

FISCAL PERFORMANCE AND ECONOMIC GROWTH IN NIGERIA: A DYNAMIC OLS APPROACH

Felicia Akujinma Anyanwu
Department of Banking and Finance
Nnamdi Azikiwe University, Awka
Anambra State, Nigeria.

Charity Ifunanya Osakwe
Nnamdi Azikiwe University, Awka
Anambra State, Nigeria.

Abstract

This study employs the dynamic OLS model to investigate the nexus between government fiscal performance and economic growth in Nigeria. More specifically, the study examines the impact of government revenue performance, government expenditure performance, and public debt performance on real GDP using yearly time series data for the period from 1981 to 2022. Our empirical evidence shows that both government revenue performance and expenditure performance have a positive but not statistically significant effect on economic growth. On the other hand, public debt performance has a negative but statistically insignificant impact on economic growth. Based on these empirical findings, it is concluded that the relationship between government fiscal actions and economic growth is not governed by endogenous growth theory. Also, although government fiscal performance is not a significant determinant of economic growth in Nigeria, there is tendency for further increase in total public debt to cause an overhang problem in the Nigerian economy. Hence, there is urgent need to increase both the revenue base of the economy and the productive government spending at all levels of government.

Key words: Fiscal performance, economic growth, dynamic OLS model

1 Introduction

The role of fiscal performance in economic growth process has continued to be an issue of great debate among scholars and policy makers. This debate appears to have started in the 1930s with the Keynesian theory of aggregate demand and output, which emphasizes the importance of government intervention in the real economy to accelerate its growth and development. Fiscal policy is the deliberate manipulation of government fiscal variables such as public expenditure, public debt, and government revenue to achieve pre-defined objectives such as employment generation, price stability, and economic growth. Hence, government fiscal performance relates to the economic performance of government revenues, government expenditure, and public debt.

Government revenue has tax and non-tax dimensions. Non-tax revenues of the government are generated from non-tax sources such as licenses, dividends fines, fees, and royalties. Tax revenue are generated from both direct and indirect taxes. Indirect taxes are also known as expenditure taxes as they are generally imposed on goods and services and their burdens are transferred to the final user of the goods and services irrespective of the taxpayer's peculiarities or circumstances (Martinez-Vazquez et al., 2011). Examples of indirect taxes are stamp duties, value added tax, and custom and excise duty. On the other hand, direct taxes are also known as income or profit taxes as they are imposed on earned income, properties and profits made from legal business transactions (Martinez-Vazquez et al., 2011), Direct taxes are borne by the taxpayer and are not adjusted to the taxpayers' circumstances. Examples of direct taxes are

petroleum profit tax, property tax, personal income tax, company income tax, payroll tax, withholding tax, social security contributions, intercorporate dividend tax, and net worth tax. (Llorca, 2010).

Government expenditure has recurrent and capital dimensions. Recurrent expenditure refers to government spending on capital goods and services that are used as intermediate goods for further production of goods and services, while recurrent expenditure refers to government spending on goods and services that are used only in the current period. Government expenditure can also be classified as productive or unproductive. Productive expenditure relates to government provision of services that directly affect the private sector and contribute to economic growth, while unproductive government expenditure includes services that do not directly affect the private sector (Aschauer, 1998).

Government debt comprises internal debt and external debt. Internal debt (also known as domestic debt) is debt owed to the residents of a country and comprises all government debt instruments issued in the domestic market and dominated in domestic currency (Adofu & Abula, 2010). In Nigeria, domestic debt comprises FGN Bonds, Nigerian Treasury Bills, Nigerian Treasury Bonds, FGN Saving Bond, FGN Sukuk, Green Bond and Promissory Notes. On the other hand, external debt comprises debt instruments held by foreign residents, denominated in foreign currency, and issued under the legal jurisdiction of foreign governments. In Nigeria, external debt includes Paris Club Debt, Bilateral Debts, Multilateral debt, London Club debts and CBN Promissory notes.

Nigeria is currently experiencing severe economic problems which requires urgent government fiscal interventions. The economic problems being experienced in the country include, but not limited to, high and rising inflation, high unemployment, and high exchange rate volatility and low economic growth. Theoretically, one way to effectively address these multiple problems is through the manipulations or adjustments of government fiscal variables such as government revenue, government expenditure, and public debt. The question is: "To what extent does government fiscal performance affect real economic variables towards economic growth and development".

This study seeks to empirically address this question by examining the impact of government fiscal performance on economic growth in Nigeria. The study aligns with the Barro (1990)'s endogenous growth theory, which predicts a direct causal flow from government fiscal variables to economic growth. The study uses up-to-date yearly time series data obtained from the CBN statistical bulletin covering the period from 1981 to 2022.

2 Literature Review

2.2 Endogenous Growth Theory

This study aligns with the endogenous growth theory, pioneered by Romer (1986), Lucas (1988), and Barro (1990). The theory contends that the differences in growth rate across countries can be linked to factors within the economy rather than factors outside of it. Although, the three pioneering authors arrive at the same conclusion that economic growth is a function of endogenous factors, they differ in terms of what constitute endogenous factors. Romer (1986) suggested knowledge or intellectual capital as the main driver of growth, while Lucas (1988) and Barro (1990) respectively pointed human capital and government fiscal variables as the main determinants of economic growth.

According to Barro (1990), government plays a significant role in the growth process of the economy through its fiscal actions such as tax changes, public debt increase, and expenditure on capital goods such as power, roads, research and development, and ICT. These fiscal actions are deliberately initiated to improve the production, employment of both human and natural resources, and lead the economy towards higher growth. Hence, taxation and other fiscal variables are important ingredients of economic growth.

2.2 Empirical Review

Paparas et al. (2015) used yearly unbalanced panel data to examine the empirical association between fiscal policy and economic growth in the EU-15 focusing on the period from 1995 to 2008. For empirical analysis, they employ four panel data methods: namely, pooled OLS regression, random effects regression, fixed effects regression, and dynamic GMM estimation methods. They find that government spending on human capital accumulation exerts a negative impact on economic growth, while government spending on infrastructure exerts a positive and significant impact on economic growth. Also, they find that government spending on social protection has no significant effect on economic growth.

Quashigah et al. (2016) investigate the significance of fiscal policy in the growth model of Ghanaian economy using the VAR and VECM frameworks. More specifically, the study considers the performance of government investment expenditure, government consumption expenditure, government transfer payments and government tax revenue on

gross domestic product using yearly time series data covering from 1983 to 2012. They find that government tax revenue, government investment expenditure, and transfer payments all exert a positive effect on economic growth, while government consumption expenditure exerts a negative growth effect. These results hold both in the short run and in the long run.

Matallah and Matallah (2017) investigate the impact of fiscal policy variables on the growth the Algerian economy using Johansen cointegration framework and vector error correction model (VECM). Based on time series data covering from 1970 to 2015, they find evidence that both productive current expenditures and indirect taxes have a significant positive impact on real GDP in the long run. On the contrary, direct taxes, capital and unproductive recurrent expenditures exert a negative significant effect on long-run economic growth.

Ugwuanyi and Ugwunta (2017) attempts to establish the extent of the impact of fiscal policy variables on economic growth of countries in sub-Saharan African region using the fixed effects regression method. Using a panel dataset that spans from 1990-2012, they find that all fiscal policy variables exert a significant effect on economic growth in sub-Saharan Africa. However, while fiscal deficit, distortionary and distortionary taxes exert a positive effect on economic growth, both productive and unproductive government expenditures exert a negative effect.

In Jordan, Al-Masaeed and Tsaregorodtsev (2018) investigate the extent of the dependence of economic growth, measured by gross domestic product, on government fiscal variables such as government expenditure, government revenue, and government domestic and external debts. Using the OLS multiple method, and focusing on the period from 1990 to 2010, they find that all fiscal performance variables play a positive role in determining economic growth. However, while the growth effect of government expenditure, internal debt, and public revenue is significant, the growth effect of external debt is not significant.

Morakinyo et al. (2018) use the OLS method and VECM framework to investigate the effects of fiscal policy variables on economic growth in Nigeria using yearly time series data obtained from the CBN statistical bulletin from 1981-2014. Fiscal policy variables include government capital expenditure, government recurrent expenditure, public external debt, and public domestic debt, while economic growth is measured in terms of gross domestic product. They provide empirical evidence that both public domestic debt and government recurrent expenditure exert a negative influence on economic growth. On the contrary, both capital expenditure and external debt exert positive effect on the long-run economic growth. However, in the short run, all variables, except government recurrent expenditure, exert a positive influence economic growth.

Makhoba et al. (2019) employ the Johansen cointegration and VECM frameworks to investigate the dynamic cointegrating relationship between fiscal policy variables on economic growth in South Africa using yearly time series for the period from 1960 to 2017. Their econometric model allows gross domestic product to depend on government revenues, government expenditure, public debt, and gross fixed capital formation. They find that fiscal policy variables are cointegrated with economic growth. However, both government revenues and gross fixed capital formation exert a significant positive long-run effect on economic growth, while both public debt and government expenditure exert a significant negative effect on economic growth in the long run.

Abdullah et al. (2019) employ the ARDL framework to examine the dynamic empirical association between fiscal policy performance and economic growth focusing ASEAN-5 countries (Indonesia, Philippines, Malaysia, Singapore, and Thailand) for the period from 1970 to 2016. They find that government expenditure has a significant effect on economic growth for all countries except Indonesia. Also, they find that both tax and non-tax revenues exert a significant effect on economic growth in Philippines, Singapore, and Thailand, while public debt exerts a significant effect on economic growth in Indonesia and Thailand.

Mhlaba and Phiri (2019) employ the ARDL framework to empirically address the issue of whether rising public debt is advantageous or detrimental to the South African economy using quarterly time series data from 2002Q1 to 2016Q4. Their dependent variable is gross domestic product at market price, while the main explanatory variable is debt-GDP ratio. Their empirical model included several control variables such as investment, inflation, and terms of trade. They provide evidence that public debt exerts a negative effect on economic growth and this negative effect is more pronounced in the post-crisis period.

Alagba and Idowu (2019) examine the extent of the dependence of economic growth on public debt in Nigeria using classical OLS regression framework. Their empirical analysis is based on time series data obtained at yearly frequency for the period from 1981 to 2018. They find that economic growth is positively associated with both external debt and internal debt, while it is negatively related to cost of debt service. However, the relative impacts of both domestic debt

and debt service cost are sizable and statistically significant, while the contribution of external debt to economic growth is marginal and not statistically significant.

Sriyalatha and Torii (2019) evaluate the long-run dimension of the impact of government fiscal performance on economic growth, comparing Singapore and Sri Lanka. The comparative analysis is based on Autoregressive Distributed Lag (ARDL)-ECM framework and focuses on the period from 1972 to 2017. Consistent with the Keynesian view of fiscal policy, they provide evidence that in both Singapore and Sri Lanka, government fiscal variables such as government revenue, government expenditure and government investment all exert a positive and significant effect on economic growth in the long run.

Ahuja and Pandit (2020) employ the Granger causality framework as well as the fixed effects regression method to investigate dynamic relationship government expenditure and economic growth across the world. Their investigation uses panel data on 59 countries spanning from 1990 to 2019. They find a positive causal effect from government expenditure to economic growth. This implies that that increase in government expenditure is associated with higher economic growth which is consistent with both the Keynesian and Endogenous growth theories.

Yoong et al. (2020) employ the ARDL framework to analyze the dynamic relationship between government expenditure, public debt and economic growth in Malaysian using time series data from 1970 to 2015. Using yearly data obtained from both Bank Negara Malaysia and World Bank, they offer evidence that public debt exhibits a negative impact on economic growth both in the short run and in the long run. Their empirical analysis also shows that both government spending and household expenditure exert a positive long-run impacts on economic growth.

Fetai and Avdimetaj (2020) use several panel estimation techniques to analyze the debt-growth relationship in the Western Balkan countries. More specifically, they employ pooled OLS, fixed effects, random effect, and dynamic panel GMM methods to determine the extent to which debt overhang is present in eight countries: namely, Albania, Croatia, Bosnia, Montenegro, Serbia, Macedonia, Kosovo, and Herzegovina focusing on the period from 1995 to 2017. They find that lower level of public debt is associated with higher economic growth, while higher level of public debt above a certain level produces a negative effect on economic growth.

In Lebanon, Ibrahim (2021) use the ARDL (Autoregressive Distributive Lag) framework to analyze the dynamic relationships between government fiscal performance, primary public debt, and real economic growth. The study finds that the effects of fiscal performance and public debt on economic growth does not extend into the long run, hence, in Lebanon, the current large public debt is unsustainable. However, in their findings show that in the short run, public debt can be reduced through increase in primary fiscal performance and economic growth.

Lim and Groschek (2021) examine the impact of public debt on the growth of the economy of Switzerland using the ARDL framework. Their analysis focuses on the period from 1997 to 2016 and it is based on time series data obtained from WDI (World Development Indicators). Consistent with the debt overhang theory, they provide empirical evidence that public debt has a negative impact on economic growth. Also, they find that both FDI and remittances which, serve as control variables, have a positive impact on economic growth.

Kim et al. (2021) employ the structural VAR framework to investigate the impact of fiscal policy variables on economic growth in China using time series data covering the period from 1985 to 2015. They find that local government expenditure has a positive and significant impact on economic growth in both short run and long run. However, the impact of local government expenditure on economic growth is more pronounced than the impact of central government expenditure. Further, their empirical evidence indicates that government liquidity constraints tend to impede the impact of taxation on economic growth. Also, both public investment in manufacturing goods and public investment in R&D exert a significant effect on growth in output. Finally, the reported evidence shows that long-term public debt plays a significant role in the Chinese fiscal system especially relating to public revenue performance.

Nuru and Gereziher (2022) analyzes the short-run and long-run dimensions of the asymmetric effect of government fiscal spending on economic growth in South Africa using quarterly data covering the period from 2004Q2 to 2018Q1. Relying on a non-linear ARDL framework, they find that the negative change effect of government expenditure is higher than the positive change effect of government expenditure. This finding is based on an econometric model that includes real exchange rate and inflation rate as control variables.

Eneche and Stephen (2023) investigates the impact of government tax revenue performance on the growth of the Nigeria economy, focusing on value added tax, petroleum profit tax, and company income tax. Based on time series data from 2003 to 2017, they provide evidence that petroleum profit tax has no significant effect on economic growth,

measured by gross domestic product. On the contrary, their empirical analysis shows that both company income tax and value added tax are significant in determining economic growth in Nigeria.

3 Methodology

3.1 Data

This study uses yearly time series data on real obtained from the CBN statistical bulletin. Hence, the desk method is employed for data collection. Economic growth is proxied by real GDP while fiscal performance is examined in terms of total government revenue, total government expenditure, and total public debt. The study covers the period from 1981 to 2022, while EViews is used to aid data analysis.

3.2 Empirical Strategy

We employ the dynamic OLS model to analyze the impact of government fiscal performance on economic growth. The econometric specification of our model is given as follows:

$$LRGDP_t = \beta_0 + \beta_1 LRGDP_{t-1} + \beta_2 LTGR_t + \beta_3 LTGE_t + \beta_4 LTPD_t + \varepsilon_t \quad (1)$$

Where L means logarithm; β_0 is the regression intercepts; β_1 represents the persistence in real GDP, β_2 represents the effect of government revenue performance; β_3 represents the effect of government expenditure performance; β_4 represents the effect of public debt performance and ε_t represents the error term.

4 Data Analysis

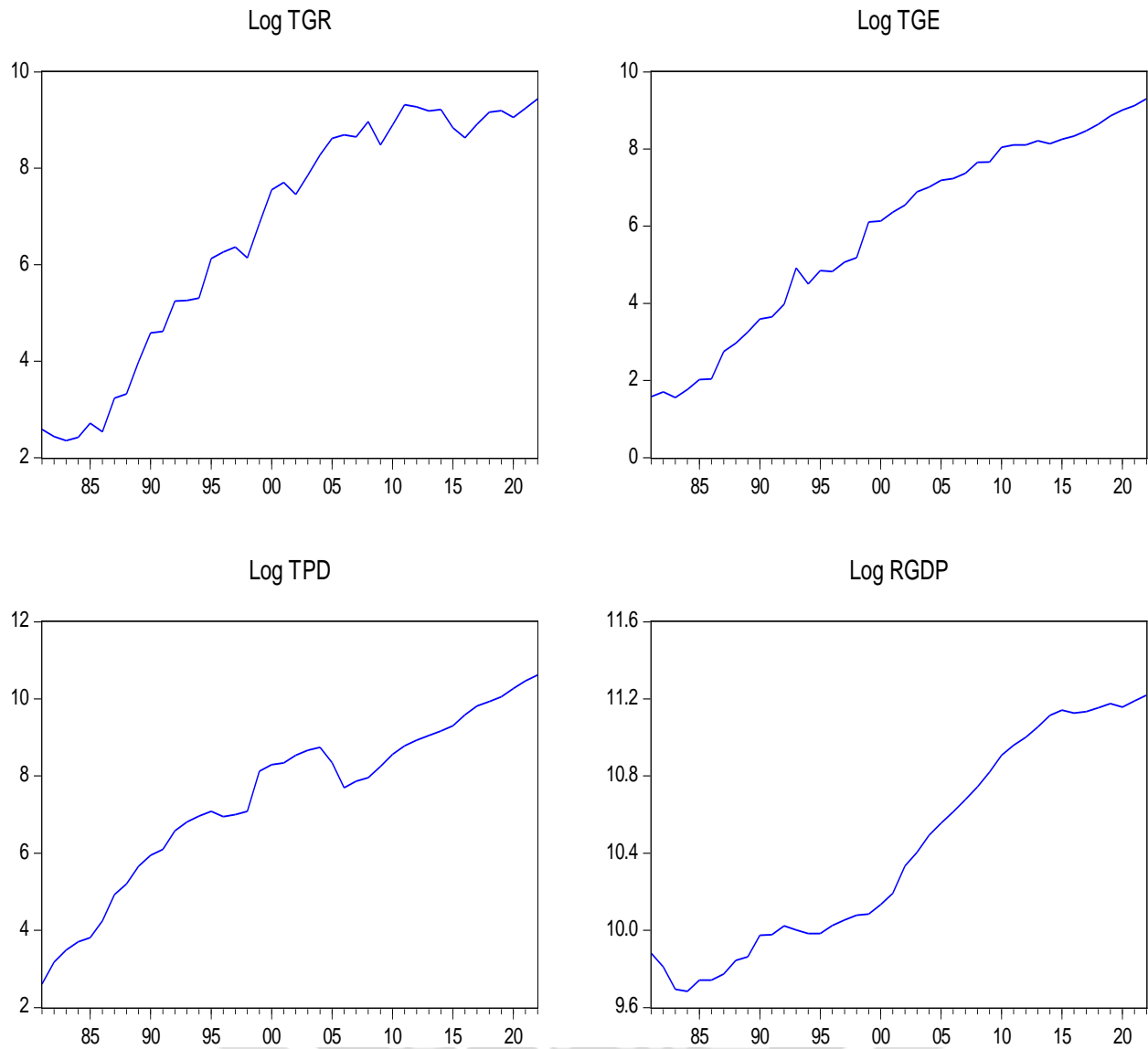
4.1 Descriptive Statistics

Table 4.2 provides the basic descriptive statistics for total government revenue, total government expenditure, total public debt, and real domestic product. Figure 4.1 shows the time series plot for all variables in logarithmic form.

Table 4.2: Basic Descriptive Statistics

Statistic	TGR	TGE	TPD	RGDP
Mean	3952.42	2012.20	6740.28	38589.74
Maximum	12586.53	11002.31	40912.62	74639.47
Minimum	10.51	4.75	13.52	16048.31
Std. Dev.	4168.10	2765.24	9816.27	20854.23
Skewness	0.55	1.63	2.03	0.53
Kurtosis	1.78	5.03	6.48	1.64
Jarque-Bera	4.73	25.87	50.06	5.18
Probability	0.0938	0.0000	0.0000	0.0749

From Table 1, annual real gross domestic product averaged ₦38589.74billion over the period from 1981 to 2022, while the averages of total government revenue, total government expenditure, and total public debt are ₦3952.42billion, ₦2012.20billion, and ₦6740.28billion respectively. The variability of these variables is high as evident from the high standard deviation and the large difference between the maximum and minimum values. The skewness coefficient indicates that all variables have a positively skewed distribution. On the other hand, the coefficient of kurtosis indicates that real GDP and total government revenue both have a platykurtic distribution, while total government expenditure and total public debt have a leptokurtic distribution. However, the probability of Jarque-Bera statistic is significant in all cases, thereby rejecting the null hypothesis of normal distribution. This shows that none of the variables has a normal distribution.



As shown by Figure 4.1, all variables trended upward over the study period. Hence, they are all non-stationary.

4.2 Empirical Analysis

Table 2 shows the regression results for the impact of government fiscal performance on economic growth in Nigeria.

Table 2: Regression Results (Dependent Variable = RGDP)

Variable	Coefficient	P-value
----------	-------------	---------

Intercept	0.4891	0.0815
LRGDP(-1)	0.8175	0.0001
LTGR	0.0151	0.6313
LTGE	0.0311	0.4118
LTPD	-0.0139	0.3317
R-squared	0.9921	
Adjusted R-squared	0.9850	
F-statistic	2000.01	
Prob(F-statistic)	0.0000	
Durbin-Watson stat	1.7562	

From Table 2, the coefficients of 0.0125, 0.0305, and -0.0143 indicate that real gross domestic product is positively related to both government revenue and government expenditure, while it is negatively related to public debt. However, the p-values of 0.6133, 0.4958, and 0.3267 are very high, indicating that none of the fiscal variables has a significant effect on real GDP. Hence, our analysis shows that government fiscal performance does not meaningfully contribute to economic growth and development in Nigeria.

The Adjusted R-square of 0.9950 is much lower than the Durbin-Watson statistic (= 1.3562) showing that our empirical results are not spurious in the sense of Granger and Newbold (1974). Also, the high Adjusted R-square shows that the estimated model is almost perfectly fitted, while the zero p-value associated with F-statistic indicates that the combined influence of total government revenue, total government expenditure, and total public debt on real gross domestic product is highly statistically significant.

4.3 Discussion of Results

Endogenous growth theory highlights the important role of government distortionary and non-distortionary fiscal policies in economic growth. According to Barro (1990), economic growth is endogenously related to government fiscal activities such as tax changes, and changes in both productive expenditure and public debt.

Contrary to endogenous theory, our results show that none of fiscal variables is significant in driving real economic growth in Nigeria. The coefficients on government revenue, government expenditure and public debt are all statistically insignificant as they are estimated with high probabilities. However, our results are mixed in terms of the direction of the relationship between fiscal performance and economic growth. While both government revenue and expenditure have positive coefficients, the public debt coefficient has a negative sign. This shows the tendency for increase in government revenue and expenditure to be associated with higher economic growth as well as the tendency for increase in public debt to cause overhang effects in the economy. In other words, government debt is not used to finance productive economic activities in Nigeria. Our empirical findings have therefore failed to validate both the endogenous growth theory (Barro, 1991) and overhang theory (Reinhart et al., 2012; Sachs, 1988). However, our findings tend to support the view that growth is determined exogenous factors.

5 Summary and Conclusion

The study examines the impact of government fiscal performance on economic growth in Nigeria using the dynamic OLS model. Economic growth is measured by real GDP, while government fiscal performance is examined in terms of government revenue, government expenditure, and public debt, The study is based on yearly time series data covering from 1981 to 2022.

1. Government revenue performance has a positive but not statistically significant effect on economic growth in Nigeria.

2. Government expenditure performance has a positive but not statistically significant effect on economic growth in Nigeria.
3. Public debt performance has a negative but not statistically significant effect on economic growth in Nigeria.

Based on our empirical findings, we conclude that although government fiscal performance is not a significant determinant of economic growth in Nigeria, there is tendency for further increase in total public debt to cause an overhang problem in the Nigerian economy. Therefore, there is urgent need to increase both the revenue base of the economy and the productive government spending at all levels of government.

References

- Abdullah, H., Yien, L. C., & Khan, M. A. (2019). The impact of fiscal policy on economic growth in ASEAN-5 countries. *Int. J Sup. Chain. Mgt*, 8(1), 754 – 760.
- Ahuja, D., & Pandit, D. (2020). Public expenditure and economic growth: Evidence from the developing countries. *FIIB Business Review*, 9(3), 228-236.
- Alagba, O. S., & Idowu, E. (2019). Effect of public debt on economic growth in Nigeria: An empirical analysis 1981-2018. *International Journal of Business and Economic Development*, 7(2), 10 – 17.
- Al-Masaeed, A. A., & Tsaregorodtsev, E. (2018). The impact of fiscal policy on the economic growth of Jordan. *International Journal of Economics and Finance*, 10(10), 145-145.
- Aschauer, D. A. (1998). Optimal financing by money and taxes of productive and unproductive government spending: Effects on economic growth, inflation, and welfare. (Working Paper No. 241). Levy Economics Institute of Bard College.
- Barro, R. J. (2008). *Inequality and growth revisited* (No. 11). ADB Working paper series on regional economic integration.
- Eneche, E. O., & Stephen, I. A. (2023). Tax revenue and Nigeria economic growth. *European Journal of Economics and Business Studies*, 7(2), 60 – 80.
- Fetai, B., & Avdimetaj, K. (2020). Public debt and economic growth in the Western Balkan Countries. *Global Policy and Governance*, 9(2), 45- 56.
- Granger, C. W., & Newbold, P. (1974). Spurious regressions in econometrics. *Journal of econometrics*, 2(2), 111-120.
- Ibrahim, C. (2021). Primary fiscal performance, economic growth, and public debt in Lebanon. *Contemporary Economics*, 15(2), 187-197.
- Kim, J., Wang, M., Park, D., & Petalcorin, C. C. (2021). Fiscal policy and economic growth: some evidence from China. *Review of World Economics*, 157(3), 555-582.
- Lim, D., & Groschek, M. (2021). Public debt and economic growth in Switzerland. *Journal of Contemporary Research in Business, Economics and Finance*, 3(2), 39-47.
- Makhoba, B. P., Kaseeram, I., & Greyling, L. (2019). Assessing the impact of fiscal policy on economic growth in South Africa. *African Journal of Business and Economic Research*, 14(1), 7-29.
- Morakinyo, F. O., David, J. O., & Alao, J. A. (2018). Impact of fiscal policy instrument on economic growth in Nigeria. *International Journal of Economics and Financial Management*, 3(1), 14-29.
- Mhlaba, N., & Phiri, A. (2019). Is public debt harmful towards economic growth? New evidence from South Africa. *Cogent Economics & Finance*, 7(1), 1 – 27. <https://doi.org/10.1080/23322039.2019.1603653>
- Nuru, N. Y., & Gereziher, H. Y. (2022). The effect of fiscal policy on economic growth in South Africa: a nonlinear ARDL model analysis. *Journal of Economic and Administrative Sciences*, 38(2), 229-245.

- Paparas, D., Richter, C., & Paparas, A. (2015). Fiscal policy and economic growth, empirical evidence in European Union. *Turkish economic review*, 2(4), 239-268.
- Quashigah, P. O., Ofori-Abebrese, G., & Pickson, R. B. (2016). Empirical analysis of the potency of fiscal policy on economic growth in Ghana. *International Research Journal of Finance and Economics*, 154(10), 25-36.
- Reinhart, C. M., Reinhart, V. R., & Rogoff, K. S. (2012). Public debt overhangs: advanced-economy episodes since 1800. *Journal of Economic Perspectives*, 26(3), 69-86.
- Sachs, J. (1988). The debt overhang of developing countries. by Ronald Findlay, Guillermo Calvo, Pentti J. Kouri, and Jorge Braga de Macedo, Basil Blackwell (Oxford: 1989).
- Sriyalatha, M. A. K., & Torii, H. (2019). Impact of fiscal policy on economic growth: A comparison between Singapore and Sri Lanka. *Kelaniya Journal of Management*, 8(1), 37 – 56.
- Ugwuanyi, U. B., & Ugwunta, O. D. (2017). Fiscal policy and economic growth: An examination of selected countries in Sub-Saharan Africa. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 7(1), 117-130.
- Yoong, F. T., Latip, A. R. A., Sanusi, N. A., & Kusairi, S. (2020). Public debt and economic growth nexus in Malaysia: An ARDL approach. *The Journal of Asian Finance, Economics and Business (JAFEB)*, 7(11), 137-145.

