



## Public Sector Governance, Economic Stability and Mediating Role of Public Debt for World Economies.

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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 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 Seemingly Unrelated Regression system, as suggested by Biørn (2014). Our findings show that the public sector governance effectively improves macroeconomic stability through the channel of public debt for developed economies, however in the case of developing economies the role of public debt is quite opposite and relationship is negative. So, it is concluded that public sector governance improves the macroeconomic stability not only directly, but also indirectly through the channel of public sector debt.*

## 1 Introduction

A key aspect 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. Fiscal policy promotes macroeconomic stability by limiting economic activity during prosperity and maintaining stable aggregate demand during a recession.

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.

The relationship between public sector governance and economic stability is 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).

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 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.

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.

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.

### *1.1 Problem Statement*

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 sector 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 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 debt.

Our paper is organized as follows. In Section 2, a summary of some significant prior research is presented along with a review of the literature on the governance-stability link. The data set and our suggested models are shown in Section 3. Our key findings are presented in Section 4. We wrap up our article and discuss the key policy implications in Section 5.

## **2 Literature Review**

### *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.

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 (Mihçi, 1996).

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".

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 (Leiderman & Razin, 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 (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; 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.

However, Aizenman (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.

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*

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.

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

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. 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 Wagoner 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.

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.

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.

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.

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.

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.

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. 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). It is characterized by the sustainable development of all economic sectors (business sector, transport systems, renewable resources), etc.

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.

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. The study 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. 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 (Rodrik, 2014; Arif & Ahmed, 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.

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 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 debt does not exist.

### 2.2.1 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). 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.

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.

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).

Patillo et al. (2002) 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.

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). 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).

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.

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).

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.

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. Masuch et al. (2016) studied 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).

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.

Shittu 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.

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.

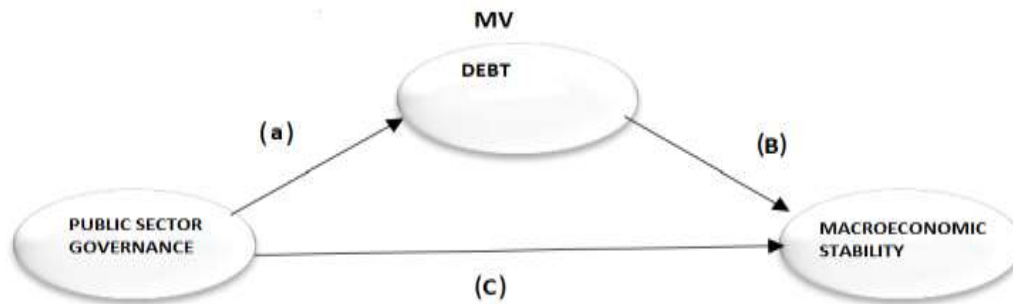
According to Mohsin et al. (2021) Debt has a positive impact on economic growth in developing countries during economic downturns by promoting capital formation and new investment. Many emerging economies rely on domestic and foreign borrowing to finance budget deficits. For various reasons, developing 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 Cooperation 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.

### **3 Methodology**

#### *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 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 Debt and Macroeconomic Stability**

Figure 3.1 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.

3.2 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.

3.2.1 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.

$$MI_{it} = \beta_0 + \beta_1 PG_{it} + \beta_2' EMP + \beta_3' POP + \beta_4' FDI + \varepsilon_{it} \dots \dots \dots (3.1)$$

3.2.2 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 ‘1’, we will employ our economic model as follows:

$$PD_{it} = \eta_0 + \eta_1 PG_{it} + \eta_2' EMP + \eta_3' POP + \eta_4' FDI + \mu_{1it} \dots \dots \dots (3.2)$$

$$MI_{it} = \lambda_0 + \lambda_1 PG_{it} + \lambda_2 PD_{it} + \lambda_3' EMP + \lambda_4' POP + \lambda_5' FDI + \mu_{2it} \dots \dots \dots (3.3)$$

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  $\mu_{1it}$  is the error term in equation (3.2). MI is macroeconomic stability Index considered as a dependent variable. Whereas  $\mu_{2it}$  is the error term in equation (3.3). By using equations (3.2) and (3.3), we have to compute the direct and indirect effect of PG on MI as shown below:

3.2.3 Direct effect

$$\frac{\partial MI}{\partial PG} = \lambda_1 \text{ using equation (3.3)}$$

3.2.4 Indirect Effect through the Channel of Government Debt

Indirect effect through the channel of PD through '2' and '3' equation

$$\Theta = \frac{\partial MI}{\partial PG} = \frac{\partial MI}{\partial PD} * \frac{\partial PD}{\partial PG} = \frac{\partial MI}{\partial PD} = \lambda_1(\eta_2) \tag{3.4}$$

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

Where;  $\theta$  = 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).

3.3 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  $y = (y'_1, y'_2, \dots, y'_p)$  described as the dependent variables,  $x$  is a diagonal matrix whereas,  $\beta = (\beta'_1, \beta'_2, \dots, \beta'_p)$  and  $\epsilon = (\epsilon'_1, \epsilon'_2, \dots, \epsilon'_p)$  show stacked error vector of equations. However, the SUR version allows non-zero covariance among the error terms.

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

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

$$v(y) = \Sigma \otimes IN$$

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.

$$y_1 = \alpha_{11} + \alpha_{12}x_{12} + \alpha_{13}x_{13} + \dots + \alpha_{1k}x_{1k} + e_1 \dots \dots \dots \tag{1}$$

$$y_2 = \beta_{21} + \beta_{22}x_{12} + \beta_{23}x_{13} + \dots + \beta_{2k}x_{2k} + e_2 \dots \dots \dots \tag{2}$$

$$y_M = \Omega_{M1} + \Omega_{M2}x_{12} + \Omega_{M3}x_{M3} + \dots + \Omega_{Mk}x_{Mk} + e_M \dots \dots \tag{3}$$

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 and economic stability.

### *3.4 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 debt.

### *3.5 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 Seemingly Unrelated Regression Model (SUR) 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.

### *3.6 Research Design*

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

### *3.7 Measurement of Variables*

These variables include (1) public sector governance, (2) public sector debt, (3) Macroeconomic stability and (4) control variables.

#### *3.7.1 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. So, index 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.

### 3.7.2 Measurement of Worldwide Governance Indicators (WGI) Index

The Worldwide Government Indicators were developed by Kaufmann, Kraay, and Zoido-Lobaton (1999) and Kaufmann, Kraay, and Mastruzzi (2004) as a standard for assessing the performance of political institutions. Six parameters make up this index: political stability, voice and accountability, government efficacy, regulatory quality, rule of law, and corruption control. Depending on the methodology and goal of the index, different variables may be included in an integrated measure of public governance efficiency. Nonetheless, political stability, the rule of law, voice and accountability, government efficacy, lack of violence or terrorism, regulatory quality, and corruption control are some of the common factors that are covered in these indexes.

### 3.7.3 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).

### 3.8 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 (2005) 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).

### 3.9 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). 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 will help to reduce firm-level heterogeneity and avoid biased estimates. The SUR method suggested by Arlund 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.

## 4 Results and Discussion

### 4.1 Regression Analysis (Seemingly Unrelated Model)

#### 4.1.1 Public Sector Governance and Macroeconomic Stability for World Economies

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 4.1. 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 4.1**

#### **Impact of Public Sector Governance on Macroeconomic Stability Through the Channel of Public Debt**

Variables	MODEL	
	Public debt	Macroeconomic stability
<b>Public Governance</b>	-30.74054 (0.000) ***	.0661043 (0.000) ***
<b>FDI</b>		-0.00001 (0.888)
<b>Population Growth</b>		.0000113 (0.995)
<b>Employment Rate</b>		.0008621 (0.035) **
<b>No. of Observations</b>		2652
<b>No. of countries</b>		102

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 association. This indicates that for every percentage point rise in governance quality, the stability of the nation increases by .0661 percentage points. It further suggests that indirect effect is negative signifying a substantial impact of public debt on public sector governance and macroeconomic stability with a decrease of -30.74054 percentage point. 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 & Rogoff 2010; Pattillo et al., 2011; Marchionne & Parekh 2015; Ahlborn & 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.

#### 4.1.2 Public Sector Governance and Macroeconomic Stability for Developing Economies

In the Seemingly Unrelated Regression model, we decompose the effect of overall public sector governance on macroeconomic stability into direct and indirect effects. Table 4.2 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 4.2**

#### **Impact of Public Sector Governance on Macroeconomic Stability Through the Channel of Public Debt**

Variables	MODEL	
	Public Debt	Macroeconomic stability
Public Governance	-31.32497 (0.000) ***	.0510029 (0.000) ***
FDI		0.00001 (0.756)
Population Growth		-.0020387 (0.352)
Employment Rate		.0007344 (0.087)*
No. of Observations		2652
No. of countries		102

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 by .0510029 percentage points. It further suggests that indirect effect is negative, signifying that public debt is affecting significantly on the public sector governance and macroeconomic stability by -31.32497 percentage point. One of these relationships is very significant, at the 1% level of significance, as indicated by the p-value (0.000). 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).

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 & Rogoff 2010; Pattillo et al., 2011; Marchionne & Parekh 2015; Ahlborn & 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.

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 (Petrović & Nojković, 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. (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 (1998) 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. 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 by 0.0020387 percentage points. Similarly, a one-percentage-point increase in employment will result in a significant increase in macroeconomic stability of 0.0007344 percentage points, 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.

#### 4.1.3 Public Sector Governance and Macroeconomic Stability for Developed Economies

In the Seemingly Unrelated 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 4.3 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 4.3

## Impact of Public Sector Governance on Macroeconomic Stability Through the Channel of Public Debt

Variables	MODEL	
	Public Debt	Macroeconomic stability
Public Governance	0.00001 (0.752)	.1054245 (0.001) ***
FDI		-0.00001 (0.559)
Population Growth		-.0020134 (0.244)
Employment Rate		.0002542 (0.634)
No. of Observations		2652
No. of countries		102

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 means that for every percentage point gain in governance quality, macroeconomic stability increases by .1054245 percentage points. In contrary to developing nations, indirect effect is positive and insignificant with 0.00001 (0.752) which means public debt is not affecting public sector governance and macroeconomic stability. One of these relationships is very significant, at the 1% level of significance, as indicated by the p-value (0.000). Public sector governance and macroeconomic stability can be affected by public debt. 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 by .0020134 percentage points. Likewise, if there is an increase in the employment by 1 percentage point, it will lead to increase macroeconomic stability significantly by .0002542 percentage points. 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.

## 5 Conclusion

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 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).

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 by .0510029 percentage points. Moreover, the indirect effect is negative, which means public debt is affecting significantly on the public sector governance and macroeconomic stability by -31.32497 percentage point. 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 by .1054245 percentage points. In contrary to developing nations, the indirect effect is positive and insignificant with 0.00001 (0.752) which means public debt is not affecting public sector governance and macroeconomic stability.

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. 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.

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. 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 and constructive levels of public debt.

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.

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