



**Public Sector Governance, Economic Stability and Mediating Role of
Public Size for World Economies**

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Abstract:

While investigating existing empirical literature, the relationship between public sector governance and economic stability is found inconclusive. Theoretical argument suggests that the effective public sector governance improves macroeconomic instability. However, the literature provides positive, negative and insignificant relationship between the both. In light of the aforementioned, this study aims to explore the mediating effect of public size in the relationship between governance and stability. The researchers utilized a panel data set of 102 developed and developing countries from 1996 to 2021 for estimation, and applied Biørn (2014)'s recommended one-way random effect estimator for the SUR system. The results demonstrate that, in developed economies, public sector size serves as a route via which public sector governance effectively enhances macroeconomic stability, however in the case of developing economies the role of the channel of public size is quite opposite and relationship is negative. Moreover, public size contributes positively in maximizing the macroeconomic stability for developed economies and the results demonstrate that well managed and smaller public size mediates the governance-stability association. It is concluded that public sector governance enhances macroeconomic stability both directly and indirectly by means of the public size channel.

Keywords: SUR model, public size, public sector governance, macroeconomic stability, indirect effect,

INTRODUCTION

A significant aspect indicating a country's economic health is the degree of macroeconomic stability. Macroeconomic stability is necessary for the implementation of fiscal reforms, economic development strategies, job creation, and inflation control. The contribution of fiscal spending to

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long-term economic growth is a hotly debated subject, particularly when nations encounter increasing difficulties in managing their fiscal requirements. A key determinant of a country's economic competitiveness is the degree of macroeconomic stability. Stable growth and economic stability go hand in hand because the former protects a country from outside shocks. Macroeconomic stability and economic growth have a significant relationship. Macroeconomic stability has come a long way, but there are still many unstable aspects that will be problematic in the years to come. The ability to support the economy financially and monetarily depends on macroeconomic stability. Taxes and governmental regulations serve as "automatic stabilizers," and economic stability aids in long-term production and welfare planning. Governance in the public sector effectively improve resource allocation, service delivery, and citizen welfare.

It is necessary for effective economic structural changes, policy direction, and credit availability. Government can influence investment, output, employment, and inflation through public spending and transfer payments. During recessions, reducing government saving can achieve economic stability, with a stable structure of public spending decreasing output and income fluctuations. Many nations have employed Keynesian demand policies to mitigate the impact of global crises through public spending and transfer payments. Fiscal policy can promote macroeconomic stability in three main ways. To lessen shocks to national expenditure, the government first automatically decreases saving during economic downturns and boosts it during upturns. In addition, to the extent that government spending is less volatile than other GDP components, the public sector contributes to output stability merely through the composition effect of domestic expenditure. Governments can also intentionally modify tax and spending policies to offset business cycle swings. Ultimately, the economy's shock resistance can be increased by designing the tax and transfer system's structure to optimize market flexibility and economic efficacy.

Public governance plays a dual role in maintaining macroeconomic stability: it can deter opportunistic conduct when allocating resources, but it can also do so in situations where there are power imbalances, a lack of accountability and transparency, a high degree of corruption, and other issues. Additionally, it slows the pace at which macroeconomic stability is recovering after a crisis and widens the negative effects of external shocks on the macroeconomic system. Previous research has primarily focused on testing relationships between public sector governance and growth, inflation, and investment, often overlooking the mediation of public size between public sector governance and macroeconomic stability. Improved governance quality with a smaller government size can mitigate the adverse effects of macroeconomic instability and political and socioeconomic disparities. A stable political environment ensures the long-term sustainability of public sector governance.

The link between these factors can also be influenced by macroeconomic institutional features, such as the effectiveness of the government and the caliber of the regulations. Public size may be detrimental to economic progress in countries with poor governance. However, the same relationship may turn positive once the respective economies rise above a particular institutional quality level. 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. Public sector governance effects macroeconomic stability directly and indirectly. In direct way good institutional reforms and an indirect way public investment are made

on education, health, roads, highways and dams etc. Fan et al, (2000). Extremely large governments have a negative impact on nations' export performance, which lowers output growth (Bournakis & Tsoukis, 2016). Regarding 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. The small government size is main concern for having significant effect of public sector governance on macroeconomic stability. But how macroeconomic stability has could be achieved is the main issue. There are a number of ways to achieve the goal, and investing in important public goods like social and physical infrastructure is one of them. While physical infrastructure consists of things like energy, irrigation, and roads and highways, social infrastructure involves investment on things like health and education. On the one hand, public spending is seen as necessary to provide infrastructure and protect property rights, at the same time as then again, excessive public sector size reduces significant non-public investment and will increase distortive taxes (Christie, 2014). According to research, efficient governance institutions are necessary to guarantee that macroeconomic policies are appropriately carried out to promote economic growth and improve people's quality of life (Acemoglu, & Robinson, 2010; Acemoglu et al., 2005). The authors show that nations may collect taxes at a lower cost when they have better fiscal institutions.

Problem Statement

There are some scholars who worked on public governance efficiency and macroeconomic stability by (Bilan et al 2019) and so many scholars have discussed that how public spending effects macroeconomic stability (Amuka et al 2016; Debrun & Kapoor, 2010; Kandoole, 2017; Melnyk, 2018) also discussed how public size effects on macroeconomic stability by (Gali 1994; Köstekçi 2021), however no one has explained the intervening role of public size with relation of public governance and macroeconomic stability. This paper will cover this topic elaborately. The relationship between governance and stability and the indirect impact of public size are not discussed in the literature. Without this component, linkages between governance and stability only offer a partial picture. As a result, our work makes a contribution because this crucial missing piece undermines previous research on governance-stability relationships. Second, the public sector governance index is being created using Principal Component Analysis (hereinafter PCA), a statistical approach, as opposed to taking into account the various public sector governance characteristics individually as earlier studies in the context of these nations have done. Prior public sector governance indexes were created by allocating weights based on the subjective assessments of the academics.

Last but not least, this study makes use of recent data that makes it possible to approach the problem in an experimental environment with a bigger sample size and number of firms. 102 countries (both developing and developed) will be chosen between 1996 and 2021. Our findings demonstrate that macroeconomic stability is positively impacted by public sector governance, which also plays a monitoring role in enhancing the effectiveness of macroeconomic circumstances. The results indicate that, with regard to the mediating role of public size in the governance-stability relationship, larger governments and weaker institutions have a negative impact in developing countries, while smaller governments in developed nations significantly contribute to good governance in the relationship between public sector governance and macroeconomic stability. The

setting of developed and developing countries has been found to be distinct when examining the mediating role of public size.

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.

LITERATURE REVIEW

Theoretical literature

On the one hand, Classical economists give an explanation for the difficulty of financial stability with the idea of invisible hand. According to the classical economists, even though there are occasional deviations from the overall employment, the financial system will go back to the total employment equilibrium stage. The government have to only be obliged to operate the competition in the market efficiently and to provide offerings inclusive of defense, justice and public works. If the government assumes another position, it may destabilize the economy and cause crises. On the other hand, Keynes, however, emphasizes that leaving economies to market conditions will motive business cycles and the authorities must take important measures to save you those fluctuations or to decrease their effects.

In this regard, Keynes proposes that the authorities must interfere inside the economy through economic and economic guidelines. In the Keynesian principle, even though economic policy has a position in retaining monetary balances; a more special significance is hooked up to economic coverage, particularly public prices. According to Musgrave's method there is the idea of statist rules that started out to succeed round the sector within the Nineteen Sixties. According to Adams (1898), output and government spending increase in proportion every time. On the alternative hand, Wagner (1958) argues that public expenditures will increase more than output level. He states that the growth within the public sector's activities is result of social and economic progress, and consequently public expansion is inevitable.

Supply-aspect economists are of the opinion that the principal motive for economic instabilities is the inadequacy of supply and output. Wagner's law, often known as the law of growing state activity, states that a state's size in relation to its economy will increase as its economy increases (Musgrave et al., 1958). Government spending is anticipated to be higher in the early stages of economic development, when it is crucial to establish the necessary infrastructure to support industrialization, according to Musgrave and Rostow. Government spending will decline as an economy advance to the next phase, according to the hypothesis. Mobilizing private savings is no longer a major issue during the second stage of rapid economic growth. As a result, government activity may decrease while private sector activity increases. Last but not least, during the period of high income and consumption, government spending has to increase to support private sector initiatives, particularly in the field of education.

Empirical Literature

Public sector governance effects macroeconomic stability directly and indirectly. In direct way good institutional reforms and an indirect way public investment are made on education, health, roads,

highways and dams etc. Fan et al, (2000). (Montiel & Serven 2006) tested the implementation of macroeconomic reform in macroeconomic guidelines and proliferation of monetary crises. By (Mohanti & Zampoli, 2009) government expenditure can result in balance and macroeconomic stability relying on the spending sample. Public spending funded money creating tax inflation (Miron, 2010). According to (Bilan et al, 2019) there is connection between social and political determinants and macroeconomics stability of 11 European countries. Using Fishburne's method to incorporate an index of public sector governance stability, they have examined the effect of public sector governance on macroeconomic stability. The findings indicate that the relationship between society and governance will be used to gauge the stability of public sector governance. Another important study by Audu (2012) on Nigerian economy found that fiscal policy has considerable effect on economy from 1970-2010.

The quality of government and economic growth are examined by Rothstein and Teorell (2008). The authors use a comprehensive measure of the quality of government, including factors such as the rule of law, transparency, and accountability, to examine the impact on economic growth. A number of writers (e.g., Manso et al., 2015; Pilia, 2017; Elazny, 2017; Lyeonov et al., 2018) use fundamental metrics like GDP growth, unemployment rate, inflation rate, state budget balance to GDP, and current turnover size balance to GDP to analyze macroeconomic stability in low-middle-income nations. Vasylieva et al. (2018) illustrated the connection between macroeconomic stability and the nation's economic growth using a modified Cobb-Douglas production function. Research by Vasylieva & Kasianenko (2013) demonstrated that a nation's capacity for innovation is a key measure of its development and, consequently, affects macroeconomic stability. Krasnyak et al. (2015), Lyulyov (2015), Blanco-Encomienda and Ruiz-Garca (2017) defined macroeconomic stability as the sustainable development of all economic sectors, including the business sector, the transportation system, renewable resources, etc. Fiscal decentralization has been identified by Chygryn et al. (2018) as the primary driver of social and economic progress. However, the scientific literature also emphasizes the institutional environment of public governance as a significant determinant of macroeconomic stability, in addition to the more traditional factors like labor, capital, technological advancement, and natural resources (Alguacil et al., 2011; Rodrik, 2014; Arif, Ahmad, 2017; Salter, Tarko, 2017; Yimer, 2017).

Public governance has two functions in the context of macroeconomic stability: first, it can inhibit resource-allocation opportunism; second, it can hasten the spread of unfavorable macroeconomic effects from external shocks and reduce the rate at which macroeconomic stability recovers following a crisis in circumstances involving power imbalances, a dearth of accountability and transparency, high levels of corruption, etc. Mehanna et al. (2010) provided evidence of this by analyzing the relationship between economic growth and the efficacy of public governance in the Middle East and North Africa (MENA) region between 1996 and 2005. Additionally, they highlighted how some of the Worldwide Government Indicators, such as voice and accountability, government effectiveness, and corruption control, had positive and statistically significant benefits on growth. Moreover, Bayar (2016) found a positive and statistically significant correlation between global government indicators and economic growth. The impact of total government spending on economic stability has been empirically investigated by researchers (Magazzino, 2011; Ogbole, 2014; Ezirim et al., 2008; Gali, 1994).

On the one hand, Holden and Sparrman (2018), Olsson and Hansson (2011), Attari and Javed (2013) found that after analyzing the impact of government size on unemployment using data from 20 OECD nations, a 1% increase in public spending reduces 0.3 percent unemployment. On the other hand, Kandil (2001) and Garry and Valdivia (2017) examines that an increase in public expenditures results in higher interest rates, lowering private consumption and investment expenditures, and thus lowering the rate of production and inflation. Likewise, 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.

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). According to Tinbergen, nations that prioritize the public sector in their economies have greater success maintaining economic stability and averting cyclical oscillations than those that primarily follow the market economy. Some of the factors that affect the size of government are voting regulations (Husted & Kenny, 1997), interest group competition (Becker & Mulligan, 2003), party preferences (Braeuninger, 2005), political centralization (Fiva, 2006), and the degree of openness and globalization (Shelton, 2007; Rodrik, 1998; Potrafke, 2009; Dreher et al., 2007).

According to Afonso and Jalles (2011), lower quality institutions are more negatively impacted by government size on economic activity, while smaller governments have a higher positive impact on institutional production. 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 (Tanzi, 1990). 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. According to Dzhumasher (2014), governments should be smaller when they are inefficient and driven by rent-seeking, but there should be greater room for government activity when governments are less corrupt and more competent.

Moreover, Afonso and Gaspar's (2007) statistical evidence demonstrate that financing through distortional taxes leads to excess burden, or deadweight loss, raising the expenses related to inefficiency. The research on the supposedly "optimal" size of government indicates that lower estimates of government spending for some sophisticated countries are below 20% (Vedder & Gallaway, 1998). In the 1990s, several nations, like Sweden, Canada, and others, drastically cut back on public spending without experiencing any noticeable repercussions (Schuknecht & Tanzi, 2005). In contrast, as trade liberalizes, regional and cultural minorities can afford to split since political borders do not necessarily signify market size. Larger states can afford to close, whereas smaller governments have more incentive to remain open. Larger governments are not always associated with economies that are more open, as noted by Jetter and Parmeter (2015). Alternatively, as larger governments are appropriate for smaller states, country size may be correlated with government size.

For example, Streeten (1993) claimed that issues related to collective action could be resolved more easily and that monitoring was much easier to implement in smaller governments. Since

institutions serve as a tool for managing conflicts, Rodrik (2000) has emphasized that the strength of institutions is crucial for smaller nations to balance the effects of shocks.

METHODOLOGY

Sample Selection

For the purpose of this study, data was gathered from multiple sources including the World Bank, International Monetary Fund, and Worldwide Governance Indicators database. To ensure the reliability of the findings, the countries were further categorized into low-income and high-income groups. We will use a quantitative approach, employing panel data analysis techniques. The variables which contribute to macroeconomic stability index include inflation, GDP growth, fiscal balance, current account balance and interest rate. We estimate public sector governance using the integrated index of public governance efficiency by global government indicators and the SUR model, which captures the direct and indirect effects of public sector governance over macroeconomic stability (Kaufmann et al., 1999; and Kaufmann et al., 2004). These were, in order, political stability, efficacy of the government, regulatory quality, rule of law, and corruption control. Principle component analysis will be used for index construction. One of indicator of public sector size is estimated by govt final consumption expenditure as percentage of GDP. Control variables are used in this study are population growth, employment rate and foreign direct investment.

Measurement of Variables

Measurement of Macroeconomic Stability Index

Research on the relationship between macroeconomic stability and public sector governance is scarce. Macroeconomic stability is characterized by several authors as the sustainable development of all economic sectors, including the corporate sector, the transportation system, and renewable resources. The Krasnyak et al. (2015). The indicator was created by Zaman and Drcevic (2009) with macroeconomic stability. Index is made by variables like GDP growth, inflation rate, unemployment rate, foreign debt and budget deficit. Principle component analysis method will be used for index construction. The macroeconomic stability index is composite index that measures the stability of a country's macroeconomic environment. It is made by combining several indicators of macroeconomic performance into single measure. Herrera and Maldonado (2022), used variables inflation, nominal exchange rate depreciation and fiscal balance to GDP for index construction. The index in our study is made from five variables inflation, GDP growth, fiscal balance, current account balance, and interest rate. The indicators are converted into principal components, a new set of uncorrelated variables that encapsulate 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 capturing the underlying. 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 is another key variable, reflecting the overall health of the

economy. Unemployment rate is also important, 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.

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 excellence, and corruption control are some of the common factors that are covered in these indexes. These factors are used to gauge the level of legal enforcement, the effectiveness of public services, the involvement of the public in decision-making, political stability and violence, the level of government involvement in the economy, and the fight against corruption. Public governance efficiency is measured overall by combining these criteria.

Measurement of Public Sector Size

There are several ways 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 one is current and other is development expenditure to capture the impact on macroeconomic stability.

Control Variables

In this study, employment rate, foreign direct investment and population rate are included to control for possible influences on public size and macroeconomic stability. As the foreign direct investment increases it boosts growth more than domestic investment. There is little evidence, according to Mansfield and Romeo (1980) and Haddad and Harrison (1993), that foreign direct investment (FDI) accelerates economic growth in developing countries, specifically in Morocco. according to Carkovic and Levine (2002), since FDI flows have no exogenous effect on growth in financially sophisticated (developed) economies. According to a widely held belief held by the "Malthusian" or "Orthodox" school, high population expansion is dangerous since 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).

Mediation Analysis

This study uses mediation analysis to look at how our independent variable, public sector governance, influences the dependent variable, macroeconomic stability, via a mediating variable, public size. The goal of mediation analysis is to clarify the nature of the link between the independent and dependent variables rather than simply describing how they interact (Hayes & Preacher, 2014). Figure 4.1 investigates the mechanism by which public sector governance, our independent variable, influences the dependent variable macroeconomic stability through a mediating variable public sector size. According to diagram which shows the casual relationship among overall public sector governance, public sector size and macroeconomic stability. We decompose the effect of overall public sector governance on macroeconomic stability into direct and indirect effects. The product of the "a" and "b" routes as "ab" indicates the indirect influence of public sector size through the mediating variable, whereas the direct effect of public sector governance on macroeconomic stability is represented by "c." Regression analysis may be utilized to measure and experimentally estimate each of these pathways, according to Hayes & Preacher's (2014) hypothesis.

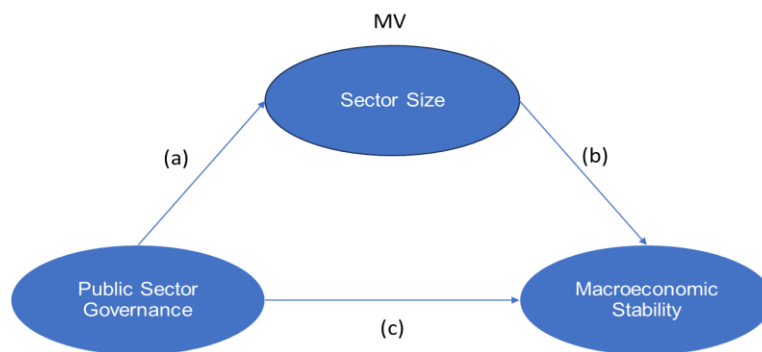


Figure 1: Causal Association Among Public Sector Governance, Public Sector size and Macroeconomic stability

Empirical Models & Estimation Methods

This study's econometric technique develops an econometric model, which consists of equations that have undergone empirical estimation. Latif et al. (2017) also used this method to calculate the mediating effect. An econometric model that captures the direct and indirect effects of public sector governance on macroeconomic stability is comprised of two simultaneous equation systems of the following type;

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

$$MSI_{it} = \beta_0 + \beta_1 PSG_{it} + \beta_2 PS_{it} + \beta_3 EMP + \beta_4 POP + \beta_5 FDI + \varepsilon_{2it} \quad 2)$$

Where PS is public sector size, PSG 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 (1). MSI is macroeconomic stability Index considered as a dependent variable. Whereas ε_{2it} is the error term in equation (2). We determine the direct and indirect effects of PSG on MSI using equations (1) and (2) as follows:

Direct Effect

$$\frac{\partial MSI}{\partial PSG} = \beta_1, \text{ using equation (2)}$$

Indirect Effect Through the Channel of Government Size

Indirect effect through the channel of PS through '1' and '2' equation

$$\Theta = \frac{\partial MSI}{\partial PSG} = \frac{\partial MSI}{\partial PS} * \frac{\partial PS}{\partial PSG} = \frac{\partial MSI}{\partial PSG} = \alpha_1 * \beta_2, \text{ (Using equations 1 \& 2)}$$

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 more freedom, variety, efficiency, and effectiveness (Verbeek, 2008). Panel data analysis normally employs the fixed effect and the one-way random effect (RE). An intercept term captures the differences among cross sectional units for each firm. For this reason, the intercept term is fixed in the FE model and random in the RE model. In this case, the novel method—developed by Biorn (2014)—is used to handle the unbalanced panel data for the one-way Seemingly Unrelated Regression system estimate.

On the basis of Hausman (1978) selection RE is preferred on FE. It will be helpful in reducing the firm level heterogeneity in order to avoid biased estimates. The SUR approach, proposed by Arlund and Zellner (1962), evaluated a number of independent relationships connected by the correlation of error terms. This correlation comes from different sources like economic up and down. According to Roger Moon et al. (2006), the SUR model is superior to other models such as OLS for two primary reasons: first, it can increase estimating efficiency by merging two seemingly unrelated equations, and second, it can apply or test restrictions. So, we use SUR model instead of OLS to estimate the equation (4.1) and (4.2). We will use our SUR model to account for the direct and indirect effects of public sector governance (PG), public size, and macroeconomic stability (MI).

This method's estimation of many equations as a whole has an additional advantage (Cameron & Trivedi, 2009). This control over cross-period correlation and standard error minimization stem from the combined estimation of equations. Finding the intermediary factors in the link between the dependent and independent variables is another benefit of this approach. The issue of multicollinearity between public sector governance, public size and macroeconomic stability is mitigated by the simultaneous use of several regressions in SUR model.

Seemingly Uncorrelated Regression (SUR) Model

When the relationship is indirect and passes through one or more intermediate variables, a regression model with a mediation variable is used to analyze the relationship between two or more independent variables. What matters is how the independent factors influence the dependent variable. Direct and indirect impacts of the independent factors on the dependent variable can be

estimated using the SUR model. Seemingly Unrelated Regression (SUR) is a statistical version that permits for estimation of several equation systems concurrently. It is a sort of multivariate regression in which every equation is a separate regression model, however all equations share some common variables. The time period "apparently unrelated" refers to the reality that the equations can also look like independent of every other, but the common variables allow for a more complete 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 the use of a vectorized parameter model. In the process of obtaining the OLS estimates, any correlation between the error terms of exclusive equations is ignored. On the other hand, the SUR estimator might be helpful for accurate parameter estimates if the error factors are contemporaneously associated. Zellner (1962) created the estimator of Seemingly Unrelated Regression (SUR) for estimation of model fashion $p > 1$ with the property of $E(e_{it} e_{jt}) \neq 0$ for different regressor matrices, such as $(x_i \neq x_j)$ in every equation. To keep things simple, all the equations are arranged 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 nonzero 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 β_j .

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

The very important assumption about this model is That SUR estimates are not needed where the error terms across equations are uncorrelated. According to Zellner (1962), when contemporaneous correlation is present, jointly estimated equation models like the SURE method are more efficient than independent equation solution methods like multiple regression models because the latter will experience simultaneous bias. By taking into consideration contemporaneous correlation in the errors across equations and heteroskedasticity, Zellner's technique estimates the system's parameters. The SURE model, sometimes referred to as multivariate regression or the Zellner technique, is a method for estimating system parameters that accounts for contemporaneous correlation in error across equations and heteroscedasticity.

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

$$y_2 = \beta_{21} + \beta_{22}x_{12} + \beta_{23}x_{13} + \dots + \beta_{2k}x_{1k} + e_2 \dots \dots \dots (2)$$

$$y_M = \Omega_{M1} + \Omega_{M2}x_{12} + \Omega_{M3}x_{13} + \dots + \Omega_{Mk}x_{1k} + e_M \dots \dots \dots (M)$$

The OLS equation by equation is totally efficient when there is no contemporaneous correlation between errors in separate equations. But Zellner (1962) demonstrated that equations are connected when error terms are correlated throughout the equation, and joint estimation, as opposed to equation-by-equation estimation, yields more accurate estimates of the regression coefficients. SUR estimation is more appropriate than the OLS equation by equation technique, as indicated by the strong correlation coefficients of the residuals among the equations.

RESULTS AND DISCUSSION

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 sector governance and public size.

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. The study's descriptive statistics are outlined for the variables, which include the control variables, macroeconomic stability, public sector governance and public size. 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 macroeconomic stability for world economies has a mean (median) of .5714319 (.5700342), a range of 0 to 1, and a standard deviation of .126558. Comparably, the public size has a mean of 80.85089, a median of 80.05825, a standard deviation of 17.69146, and minimum and maximum values of 25.3792 and 236.86, respectively. Public sector governance has mean (median) .4955254 (.5156753) with minimum 0 and maximum value 1. Its dispersion is .2178891.

The developing nations' macroeconomic stability has a mean (median) of .5691176 (.5715649), a range of 0 to 1, and a standard deviation of .1254437. Comparably, the public size has a mean of 84.0748, a median of 82.8339, a standard deviation of 18.57468, and minimum 25.3792 and maximum values of 236.86 and, respectively. Public sector governance has mean (median) .5132142 (.5487154) with minimum 0.0344 and maximum value 1. Its dispersion is .2217537.

In case of developed nations, the macroeconomic stability has a mean (median) of .4573889 (.4514473), a range of 0 to 1, and a standard deviation of .1603491. Comparably, the PS has a mean of 144.4312, a median of 75.37785, a standard deviation of 366.0206, and minimum 26.0417 and maximum values of and 2021, respectively. PG has mean (median) .4398565 (.4514635) with minimum 0 and maximum value .845. Its dispersion is .1931583.

Correlation Summary

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 multi-collinearity and record the relationship between independent variables. The results show a negative relationship between public 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 multi-collinearity is not an issue. Public size

has a negative correlation of -0.07 with population growth showing that as population increases public size will fall. Similarly, public sector governance has a negative correlation of -0.04 with population growth suggesting that population growth is associated with a decrease in public sector governance. Foreign direct investment has 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 0.04 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.

The correlation matrix results are shown to differ 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.

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.

REGRESSION ANALYSIS (SEEMINGLY UNRELATED MODEL)

Public Sector Governance and Macroeconomic Stability (World Economies)

The effect of public sector governance on macroeconomic stability has been analyzed for world economies. We have decomposed 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 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 showing in table below.

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

Variables	MODEL	
	Public Size	Macroeconomic stability
Public Governance	-3.450886 (0.022) ***	.058403 (.010899) ***
FDI		-0.00001 (0.186)
Population Growth		-.0001924 (0.915)
Employment Rate		-.0006947 (0.090) *
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 association. This indicates that for every percentage point rise in GDP in governance quality, the stability of the nation increases by 0.0584 percentage points. It further suggests that indirect effect is negative which means public size is affecting significantly on public sector governance and macroeconomic stability by -3.451 percentage point. Increasing the size of government slows growth because of more need of spending. To increase revenue, the government imposes additional taxes to fund additional expenditure. This increase in tax slows down economic activity and leads to private investment which negatively effects the growth rate [Barro (1990); Landau (1983)] which is related with the results mentioned in our model. A larger public sector can put pressure on public sector governance and reduce the effectiveness of government activities. Strong public sector governance can help to mitigate the negative effects of a large public sector and promote macroeconomic stability.

Control variables results show negative impact of population, FDI 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 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.

Public Sector Governance and Macroeconomic Stability (Developing Economies)

The effect of public sector governance on macroeconomic stability in developing economies has been studied. The effects of public sector governance generally on macroeconomic stability have been divided into direct and indirect effects. 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 table 2 displays the findings.

Table 2. Impact of public sector governance on macroeconomic stability through the channel of public sector size.

Variables	MODEL	
	Public Size	Macroeconomic stability
Public Governance	-10.60672(0.000) *	.0300829 (0.019) **
FDI		-0.00001 (0.074) *
Population Growth		-.0026369 (0.212)
Employment Rate		-.0003479 (0.410)
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 GDP in governance quality, macroeconomic stability increases by .0301 percentage points. It further suggests that indirect effect is negative which means public size is affecting significantly on the public sector governance and macroeconomic stability by -10.60 percentage point. In developing economies, public sector governance has a detrimental impact on the size of the government. (Anwar & 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. The size of the state may result in diseconomies of scale, which are mostly caused by administrative and congestion costs. According to the study (Acemoglu et al., 2005), economic institutions play a less obvious role in developing economies with poor quality of governance. Larger states may encounter additional difficulties due to population heterogeneity, which necessitates the adoption of various preferences and raises costs associated with them, including distributional ones. Additionally, because of the potential for looser societal ties, it may be more difficult to implement consistent and long-lasting policies. The channel of public size is effective it means it is playing intervening role in developing nations.

Control variables results show negative impact of population, FDI and employment rate on macroeconomic stability. There 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. Macroeconomic stability is negatively impacted by the employment rate, which is negligible since poor productivity is caused by unskilled labor. A one percentage point rise in the population will result in a .00263 percentage point drops in macroeconomic stability.

Public Sector Governance and Macroeconomic Stability (Developed Economies)

The effect of public sector governance on macroeconomic stability has been analyzed for developed economies. We have decomposed 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 3. 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 showing in table below.

Table 3. Impact of public sector governance on macroeconomic stability through the channel of public Sector size.

Variables	MODEL	
	Public size	Macroeconomic stability
Public Governance	9.269584 (0.79)	.1045308 (0.001) ***
FDI		-0.00001 (0.446)
Population Growth		-.0044418 (0.010) **
Employment rate		.0038722 (0.064) **
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 GDP in governance quality, macroeconomic stability increases by 0.1045 percentage points. In contrary to developing nations, indirect effect is positive and insignificant with 9.269 (0.79) which means public size is not affecting public sector governance and macroeconomic stability. In case of developed economies, public size is not playing mediatory role. Economic stability and growth are linked to good governance, and in nations with better institutions, the relationship between governance and growth is more pronounced (Arslan & Soylu, 2018). Given that more than one-third of the 215 states that exist now are extremely small, one may claim that we are living in the era of small states (Brito, 2015). The developed economies indulged in outsourcing. Reducing the size of the public sector could lead to greater competitiveness. According to Streeten (1993), smaller states make it easier to carry out supervision and handle collective action concerns. Our results are matching with these arguments.

There is positive impact of employment and negative impact of population and FDI on macroeconomic stability. A one percentage point rise in the population will result in a.0044 percentage point drops in macroeconomic stability. Similarly, a one percentage point rise in employment will result in a.0038 percentage point gain in macroeconomic stability.

CONCLUSION

Our research aims to explore the potential mediating influence of public size in the relationship between governance and stability. We utilize a panel data set of 102 developed and developing countries from 1996 to 2021 for estimation, and we apply Biørn (2014)'s recommended one-way random effect estimator for the SUR system. According to our research, public sector governance in industrialized nations effectively increases macroeconomic stability through the public sector's size; but, in developing economies, the relationship between public size and macroeconomic stability is negative. Moreover, public size contributes positively in maximizing the macroeconomic stability for developed economies and the results demonstrate that well managed and smaller

public size mediates the governance-stability association. In developing economies, the public sector management policy should be reviewed and public sector size should be managed at minimum possible level as the developed economies are having a comparatively manageable smaller public size.

It is concluded that public sector governance enhances macroeconomic stability both directly and indirectly by means of the public size channel. Achieving this goal can result in reduced corruption, increased transparency in decision-making, greater public sector governance openness, and increased trust in public sector governance by society. The size of government has a direct effect on macroeconomic stability indicators, and there is a relationship between the size of the public sector and macroeconomic balance. While an increase in public spending can boost production in the short term, unplanned and irrational spending can lead to low growth and high inflation. The impact of public size on economic stability is largely determined by the quality of the institutions in place. Economies that are stimulated by higher public size are more likely to be found in countries with strong institutions and suitable public sector rules. The size of government varies dramatically among OECD countries, and the average growth of real GDP plunges when the size of government exceeds 60%. According to empirical data, high-income countries with governments that are disproportionately large endure sluggish growth and are less efficient economically when their size is less than 15% of their GDP.

In conclusion, while striving for strong governance standards is important, nations should concentrate their efforts. Effective governance institutions are vital for implementing macroeconomic policies that enhance economic growth and improve individual well-being. Governments should closely monitor these objectives and strategies as part of their economic regulatory policies, utilizing the general state of the economy and macroeconomic stability to establish accepted standards for economic policy.

References:

- Acemoglu, D., & Robinson, J. A. (2010). Why is Africa poor? *Economic History of Developing Regions*, 25(1), 21-50.
- Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as a fundamental cause of long-run growth. In P. Aghion, & S. Durlauf (Eds.), *Handbook of economic growth*, 1, 385-472. Elsevier.
- Adams, H. C. (1899). *The science of finance: An investigation of public expenditures and public revenues*. Henry Holt and Company.
- Afonso, A., & Jalles, J. T. (2011). *Economic performance and government size* (ECB Working Paper No. 1399). European Central Bank.
- Afonso, A., Gaspar, V. (2007). Dupuit, Pigou and cost of inefficiency in public services provision. *Public Choice*, 132(3-4), 485-502.
- Alguacil M., Cuadros A., Orts V. (2011). Inward FDI and growth: The role of macroeconomic and institutional environment. *Journal of Policy Modeling*, 33(3), 481-96.
- Amuka, J. I., Ezoke, M. O., & Asgowa, F. O. (2016). Government spending pattern and macroeconomic stability: A vector autoregressive model. *International Journal of Economics and Financial Issues*, 6(4), 1930-36.
- Arif U., & Ahmad E. (2017). Growth effects of fiscal decentralization: The role of macroeconomic stability and governance institutions. *FWU Journal of Social Sciences*, 11(1), 276-89.

- Attari, M. I. J., Javed, A. Y. (2013). Inflation, economic growth and government expenditure of Pakistan: 1980-2010. *Procedia Economics and Finance*, 5, 58-67.
- Audu, N. P. (2012). The impact of fiscal policy on the Nigerian economy. *International Review of Social Sciences and Humanities*, 4(1), 142-50.
- Barro, R. J. (1990). Government spending in a simple model of endogeneous growth. *Journal of Political Economy*, 98(5, Part 2), S103-S125.
- Becker, G. S., & Mulligan, C. B. (2003). Deadweight costs and the size of government. *The Journal of Law and Economics*, 46(2), 293-340.
- Bilan, Y., Raišienė, A. G., Vasilyeva, T., Lyulyov, O., & Pimonenko, T. (2019). Public governance efficiency and macroeconomic stability: Examining convergence of social and political determinants. *Public Policy and Administration*, 18(2), 241-55.
- Biørn, E. (2014). Estimating SUR system with random coefficients: The unbalanced panel data case. *Empirical Economics*, 47, 451-68.
- Blanco-Encomienda, F. J., & Ruiz-García A. (2017). Evaluating the sustainability of the Spanish social security system. *Economics and Sociology*, 10(4), 11-20. doi:10.14254/2071-789X.2017/10-4/1
- Bournakis, I., & Tsoukis, C. (2016). Government size, institutions, and export performance among OECD economies. *Economic Modelling*, 53, 37-47.
- Bräuning, T. (2005). A partisan model of government expenditure. *Public Choice*, 125(3-4), 409-29.
- Brito, J. A. (2015). *Defining country size: A descriptive analysis of small and large states* (MPRA Paper No. 66149). MPRA, Munich. Thompson-Walworth, Belmont.
- Carkovic, M., & Levine, R. (2005). Does foreign direct investment accelerate economic growth? In T. H. Moran, E. M. Graham, & M. Blomstrom, (Eds.), *Does foreign direct investment promote development?* (195-220). Stockholm School of Economics.
- Christie, T. (2014). The effects of government spending on economic growth: Testing the non-linear hypothesis. *Bulletin of Economic Research*, 66(2), 183-204.
- Chygryn O., Petruschenko Y., Vysochyna A., Vorontsova A. (2018) Assessment of Fiscal decentralization influence on social and economic development. *Montenegrin Journal of Economics*, 14(4), 69-84.
- Corsetti, G., Higgins, M., & Pesenti, P. (2016). Policies and institutions for managing the aggregate macroeconomic stance of the Eurozone. In R. Baldwin, & F. Giavazzi, (Eds.), *How to fix Europe's monetary union: View of Leading Economists*. (150-59). Centre for Economic Policy Research.
- Debrun, M. X., & Kapoor, R. (2010). *Fiscal policy and macroeconomic stability: Automatic stabilizers work, always and everywhere*. International Monetary Fund.
- Dreher, A., Kotsogiannis, C., & McCorrison, S. (2007). Corruption around the world: Evidence from a structural model. *Journal of Comparative Economics*, 35(3), 443-66.
- Dzhumashev, R. (2014). The two-way relationship between government spending and its effects on economic growth. *Contemporary Economic Policy*, 32(2), 403-19.
- Ehrlich, P. R., & Holdren, J. P. (1969). Population and panaceas a technological perspective. *BioScience*, 19(12), 1065-71.

- Ezirim, C. B., Muoghalu, M. I., Elike, U. (2008), Inflation versus public expenditure growth in the US: An empirical investigation. *North American Journal of Finance and Banking Research*, 2(2), 26-40.
- Fan, S., Hazell, P., & Thorat, S. K. (2000). Impact of public expenditure on poverty in rural India. *Economic and Political Weekly*, 36(40), 3581-88.
- Fiva, J. H. (2006). New evidence on the effect of fiscal decentralization on the size and composition of government spending. *FinanzArchiv/Public Finance Analysis*, 62i(2), 250-80.
- Gali, J. (1994). Government size and macroeconomic stability. *European Economic Review*, 38, 117-32.
- Garry, S., & Valdivia, J. C. R. (2017). *An analysis of the contribution of public expenditure to economic growth and fiscal multipliers in Mexico, Central America and the Dominican Republic, 1990-2015*. United Nations Economic Commission for Latin America and the Caribbean.
- Haddad, M., & Harrison, A. (1993). Are there positive spillovers from direct foreign investment? Evidence from panel data for Morocco. *Journal of Development Economics*, 42(1), 51-74.
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67(3), 451-70.
- Herrera, J. C. A., & Maldonado, C. E. C. (2022). Macroeconomic stability: An international comparison with a panel var model. *Foro de Investigadores de Bancos Centrales del Consejo Monetario Centroamericano*, 16, 1-43. <https://www.secmca.org/recard/index.php/foro/article/view/206>
- Holden, S., & Sparman, V. (2018). Do government purchases affect unemployment? *The Scandinavian Journal of Economics*, 120(1), 124-58.
- Hoover, E. M., & Coale, A. J. (1957). Prospects for population growth and their implications for economic development in India, 1956-1986. *Papers in Regional Science*, 3(1), 219-22.
- Husted, T. A., & Kenny, L. W. (1997). The effect of the expansion of the voting franchise on the size of government. *Journal of Political Economy*, 105(1), 54-82.
- Jetter, M., & Parmeter, C. F. (2015). Trade openness and bigger governments: The role of country size revisited. *European Journal of Political Economy*, 37, 49-63.
- Kandil, M. (2001). Asymmetry in the effects of US government spending shocks: Evidence and implications. *The Quarterly Review of Economics and Finance*, 41(2), 137-65.
- Kaufmann D., Kraay A., Mastruzzi M. (2004). *Governance matters III: Governance indicators for 1996-2002* (WB Policy Research Working Paper No. 3106). Washington, DC: World Bank.
- Kaufmann, D., Kraay, A., & Zoido-Lobaton, P. (1999). *Aggregating governance indicators* (World Bank Publications No. 2195). World Bank.
- Krasnyak V., & Chygryn O. (2015). Theoretical and applied aspects of the development of environmental investment in Ukraine. *Marketing and Management of Innovations*, 3, 226-34.
- Kutasi, G., & Marton, Á. (2020). The long-term impact of public expenditures on GDP-growth. *Society and Economy*, 42(4), 403-19.
- Landau, D. L. (1983). Government expenditure and economic growth: A cross-country study. *Southern Economic Journal*, 49, 783-92.
- Latif, K., Bhatti, A. A., & Rahman, A. (2017). Earnings quality: A missing link between corporate governance and firm value. *Business & Economic Review*, 9(2), 255-80.

- Lyeonov, S. V., Vasylieva T. A., Lyulyov O. V. (2018). Macroeconomic stability evaluation in countries of lower-middle income economies. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu*, 1, 138-46. doi:10.29202/nvngu/2018-1/4
- Lyulyov O., Chortok Y., Pimonenko T., Borovik O. (2015). Ecological and economic evaluation of transport system functioning according to the territory sustainable development. *International Journal of Ecology and Development*, 30(3), 1-10.
- Magazzino, C. (2011). *The nexus between public expenditure and inflation in the Mediterranean countries* (MPRA Paper No.28493). Munich Personal RePEc Archives.
- Mansfield, E., & Romeo, A. (1980). Technology transfer to overseas subsidiaries by US-based firms. *The Quarterly Journal of Economics*, 95(4), 737-50.
- Manso P. J. R., de Matos A. J. F., & Carvalho C. C. M. (2015). Determinants of regional growth in Portugal: An empirical analysis. *Economics and Sociology*, 8(4), 11-31.
- Mehanna, R., Yazbeck Y., & Sarriedine L. (2010). Governance and economic development in MENA countries: Does oil affect the presence of a virtuous circle? *Journal of Transnational Management*, 15(2), 117-50.
- Melnyk, N., Lina, S., Oleksii, L., Tetyana, P., & Iryna, D. (2018). Fiscal decentralization and macroeconomic stability: The experience of Ukraine's economy. *Problems and Perspectives in Management*, 16(1), 105-14. doi:10.21511/ppm.16(1).2018.10
- Mohanty, M., & Zampolli, F. (2009, Dec.). Government size and macroeconomic stability. *BIS Quarterly Review*, 55-68.
- Montiel, P., & Servén, L. (2006). Macroeconomic stability in developing countries: How much is enough? (Policy Research Working Paper No. 3456). World Bank.
- Musgrave, R. A., & Peacock, A. T. (Eds.). (1958). *Classics in the theory of public finance*. Springer.
- Ogbole, O. F. (2014). Public sector spending and macroeconomic variables in Nigeria. *European Journal of Business and Management*, 6(18), 232-42.
- Olsson, O., & Hansson, G. (2011). Country size and the rule of law: Resuscitating Montesquieu. *European Economic Review*, 55(5), 613-29.
- Padalino, S., & Vivarelli, M. (1997). The employment intensity of economic growth in the G-7 countries. *International Labour Review*, 136, 191-213.
- Pilia, G. (2017). Estonia and Lithuania in transition: A compared analysis of the change and its costs and benefits. *Business Ethics and Leadership*, 1(2), 78-95.
- Potrafke, N. (2009). Did globalization restrict partisan politics? An empirical evaluation of social expenditures in a panel of OECD countries. *Public Choice*, 140(1-2), 105-24.
- Record, R., Kumar, P., & Kandoole, P. (2017). *The importance of macroeconomic stability and fiscal management*. World Bank. https://doi.org/10.1596/978-1-4648-1194-4_ch2
- Rodrik D. (2014). The past, present, and future of economic growth. *Challenge*, 57(3), 5-39. DOI: 10.2753/0577-5132570301
- Rodrik, D. (1998). Why do more open economies have bigger governments? *Journal of Political Economy*, 106(5), 997-1032.
- Rodrik, D. (2000). *Institutions for high-quality growth: What they are and how to acquire them* (NBER Working Paper No. 7540). National Bureau of Economic Research, Cambridge (MA), USA.

- Rothstein, B. O., & Teorell, J. A. (2008). What is quality of government? A theory of impartial government institutions. *Governance*, 21(2), 165-90.
- Salter A., & Tarko V. (2017). Polycentric banking and macroeconomic stability. *Business and Politics*, 19(2), 365-95. doi:10.1017/bap.2016.10
- Schuknecht, L., & V. Tanzi (2005) Reforming public spending: great gain, little pain. London: Politeia
- Shelton, C. A. (2007). The size and composition of government expenditure. *Journal of Public Economics*, 91(11-12), 2230-60.
- Streeten, P. (1993). The special problems of small countries. *World Development*, 21(2), 197-202.
- Tanzi, V. & Schuknecht, L. (1995). *The growth of government and the reform of the state in industrial countries* (IMF Working Paper 95 / 130). International Monetary Fund.
- Tanzi, V. (1990). Fiscal policy for growth and stability in developing countries: Selected issues. In A. Premchand (Ed.), *Government Financial Management*. (15-27). International Monetary Fund.
- Varoudakis, A., Tiongson, E. R., & Pushak, T. (2007). *Public finance, governance, and growth in transition economies: Empirical evidence from 1992–2004* (Policy Research Working Paper Series No. 4255). The World Bank.
- Vasylieva T. A., & Kasyanenko V. O. (2013). Integral assessment of innovation potential of Ukraine's national economy: A scientific methodical approach and practical calculations. *Actual Problems of Economics*, 144(6), 50-59.
- Vasylieva T., Lyeonov S., Lyulyov O., & Kyrychenko K. (2018). Macroeconomic stability and its impact on the economic growth of the country. *Montenegrin Journal of Economics*, 14(1), 159-70. doi:10.14254/1800-5845/2018.14-1.12
- Vedder, R. K., & Gallaway, L. E. (1998). Government size and economic growth. Paper prepared for the Joint Economic Committee of US Congress, 1-15.
- Wagner, A. (1958). Three extracts on public finance. In R. A. Musgrave & A. T. Peacock (Eds.), *Classics in the theory of public finance*. (1-15). Palgrave Macmillan.
- Yimer A. (2017). Macroeconomic, political, and institutional determinants of FDI inflows to Ethiopia: An ARDL approach. In A. Heshmati (Ed.), *Studies on economic development and growth in selected African countries*. *Frontiers in African business research*. (123-51). Springer.
- Zaman C., & Drcelic, B. (2009). Macro-stabilisation issues in the Serbian economy: Methodological evaluation. 1-26. <http://ssrn.com/abstract=1521660>

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