B-24). Moreover, a positive correlation is found between public governance and macroeconomic stability, as well as between FDI and governance. Population increases demonstrate a negative correlation with macroeconomic stability, public governance, and foreign direct investment, but a positive correlation with government debt. Foreign direct investment (FDI) and the employment rate are positively correlated, while population growth and governmental debt are negatively correlated. All of the correlation coefficients are less than 0.70 shows no multicollinearity.

6.6 Summary

This chapter addresses empirical data obtained through statistical tests. To evaluate the public sector governance and the macroeconomic stability index, Principal component analysis has applied. This index is built around six parameters: political stability, voice and accountability, government efficiency, regulatory quality, rule of law, and corruption control. The macroeconomic stability index considers inflation, GDP growth, fiscal balance, current account balance, and interest rates. PCA calculates the principal components after decomposing the correlation matrix's eigen values. It only considers input parameters that have a significant impact on the overall variation of the input data. Descriptive statistics uses many ways to provide an overview of the data. The study uses descriptive statistics to provide an understandable representation of the extensive dataset.

A seemingly unrelated regression is used to estimate the relationship between public sector governance, public debt, and macroeconomic stability. The results are quite different in case of world, developing and developed economies.

In case of world economies, according to empirical findings, public governance and macroeconomic stability have a positive, direct, and very significant association. This indicates that for every percentage point rise in governance quality, the stability of the nation increases. It further suggests that indirect effect is negative which means public debt is affecting significantly both the public sector governance and macroeconomic stability.

In context of developing economies, empirical findings suggest that public governance and macroeconomic stability have a positive, direct, and very significant link. This indicates that for every percentage point gain in governance quality, macroeconomic stability increases. Furthermore, it indicates that the indirect effect is negative which means public debt is affecting significantly on the public sector governance and macroeconomic stability. Better governance can mitigate the negative effect of public debt, as large public debt in developing nations has negative effect on governance-stability relationship.

In developed nations, direct relationship between macroeconomic stability and public sector governance is positive and indirect relationship is also positive via public debt. According to empirical findings, public governance and macroeconomic stability have a positive, direct, and very significant link. This means that for every percentage point gain in governance quality, macroeconomic stability increases. In contrary to developing nations, indirect effect is positive and insignificant, which means public debt is not affecting public sector governance and macroeconomic stability. This study unequivocally demonstrates that, in contrast to underdeveloped nations, industrialized nations utilize their accumulated public debt as productive capital. The industrialized nations have strong institutions and excellent public sector regulations and they are more successful at boosting the economy by rising debt. According to Presbitero (2008, 2012) in low- and middle-income countries, public debt has a detrimental effect on output growth until it reaches 90% of GDP. Beyond this threshold, the debt's effect on growth is irrelevant. This study gives proper justification by emphasizing the role of governance in removing the negative effects of public debt, particularly in developing nations. Developed nations effectively use public debt for economic growth, whereas developing nations suffer from its destabilizing effects due to poor institutions.

CHAPTER 7

7 CONCLUSIONS AND RECOMMENDATIONS

The purpose of study is to examine the relationship between public sector governance and macroeconomic stability. Several economic theories conclude that the association between public sector governance and macroeconomic stability is direct, as better public sector governance improves economic stability or reduces macroeconomic instability. However, the literature provides us with positive, negative and insignificant relationship between the two. Following this approach, our research seeks to assess the mediating effect of public size and debt in the governance-stability association. We used panel data from 102 developed and developing nations spanning from 1996-2021 to estimate the SUR system using the one-way random effect estimator proposed by Biørn (2014).

Our findings indicate that, within developed economies, enhanced public sector governance positively influences macroeconomic stability through the mechanism of public sector size and debt. Conversely, for developing economies, our analysis reveals a contrasting pattern where the role of public size and public debt is quite opposite and relationship is negative. Moreover, public size and public debt contributes positively in maximizing the macroeconomic stability for developed economies and the results demonstrate that a well-managed and smaller public size and public debt mediates the governance-stability nexus, particularly in different economic contexts.

In developing nations according to empirical finding, public governance and macroeconomic stability have a positive, direct, and significant relationship. This suggests that for every percentage point increase in governance quality, macroeconomic stability experiences a corresponding rise of percentage points. Furthermore, the analysis indicates an indirect negative effect is positive. It should be noted that public size itself has negative impact on the macroeconomic stability. Therefore, macroeconomic stability is enhanced by controlling the public size and improving the governance. Enhanced governance has potential to mitigate the negative effect of public size, as a larger public size in developing nations exerts a negative effect on the governance-stability relationship. A substantial public sector size can strain public finances, thereby reducing the resources available for different government activities and decreasing the capacity of public institutions to perform their responsibilities efficiently.

In developed nations, both the direct and indirect relationships between public sector governance and macroeconomic stability are positive. According to empirical findings, public

governance and macroeconomic stability have a positive, direct, and significant relationship. Specifically, for every percentage point increase in governance quality, macroeconomic stability experiences a corresponding increase. In contrast to developing countries, the indirect effect is positive and small, indicating that public size has insignificant impact on public sector governance or macroeconomic stability.

According to empirical findings, when considering the public debt as a mediating variable, it is observed that in case of developing economies, public governance and macroeconomic stability have a positive, direct, and highly significant. relationship This indicates that for every percentage point gain in governance quality, macroeconomic stability increases. Moreover, the indirect effect is negative, which means public debt is affecting significantly on the public sector governance and macroeconomic stability. To mitigate the adverse impact of public sector debt, better governance has the potential, as significant levels of public debt in developing nations has negative effect on governance-stability relationship.

In developed nations, both the direct relationship between macroeconomic stability and public sector governance is positive and indirect relationship is also positive via public debt. According to empirical findings, public governance and macroeconomic stability have a positive, direct, and very significant link. This means that, for every percentage point gain in governance quality, macroeconomic stability increases. In contrary to developing nations, the indirect effect is positive and insignificant, which means public debt is not affecting public sector governance and macroeconomic stability.

In developing economies, the public sector management policy should be reviewed and public sector size and public debt should be managed at minimum possible level as the developed economies exhibit a comparatively manageable smaller public size and constructive levels of public debt. It is concluded that public sector governance enhances macroeconomic stability both directly and indirectly, through the management of public size and public debt. Higher levels of governance exert a positive influence on productivity and output growth, suggesting that countries can gain from expanding government size. Research suggests that effective governance and larger government sizes synergistically enhance productivity and output growth. Therefore, there is no "optimal" size of government. Furthermore, financial (or health) crises may lead to significant, unanticipated increases in expenditure ratios. Countries with lower spending levels (and public debt) are more likely to have stronger buffers to deal with such crises, without compromising the long-term viability of public finance. This study

makes it very evident that, in contrast to underdeveloped nations, industrialized nations utilize their accumulated public debt as productive capital. The industrialized nations, characterized by robust institutions and excellent public sector regulations, strategically employ their public debt as productive capital, thereby leveraging it to stimulate economic growth. According to Presbitero (2008, 2012) found that in low- and middle-income countries, public debt has a negative influence on output growth until it reaches 90% of GDP. Beyond this threshold, the debt's effect on growth is insignificant. While an increase in public spending can boost production in the short term, unplanned and irrational spending may lead to subdued growth and high inflation. Moreover, as the size of government increases, disincentive effects such as higher taxes, increased borrowing, decreasing returns, and slower wealth creation processes become more significant, eventually leading to a negative effect on growth.

The size of government varies dramatically among OECD countries, and the average growth of real GDP plunges when the size of government exceeds 60%. While it is necessary to set lofty goals for government, not all nations may feasibly deal with issues simultaneously. Prior to liberalization and privatization, it may be difficult for nations that are still in the opening process to have all necessary organizational and governance reforms in place. However, if a government wants to preserve macroeconomic stability through the control of inflation, it is imperative to reinvest in areas that are focused on development, such as transportation and national security.

To ensure efficient administration of public expenditures, minimize economic fluctuations, and maintain macroeconomic stability, public monies should also be allocated to productive fields. According to empirical data, high-income countries characterized by governments that are disproportionately large endure sluggish growth and are less efficient economically when their size is less than 15% of their GDP. Poorly controlled public debt can cause excessive inflation, low investment, and a loss of economic growth, thereby jeopardizing macroeconomic equilibrium. Institutional quality plays an essential role in determining the influence of public debt on economic stability, and countries with strong institutions and adequate public sector governance are more successful in boosting the economy by increasing debt.

It is concluded that industrialized countries with reliable institutions and strong public-sector regulations more likely to succeed in stimulating the economy by increasing debt. Excessive debt makes it more difficult for individuals and businesses to manage investment

and consumption, and it can also make it more difficult for governments to absorb unfavorable shocks. Moreover, elevated debt levels have the potential to increase shock sensitivity as well as intensify macroeconomic shocks across the globe.

Despite significant discussions regarding governance-stability linkages, the mediating role of public sector size and public debt has been relatively overlooked. A noteworthy gap exists in the literature regarding the indirect relationship between public sector governance and macroeconomic stability, particularly when mediated by public size. This research gap highlights the need for additional study to better understand how public debt mediates the relationship between governance and macroeconomic stability. Addressing this gap is critical for gaining a comprehensive understanding of the factors that drive governance-stability dynamics and informing successful policy actions.

7.1 POLICY IMPLICATIONS

1) The policy implications of these findings are clear. Achieving long-term economic growth necessitates the maintenance of macroeconomic stability. Because macroeconomic stability is required for growth, governments and policymakers can enhance stability. Furthermore, regulating government expenditure, encouraging the effective use of existing resources to avoid future debt, and strengthening nations' abilities to control their state debt are all necessary. Furthermore, debt levels must be better controlled, and more effective methods and feedback systems must be developed in order to avert financial crisis in countries. Policymakers can employ various measures to uphold macroeconomic stability, such as raising interest rates to limit the amount of money within an economy. Finally, policymakers should implement policies aimed at improving through more stringent controls, in order to stimulate long-term economic growth.
2) To attain macroeconomic stability in emerging nations, it is imperative to dissect government spending by sector, yet only a few studies have attempted to do so. Better governance reduces the likelihood of macroeconomic instability by limiting the sorts of shocks to which an economy is vulnerable and enabling private and public sector decision-makers to deal with negative shocks as they occur. There are still notable gaps in the research concerning the relationship between public governance and macroeconomic stability. There are some areas where further research is needed. Most studies have centered on short-term relationships between public governance and

economic stability, but there has been a need for more research that looks at the long-term effects of public governance on economic stability. It will contribute to a better understanding of the role of government in maintaining stability across time. Good governance has been shown to be associated with stability, but it is not clear how this relationship may vary across different contexts and countries. To understand how public sector governance and economic stability may differ across countries and regions, as well as to identify the key contextual factors that may influence this relationship, further research is needed. This will facilitate a deeper understanding of how governance can be leveraged to promote stability in a more sustained manner.

3) In developing nations, the substantial size of public sector size contributes to economic instability by crowding out private investment and rent-seeking behavior The situation is exacerbated by poor governance in conjunction with an oversized public sector. For this purpose, there should be efficient allocation of resources, means public spending should be directed towards education, healthcare, infrastructure and R&D. To remove this negative effect of large public size, developing countries must prioritize the promotion of private sector investment. Fiscal discipline is needed by avoiding excessive borrowing. One of the most important factors is to enhance governance and accountability for efficient public sector management. Government should maintain law effectiveness and enforceable of property rights. This will lead to sustainable economic development and economic stability. It is recommended to reduce government intervention in the market. Decentralized government in developing countries improve service delivery and bring decision-making closer to citizens which leads to boost accountability and efficiency.

4) In developed nations, the effect of larger government size on economic stability can be ameliorated through better governance. The nature of government activities and composition of public spending differentiate the public sector size across countries. Balanced fiscal policy and efficient public sector management is required to remove the negative effect of bigger public sector size. However, ensuring long-term fiscal sustainability is key factor for implementing structural reforms. It is important to recognize that there is no one-size-fits-all economic policy because it depends on global economic weight that big governments have to carry around. Smaller and more open economies should pursue less neo-classically market friendly policies.

5) Developing nations burdened by large public debt should implement wise fiscal policies, with a focus on improving revenue through taxation. The larger debt burden discourages capital accumulation and hinders economic growth. In low-income countries, high

external debt leads to crowding out and debt overhang. It is important to keep debt at lower level in medium to long run. It is recommended that borrowing loans by the government should be domestically rather than externally because it has positive impact on economic stability. Government should spend on capital goods and infrastructure which enhances productivity. Furthermore, tax-to-GDP ratio should be increased and promote the import substitution policies to avoid dependence on external borrowing.

6) In developed nations, there is increase in sovereign debt, often precipitated by global and financial crises, serves to discourage capital accumulation and lowers economic growth. The government should play a vital role in making proper balance between benefit and cost of debt accumulation through sound debt management and high debt transparency. Establishing a resilient fiscal and monetary policy framework is imperative to promote stability amidst rising sovereign debt. Moreover, financial sector policies should be implemented to enhance private sector borrowing. It is crucial to cultivate a strong corporate governance framework and efficient bankruptcy and insolvency regimes to safeguard against systematic risks and promote financial stability.

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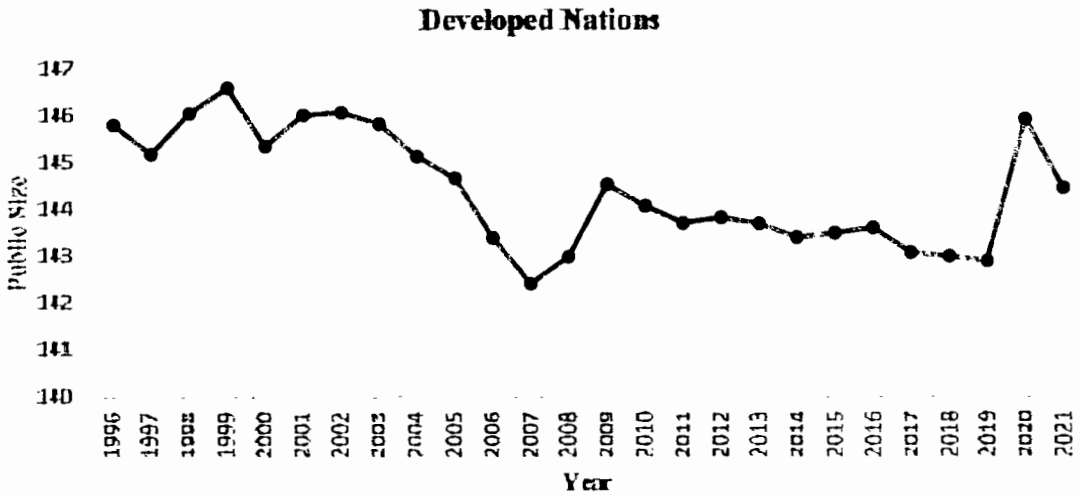

Figure A- 1: Government Consumption expenditures to GDP for Developed Nations

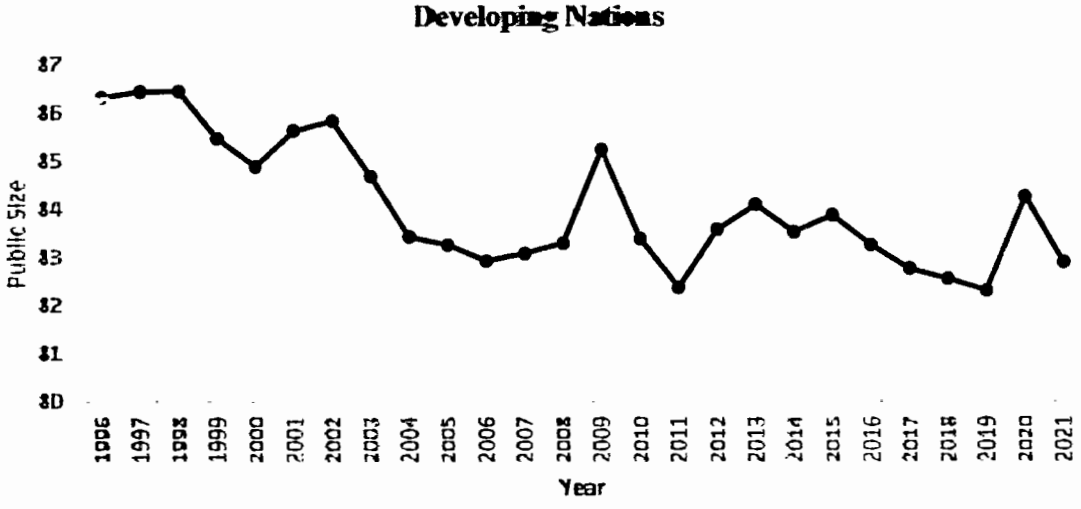

Figure A-2: Government Consumption Expenditure to GDP for Developing Nations

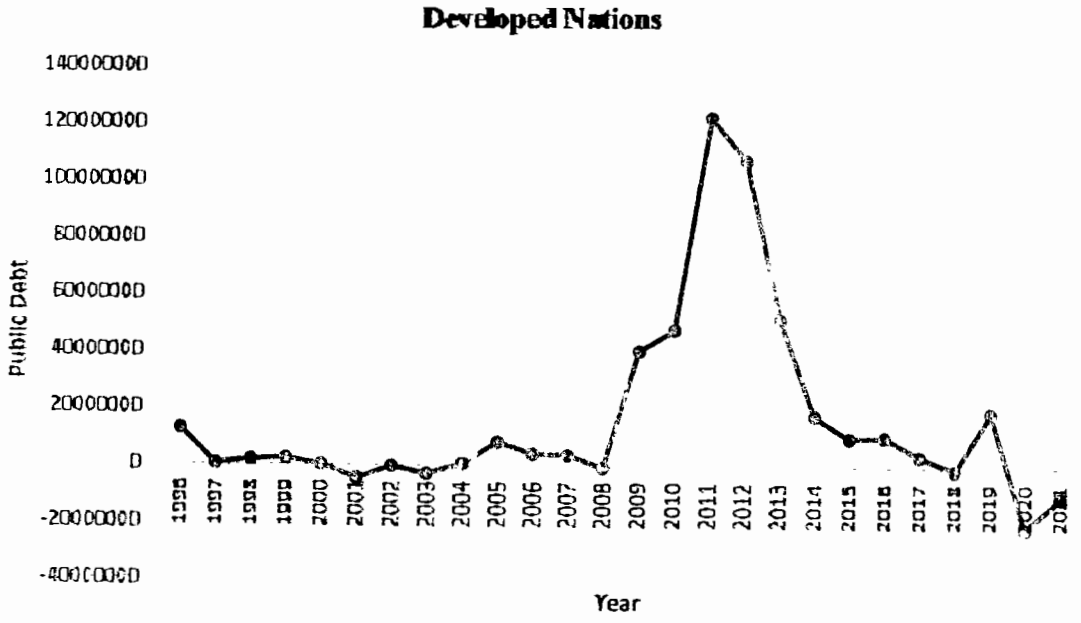

Figure A- 3: Government Debt to GDP for Developed Nations

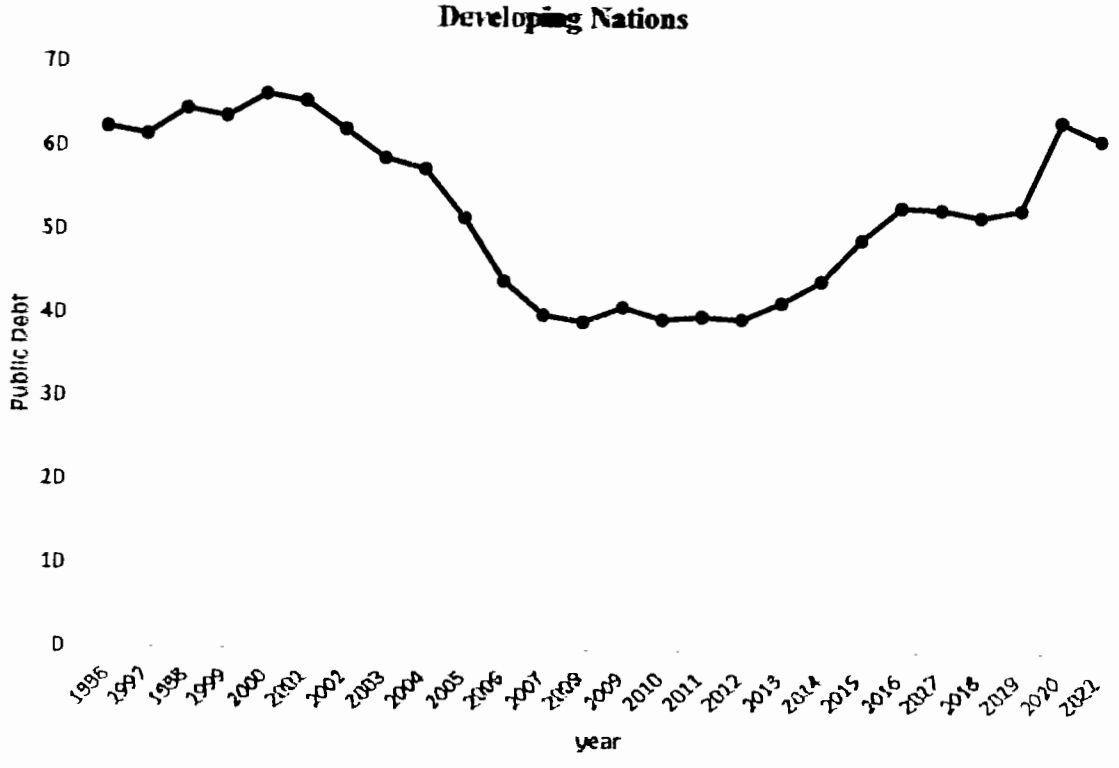

Figure A- 4: Government Debt to GDP for Developing Nations

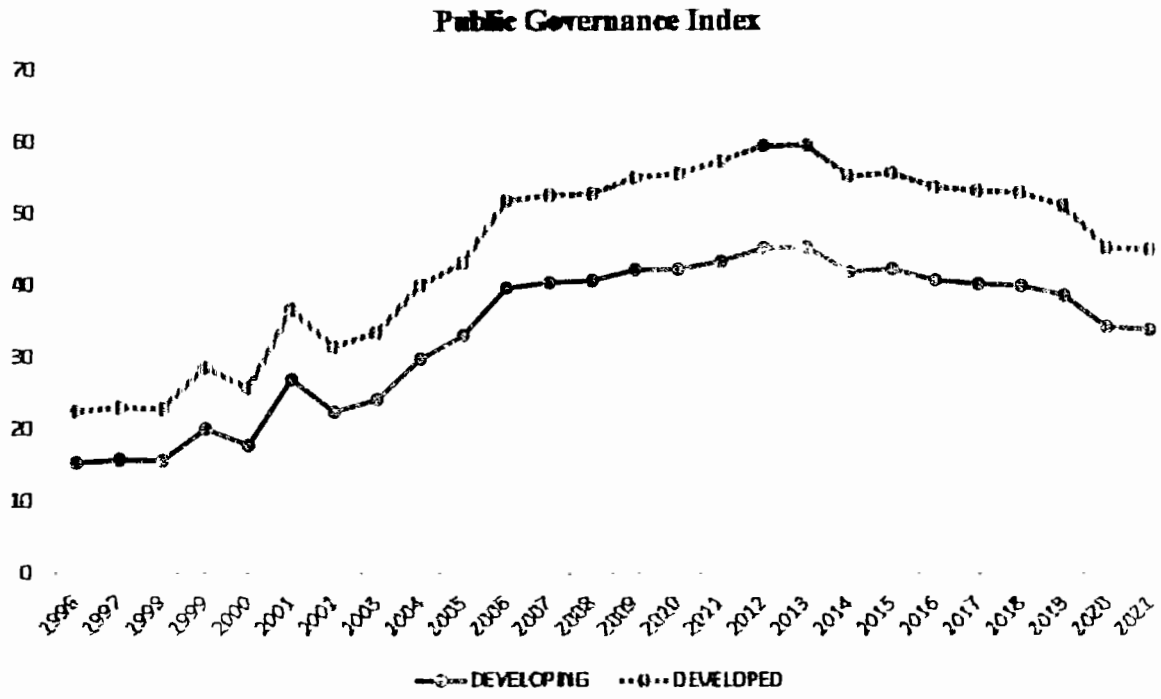

Figure A- 5: Public Governance Index for Developing and Developed Nations

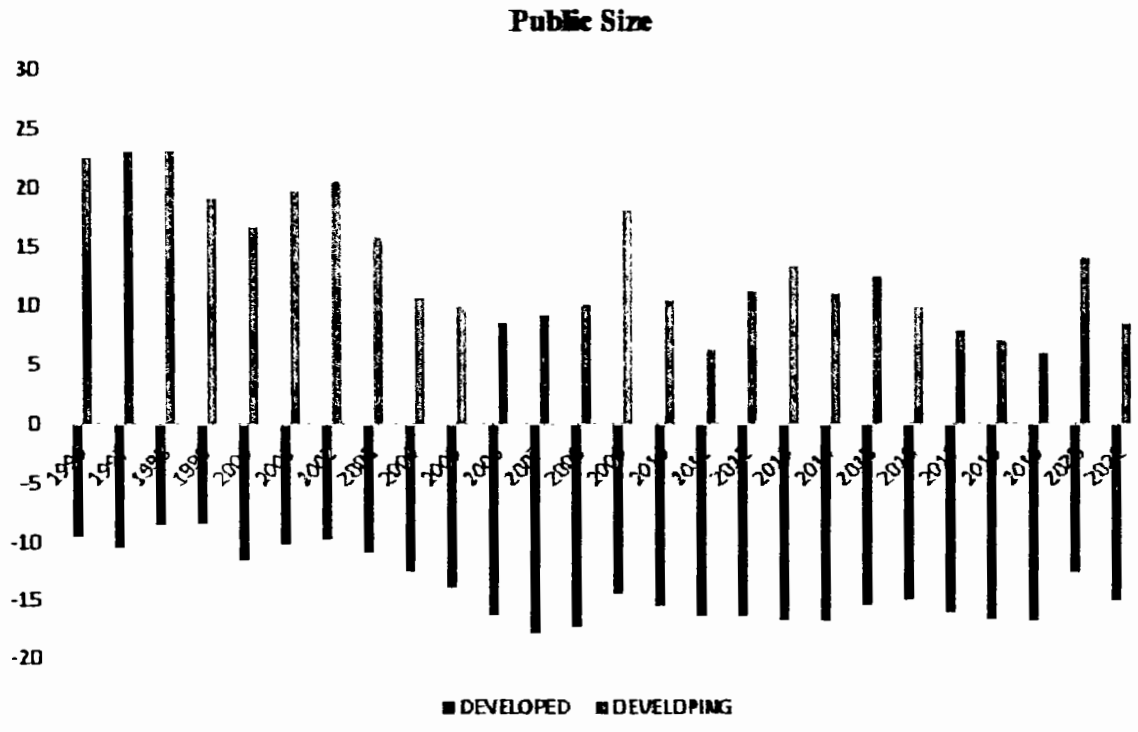

Figure A- 6: Government Size for Developing and Developed Nations

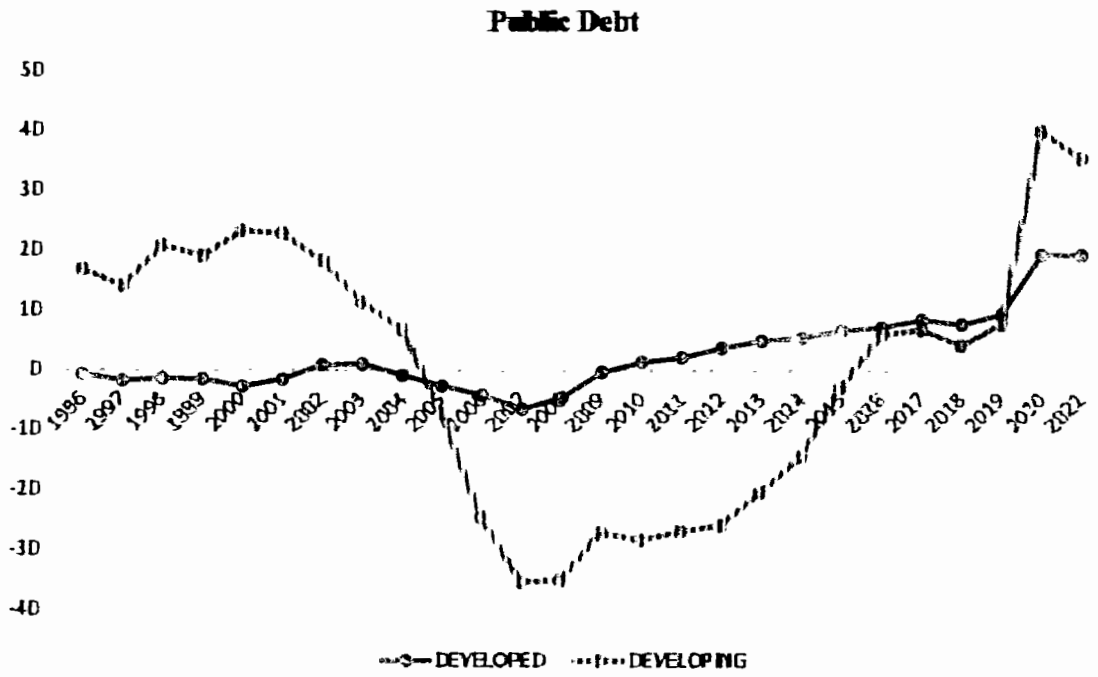

Figure A- 7: Government Debt to GDP for Developing and Developed Nations

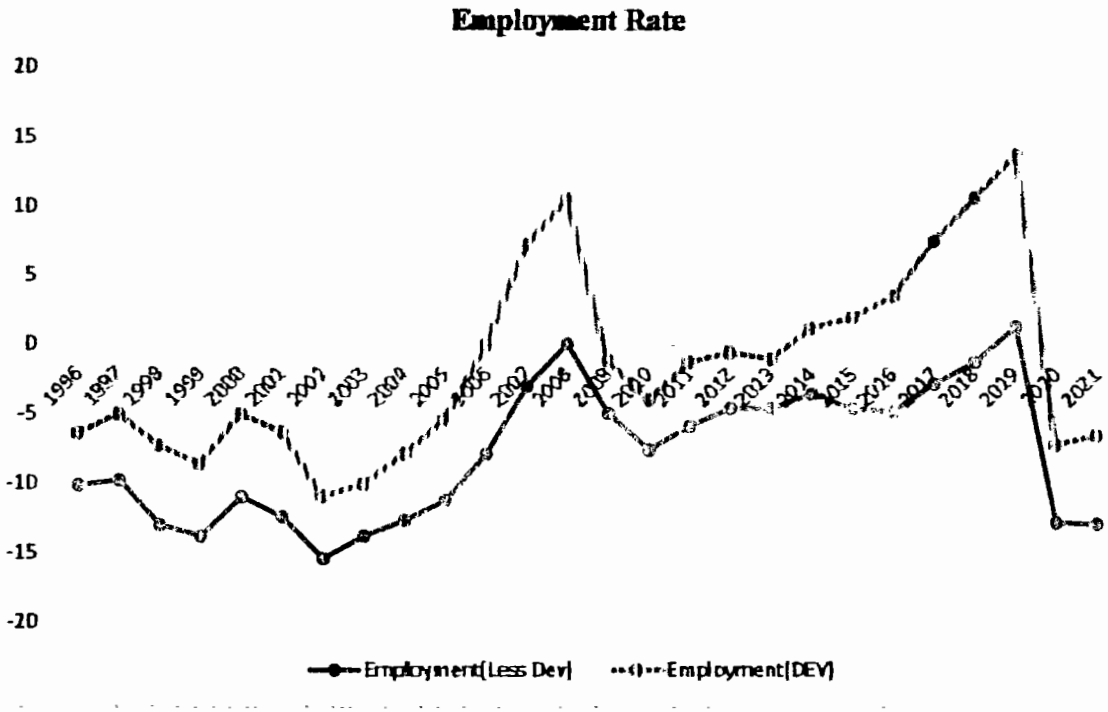

Figure A- 8: Employment Rate for Developing and Developed Nations

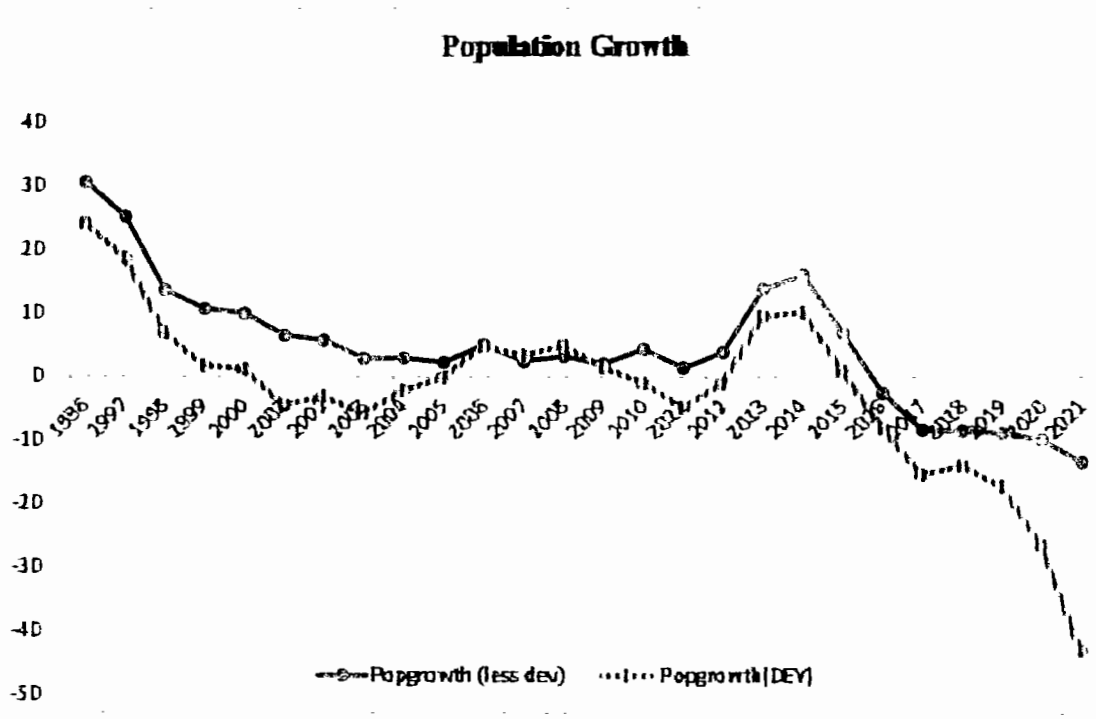

Figure A- 9: Population Growth for Developing and Developed Nations

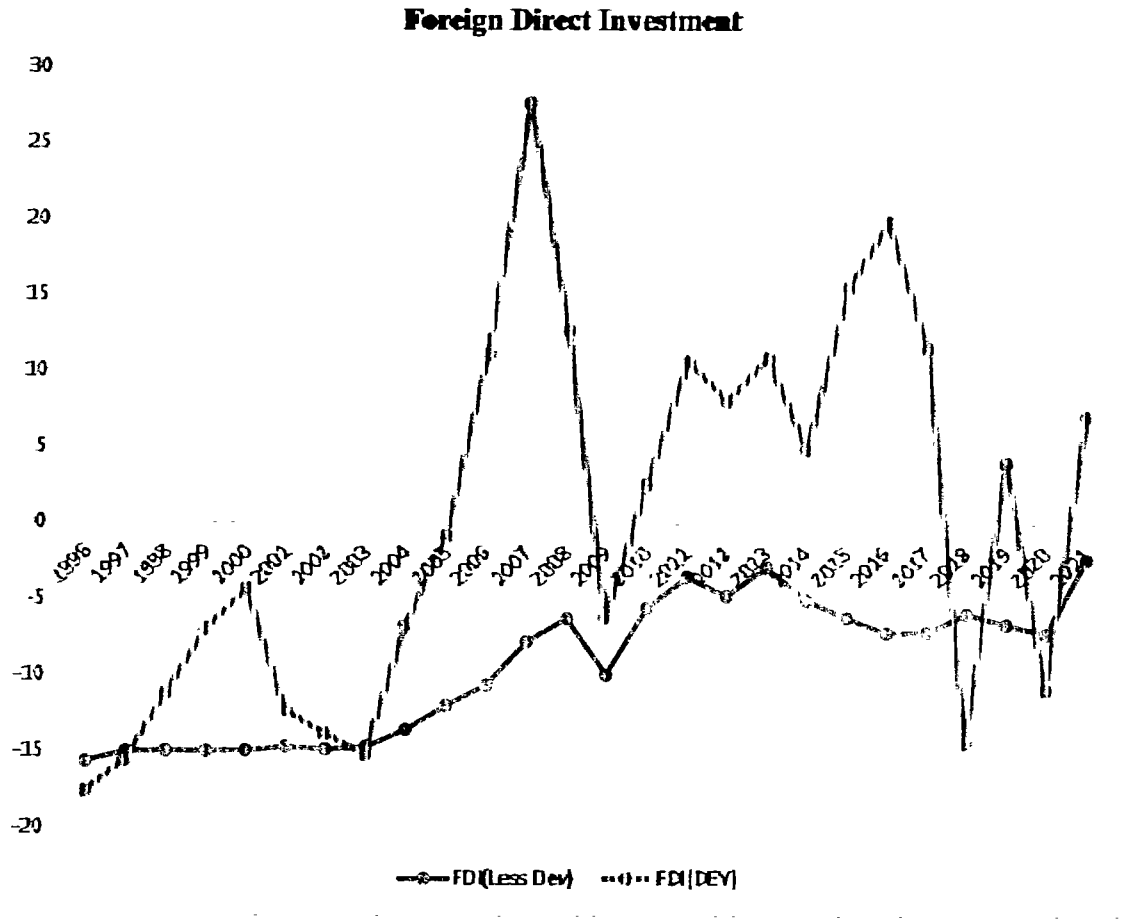

Figure A- 10: FDI for Developing and Developed Nations

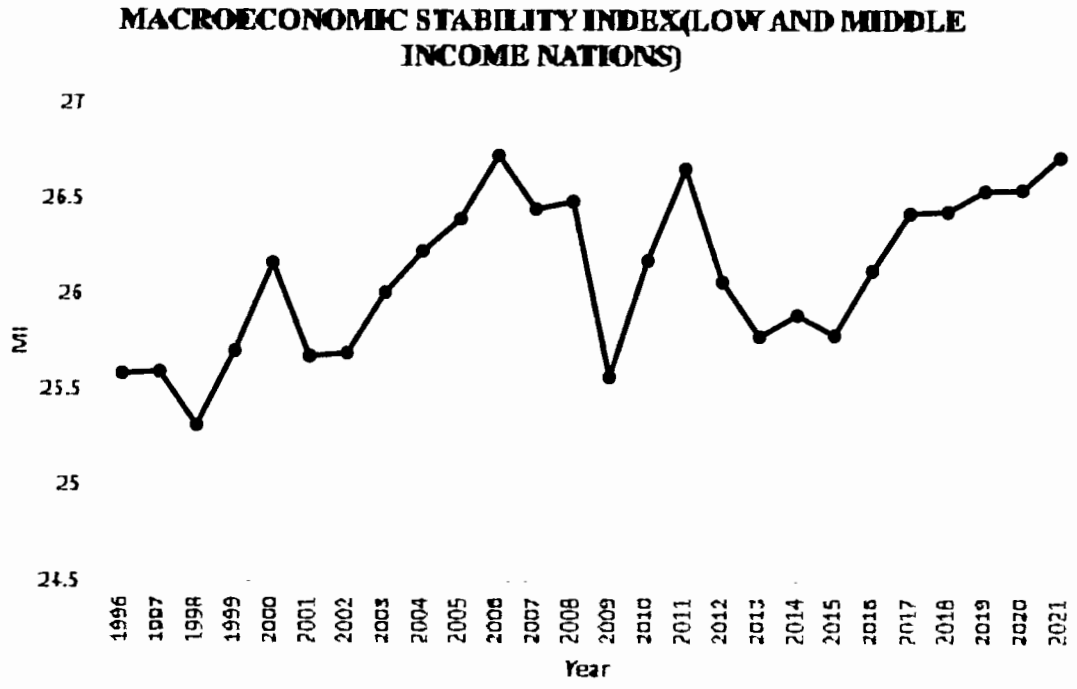

Figure A- 11: Macroeconomic Stability Index for Developing and Developed Nations

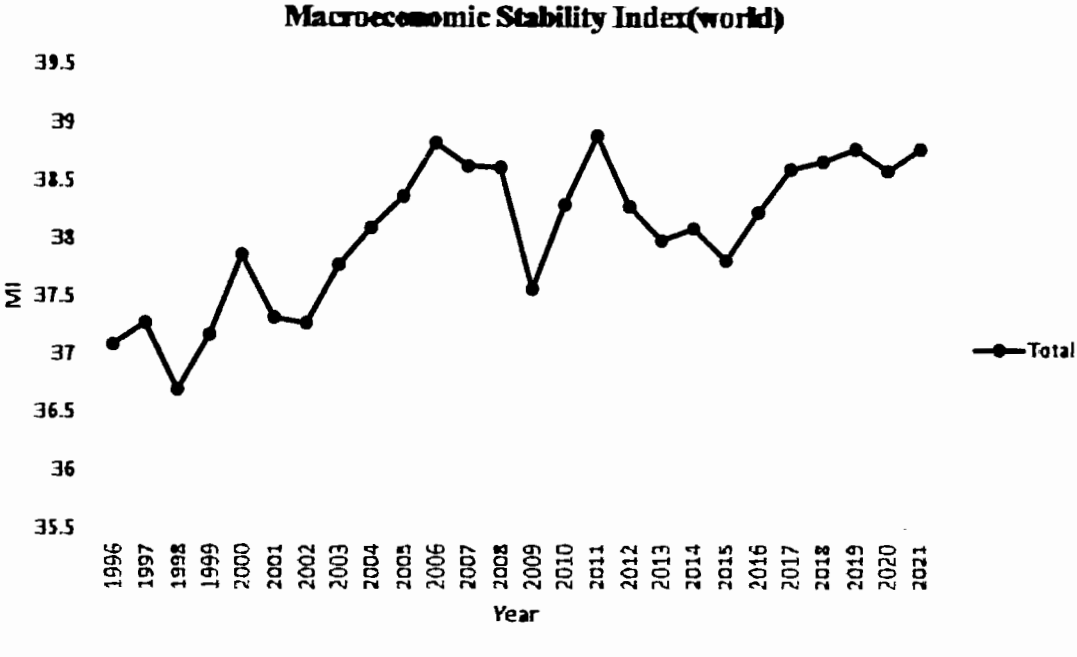

Figure A- 12: Macroeconomic Stability Index for World

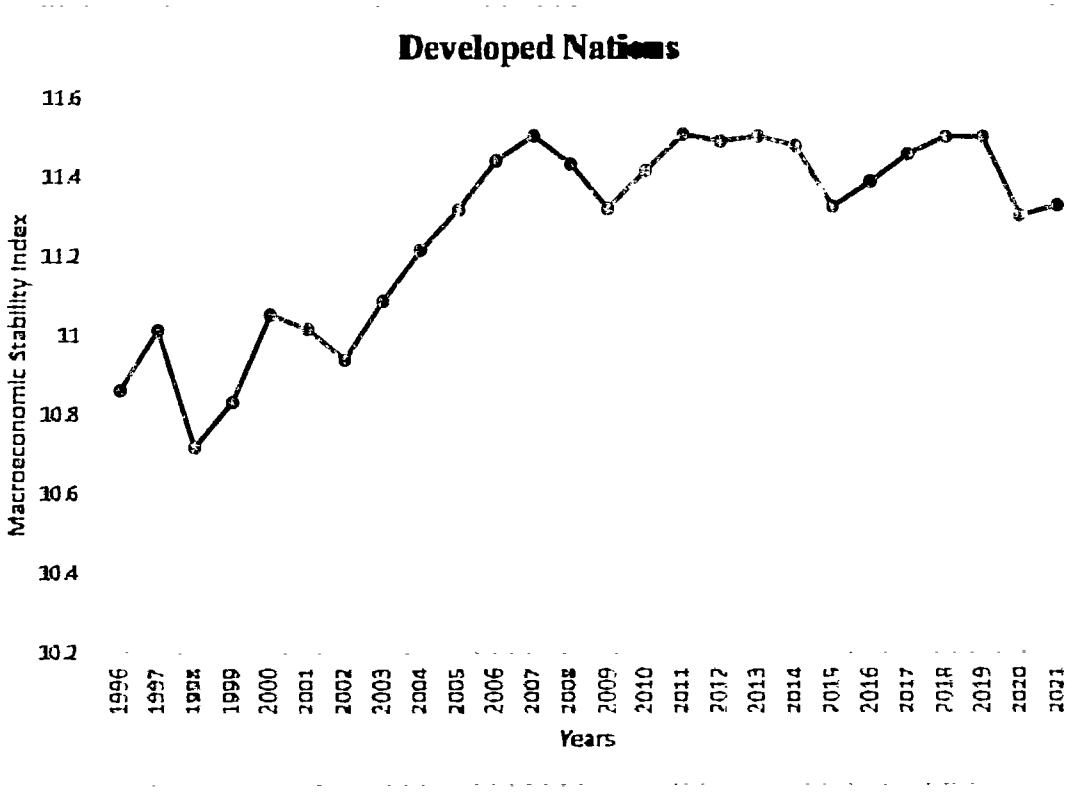

Figure A- 13: Macroeconomic Stability Index for Developed Nation

Appendix-*B*

Table B- 1: The correlation coefficient matrix of public sector governance index- input variables

	WGICC	WGIGE	WGIPS	WGIRQ	WGIRL	WGIVIA
WGICC	1.0000					
WGIGE	0.9446* 0.0000	1.0000				
WGIPS	0.8193* 0.0000	0.7938* 0.0000	1.0000			
WGIRQ	0.9372* 0.0000	0.9391* 0.0000	0.8215* 0.0000	1.0000		
WGIRL	0.9475* 0.0000	0.9145* 0.0000	0.7760* 0.0000	0.9256* 0.0000	1.0000	
WGIVIA	0.9145* 0.0000	0.8789* 0.0000	0.7906* 0.0000	0.8485* 0.0000	0.9530* 0.0000	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively

Table B- 2: The eigenvalues of the correlation matrix

Component	Eigenvalue	Difference	Proportion	Cumulative
1	59.095	57.0263	0.9230	0.9230
2	2.06872	.641051	0.0323	0.9553
3	1.42767	.763892	0.0223	0.9776
4	.663779	.0994932	0.0104	0.9880
5	.564286	.360652	0.0088	0.9968
6	.203633	0.0032	-----	1.0000

Table B- 3: The correlation coefficient matrix of macroeconomic stability index- input variables

	GDP Growth	Inflation	Fiscal Balance	Current Account Balance	Interest Rate
GDP Growth	1.0000				
Inflation		1.0000			
Fiscal Balance	0.1692* 0.0000		1.0000		
Current Account Balance	-0.0596* - 0.0000	0.0800* 0.0000	0.4242* 0.0000	1.0000	
Interest Rate		-0.1685* 0.0000	-0.1265* 0.0000	0.0771* 0.0001	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Table B- 4: The eigenvalues of the correlation matrix

Component	Eigenvalue	Difference	Proportion	Cumulative
1	1.42699	.299689	0. 0.2967	0.2967
2	-0.0206	0.1288	0.6662	0.0551
3	-.994047	.23029	0.2067	0.7378
4	.763757	.266197	0.1588	0.8965
5	.49756		0.1035	1.0000

Table B- 5: The correlation coefficient matrix

	Macroeconomic Stability Index	Public Size	WGI Index	FDI	Pop Growth	Employment Rate
Macroeconomic Stability Index	1.0000					
Public Size	-0.2587* 0.0000	1.0000				
WGI Index	0.1127* 0.0000	-0.0580* 0.0028	1.0000			
FDI		-0.1113* 0.0000	0.0961* 0.0000	1.0000		
Pop Growth		-0.0735* 0.0002	-0.0410* 0.0349	-0.1128* 0.0000	1.0000	
Employment Rate	0.0445* 0.0218	-0.2959* 0.0000		0.0744* 0.0001	0.2661* 0.0000	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Table B- 6: Descriptive Statistics

Variable Name	Mean	Median	Minimum	Maximum	Std. Dev
Macroeconomic Stability Index	.5714319	.5700342	0	1	.126558
Public Size	80.85089	80.05825	25.3792	236.86	17.69146
WGI Index	.4955254	.5156753	0	1	.2178891
FDI	.000001	.000001	.000001	.000001	.000001
Pop Growth	1.372621	1.298655	-4.17034	16.6255	1.373384
Employment Rate	92.31161	94.1675	61.2	99.75	6.260114

Table B- 7: The correlation coefficient matrix of public sector governance index- input variables

	WGICC	WGIGE	WGIPS	WGIRQ	WGIRL	WGIViA
WGICC	1.0000					
WGIGE	0.9422* 0.0000	1.0000				
WGIPS	0.8541* 0.0000	0.8303* 0.0000	1.0000			
WGIRQ	0.9381* 0.0000	0.9365* 0.0000	0.8590* 0.0000	1.0000		
WGIRL	0.9515* 0.0000	0.9143* 0.0000	0.8005* 0.0000	0.9227* 0.0000	1.0000	
WGIViA	0.9153* 0.0000	0.8770* 0.0000	0.8204* 0.0000	0.8374* 0.0000	0.9489* 0.0000	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Table B- 8: The eigenvalues of the correlation matrix

Component	Eigenvalue	Difference	Proportion	Cumulative
1	62.6338	60.388	0.9267	0.9267
2	2.24585	.99902	0.0332	0.9600
3	1.24683	.564055	0.0184	0.9784
4	.682776	.0735365	0.0101	0.9885
5	.60924	.441459	0.0090	0.9975
6	.167781		0.0025	1.0000

Table B- 9: The correlation coefficient matrix of macroeconomic stability index- input variables

	GDP Growth	Inflation	Fiscal Balance	Current Account Balance	Interest Rate
GDP Growth	1.0000				
Inflation		1.0000			
Fiscal Balance	0.1571* 0.0000	-0.0387 0.0916	1.0000		
Current Account Balance	-0.0788* 0.0000	-0.0577* 0.0119	0.4087* 0.0000	1.0000	
Interest Rate		-0.1936* 0.0000	-0.1184* 0.0000	-0.0573* 0.0126	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Table B- 10: The eigenvalues of the correlation matrix

Component	Eigenvalue	Difference	Proportion	Cumulative
1	1.39778	.252672	0.2906	0.2906
2	1.14511	.133791	0.2381	0.5287
3	1.01132	.263985	0.2103	0.7389
4	.747335	.238933	0.1554	0.8943
5	.508402		0.1057	1.0000

Table B- 11: Correlation matrix

	Macroeconomic Stability Index	Public Size	WGI Index	FDI	Pop Growth	Employment Rate
Macroeconomic Stability Index	1.0000					
Public Size	-0.2700* 0.0001	1.0000				
WGI Index	0.0927* 0.0001	-0.1689* 0.0000	1.0000			
FDI		-0.2098* 0.0000	0.1675* 0.0000	1.0000		
Pop Growth		-0.0596* 0.0094		- 0.1131* 0.0000	1.0000	
Employment Rate	0.0405 0.0776	-0.2439* 0.0002	0.0644* 0.0050	0.0761* 0.0009	0.2667* 0.0000	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Table B- 12: Descriptive Statistics

Variable Name	Mean	Median	Minimum	Maximum	Std. Dev
Macroeconomic Stability Index	.5691176	.5715649	0	1	.1254437
Public Size	84.0748	82.83395	25.3792	236.86	18.57468
WGI Index	.5132142	.5487154	.0344809	1	.2217537
FDI	.000001	.000001	.000001	.000001	.000001
Pop Growth	1.460276	1.447895	-3.75548	16.6255	1.373785
Employment Rate	91.64419	93.8625	61.2	99.75	7.00403

Table B- 13: The correlation coefficient matrix of public sector governance index- input variables

	WGICC	WGIGE	WGIPS	WGIRQ	WGIRL	WGIViA
WGICC	1.0000					
WGIGE	0.9538* 0.0000	1.0000				
WGIPS	0.8513* 0.0000	0.8398* 0.0000	1.0000			
WGIRQ	0.9307* 0.0000	0.9459* 0.0000	0.8453* 0.0000	1.0000		
WGIRL	0.9303* 0.0000	0.9180* 0.0000	0.8446* 0.0000	0.9359* 0.0000	1.0000	
WGIViA	0.9126* 0.0000	0.8955* 0.0000	0.8744* 0.0000	0.8910* 0.0000	0.9620* 0.0000	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively

Table B- 14: The eigenvalues of the correlation matrix

Component	Eigenvalue	Difference	Proportion	Cumulative
1	45.9253	44.5793	0.9301	0.9301
2	1.34597	.267953	0.0273	0.9573
3	1.07801	.535107	0.0218	0.9792
4	.542907	.232841	0.0110	0.9902
5	.310066	.134292	0.0063	0.9964
6	.175774		0.0036	1.0000

Table B- 15: The correlation coefficient matrix of macroeconomic stability index- input variables

	GDP Growth	Inflation	Fiscal Balance	Current Account Balance	Interest Rate
GDP Growth	1.0000				
Inflation	0.1020* 0.0068	1.0000			
Fiscal Balance	0.2245* 0.0000	0.0648 0.0864	1.0000		
Current Account Balance	-0.1475* 0.0000	0.4723* 0.0000	0.4242* 0.0000	1.0000	
Interest Rate		-0.0712 0.0000	-0.1685* 0.0000	-0.1380* 0.0001	1.0000

Note. P-value is presented in parentheses with coefficients ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Table B- 16: The eigenvalues of the correlation matrix

Component	Eigenvalue	Difference	Proportion	Cumulative
1	1.53908	.415154	0.3196	0.3196
2	1.12393	.177128	0.2334	0.5530
3	.946799	.177304	0.1966	0.7496
4	.769496	.332906	0.1598	0.9093
5	.43659		0.0907	1.0000

Table B- 17: Correlation matrix

	Macroeconomic Stability index	Public Size	WGI Index	FDI	Pop Growth	Employment Rate
Macroeconomic stability index	1.0000					
Public Size		1.0000				
WGI Index	0.1366* 0.0003		1.0000			
FDI		-0.0664 0.0788	0.1572* 0.0000	1.0000		
Pop Growth	-0.0835* 0.0270	0.6945* 0.0000	-0.1335* 0.0004	-0.0653 0.0839	1.0000	
Employment Rate		-0.9861* 0.0000		0.0805* 0.0329	-0.6740* 0.0000	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Table B- 18: Descriptive Statistics

Variable Name	Mean	Median	Minimum	Maximum	Std. Dev
Macroeconomic Stability Index	.4573889	.4514473	0	1	.1603491
Public Size	144.4312	75.37785	26.0417	2021	366.0206
WGI Index	.4398565	.4514635	0	.8452478	.1931583
FDI	.000001	.000001	.000001	000001	.000001
Pop Growth	1.601959	.8307185	-4.17034	58.976	4.896231
Employment Rate	90.40505	94.015	-2.56281	98.921	17.30979

Table B- 19: Descriptive Statistics

Variable Name	Mean	Median	Minimum	Maximum	Std. Dev
Macroeconomic Stability Index	.5714319	.5700342	0	1	.126558
Public Debt	54.02756	45.5865	.002	344.317	34.96357
WGI Index	.4955254	.5156753	0	1	.2178891
FDI	.000001	.000001	.000001	.000001	.000001
Pop Growth	1.372621	1.298655	-4.17034	16.6255	1.373384
Employment Rate	92.31161	94.1675	61.2	99.75	6.260114

Table B- 20: Correlation matrix

	Macroeconomic Stability Index	Public Debt	WGI Index	FDI	Pop Growth	Employment Rate
Macroeconomic Stability Index	1.0000					
Public Debt		1.0000				
WGI Index	0.1127* 0.0000	-0.1881* 0.0000	1.0000			
FDI		0.0411* 0.0344	0.0961* 0.0000	1.0000		
Pop Growth			-0.0410* 0.0349	-0.1128* 0.0000	1.0000	
Employment Rate	0.0445* 0.0218	-0.0882* 0.0000		0.0744* 0.0001	0.2661* 0.0000	1.0000

Note: P-value is presented in parentheses with coefficients ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Table B- 21: Descriptive Statistics

Variable Name	Mean	Median	Minimum	Maximum	Std. Dev
Macroeconomic Stability Index	.5691176	.5715649	0	1	.1254437
Public Size	84.0748	82.83395	25.3792	236.86	18.57468
Public Debt	52.81362	44.7085	.002	344.317	35.60698
WGI Index	.5132142	.5487154	.0344809	1	.2217537
FDI	.000001	.000001	.000001	.000001	.000001
Pop Growth	1.460276	1.447895	-3.75548	16.6255	1.373785
Employment Rate	91.64419	93.8625	61.2	99.75	7.00403

Table B- 22: Correlation matrix

	Macroeconomic Stability Index	Public Debt	WGI Index	FDI	Pop Growth	Employment Rate
Macroeconomic Stability Index	1.0000					
Public Debt		1.0000				
WGI Index	0.0927* 0.0001	-0.2022* 0.0000	1.0000			
FDI		-0.0390 0.0892	0.1675* 0.0000	1.0000		
Pop Growth		0.0533* 0.0202		-0.1131* 0.0000	1.0000	
Employment Rate	0.0405 0.0776	-0.0869* 0.0002	0.0644* 0.0050	0.0761* 0.0009	0.2667* 0.0000	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Table B- 23: Descriptive Statistics

Variable Name	Mean	Median	Minimum	Maximum	Std.Dev
Macroeconomic Stability Index	.4573889	.4514473	0	1	.1603491
Public Debt	.000001	52.702	-.000001	.000001	.000001
WGI Index	.4398565	.4514635	0	.8452478	.1931583
FDI	.000001	.000001	.000001	.000001	.000001
Pop Growth	1.601959	.8307185	-4.17034	58.976	4.896231
Employment Rate	90.40505	94.015	-2.56281	98.921	17.30979

Table B- 24: Correlation matrix

	Macroeconomic Stability index	Public Debt	WGI Index	FDI	Pop Growth	Employment Rate
Macroeconomic stability index	1.0000					
Public Debt	0.1174* 0.0018	1.0000				
WGI Index	0.1366* 0.0003		1.0000			
FDI			0.1572* 0.0000	1.0000		
Pop Growth	-0.0835* 0.0270	0.0922* 0.0145	-0.1335* 0.0004	-0.0653 0.0839	1.0000	
Employment Rate		-0.4243* 0.0000		0.0805* 0.0329	-0.6740* 0.0000	1.0000

Note: P-value is presented in parentheses with coefficients. ***, ** and * shows level of significance at 1%, 5% and 10% respectively.

Diagnostic Tests

For developing Nations (Model 1)

	Equation 1	Equation 2	Conclusion
Test	Statistics	Statistics	
Multicollinearity (VIF test)	1.10	5.12	No severe multicollinearity
Autocorrelation	DW =2.19	DW =2.1	No strong autocorrelation

For developing Nations (Model 2)

	Equation 1	Equation 2	Conclusion
Test	Statistics	Statistics	
Multicollinearity (VIF test)	1.21	3.16	No severe multicollinearity
Autocorrelation	DW = 1.65	DW =1.8	No strong autocorrelation

For developed Nations (Model 1)

	Equation 1	Equation 2	Conclusion
Test	Statistics	Statistics	
Multicollinearity (VIF test)	3.56	4.21	No severe multicollinearity
Autocorrelation	DW =1.60	DW =1.90	No strong autocorrelation

For developed Nations (Model 2)

	Equation 1	Equation 2	Conclusion
Test	Statistics	Statistics	
Multicollinearity (VIF test)	5.43	2.26	No severe multicollinearity
Autocorrelation	DW = 2.11	DW =1.76	No strong autocorrelation