

**PUBLIC FINANCIAL MANAGEMENT AND ECONOMIC GROWTH: A
STUDY CASE OF GHANA**

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This study estimates the impact of public financial management on economic growth of an African developing country Ghana. In financial management particularly government expenditures, government revenue and exchange rate are under investigation to link with DGP growth. For this purpose, time series data of given variables is taken from the period of 2000 to 2019. OLS technique is applied to estimate and check the impact of independent variables government expenditures, government revenues and exchange rate on dependent GDP growth. Furthermore, in regression analysis the results from the ADF unit root test provide evidence to show that both the public financial management and the economic development proxies are integrated of order one and require first differencing to achieve stationarity. The estimation shows that there is a significant positive relation of government expenditures, government revenues and exchange rate on GDP growth in Ghana. The study recommends role of government and its institutes should play their role because it will be affecting the economy of Ghana positively.

Keywords: OLS: Ordinary Least Square, ADF: Augmented Dicky Fuller; GDP; Financial Management.**Introduction**

In an economy GDP plays a key role and it is tool which shows the progress or development of a country. This study is an empirical investigation of different variables and checks the effects of government expenditures, government revenue and exchange rate on GDP growth. (Barro, 1989 [11]) There are also those that found a middle ground where government spending is postulated to have a positive impact on economic growth up to a certain optimal threshold, above which the impact of government spending on economic growth turns negative. Ram (1986) [62] found positive relationship between government expenditures and growth. Canning and Pedroni (2004) [14] find evidence for long-run growth effects associated with public investment in infrastructure. Devarajan, et. al. (1996) [19] found the positive relationship between current government expenditure and economic growth. Islam & Nazemzadeh (2001) [39] examined the causal relationship between government size and economic growth. Abu-Bader & Abu-Qarn (2003) [1] investigated the causal relationship between government expenditures and economic growth for Egypt, Israel, and Syria. Some studies have found the impact to be positive (Kimaro, Keong, Sea, 2017) [43]. There are also some studies that concluded that government spending has no significant impact on economic growth (Hasnul, 2015) [34]. (Samuel, 2021) [69] his empirical findings show that expenditures on debt servicing and road and construction indicate a positive and

growth. Deepti Ahuja, D. P. (2020) [18] according to their study there is a positive relationship between government spending and economic growth. (Kong, 2021) [45]; The results show that exchange rate appreciation has a certain role in promoting economic growth. (Harris, 2021) [33] concludes that government spending in Zimbabwe has always been reactive as opposed to being proactive. (Sadia Ejaz, 2019) [67]; This study indicates that there is a significant positive relationship between development and health expenditures on economic growth. Gale and Samwick (2014) [28] indicated that cuts in tax rate will ultimately lead to a larger economy in the long run. Explaining the optimal tax rate from the perspective of growth sources as indicated by Mankiw (2010) [50] and OpenStax College (2014) [60], optimal tax rate will be the rate that maximizes the output by promoting growth. Van Heerden (2009) [78] investigates the optimum tax ratio and tax mix that maximize growth for South Africa. Busler (2013) [13] used endogenous growth models and proposed a single tax rate of 12% on all incomes to promote growth and improve the standard of living. Motloja, (2016) [54] it was reported that the relationship between taxation and economic growth was insignificant for periods prior to the global recession but significant for periods after the recession. Amgain (2017) [5] his results revealed that the growth-optimizing by tax revenues. Bahmani-Oskooee (1998) [10] the results indicated that in most LDCs, the effect of devaluation on

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The authors concluded that sustained real devaluations were associated with contraction in economic activity. In the West African Monetary Zone (WAMZ) countries Tarawalie et al. (2012) [74] studied the effect of exchange rate variability on output growth and inflation. RER had a positive effect on output growth rate. Abudalu et al. (2014) [2] found that real effective exchange rate depreciation had positive impacts on ASEAN-5 countries real growth rate in both long-run and short term. Marston's (1990) the result showed that 1% depreciation of the dollar edged up real profits by 0.08% in the long-run. Vaz and Boer (2014) the results revealed that currency undervaluation increased growth rate with the exception of "anomalous" cases. Abdul-Mumuni (2016) found both a short-run and a long-run relationship between exchange rate and manufacturing output. In Ghana, an appreciation spurred manufacturing activities while depreciation slowed down output growth in the sector. The main object of the study is to estimate and explain the effects of government expenditures, government revenues and exchange rate on GDP growth a study case of Ghana. These three variables are very important as linked with GDP and the correlation of these dependent variable and independent variables shows a clear picture of growth and development in the country.

Literature Review

Haini (2020) [35] shows that health and education spending across provinces in China accelerated economic growth. (Kushwaha and Tiwari 2019 [46]) Their research results show that public expenditure on the education sector positively and significantly impacts economic growth. Sharma and Mittal (2019) [72] The GFCF variable shows a significant influence on economic growth in the long and short term. In case of Korea (Han and Lee 2020 [36]) investigate government expenditure on human capital is a cause of improvement in economic growth. (Zaika and Gridin 2020 [82]) conclude that knowledge based public expenditures enhance that economic development. (Jibir & Aluthge, 2019 [40]) found that government expenditure promotes output growth and development of Nigeria. Ebaid and Bahari (2019) [22] using data for Kuwait found a unidirectional causality running from expenditure to economic growth. Onifade, et al (2020) [59] discovered that recurrent expenditure negatively impacts on national output whereas capital expenditure positively affects GDP. The gaming activity impacts its users' psychological and social aspects as they encounter various types of players in the gaming space. Considering these findings, the researchers conclude that internet gaming during pandemic exposes nursing students to greater negative encounters than pleasant experiences (Anne et al., 2021) [9]. The students' scholastic abilities bear no significant effect on the students'

performance in comprehensive examinations when considering the joint effects of all variables of scholastic abilities (Rosalyn S. Galvez. (2021) [64]. The findings of the study disclosed that perceptions of 2017 and 2018 interns of CBEA Internship Program had significant differences on four out of five aspects: personal, social, academic, and employment impacts (Evangeline, 2021) [23]. Sporting disputes require assurance, continuity, equality, fairness and respect for the principles of natural justice that arbitration will bring about (Abhimanyu Chattree, 2020). Barlas (2020) found that current expenditures on education and infrastructure have positive impact on economic growth as opposed to security expenditure, which negatively affects economic growth in Afghanistan. Phiri (2019) [61] in his analysis of the effect of military expenditure on economic growth found that the current level of defense expenditure are too high and does not support growth and development. d'Agostino, Dunne and Pieroni (2019) [17] investigate that in low income countries defense expenditure has negative impact on economic growth. (Marton, 2020) [53]; Investigate that there is positive relationship between public expenditures (health and education) and GDP growth. (Chandana Aluthge, 2021 [15]); The key findings of the study are that capital expenditure has positive and significant impact on economic growth both in the short run and long run in Nigeria. (Vtyurina, 2020 [79]) he concludes that most developing and developed countries today use public expenditure to improve income distribution, direct the allocation of resources in desired areas, and influence the composition of national income. Shahzad Ahmad and et al. (2016) [71]; Research results concludes that total tax revenue has negative and significant impact on economic growth of Pakistan. Najid Ahmad et al. (2013) [56]; Study indicates that government tax revenue and exchange rate have negative and significant relationship with economic growth. Worlu and Emeka (2012) [80] the examination discovered that tax revenue had both immediate and roundabout relationship with the infrastructural improvement and the total national output separately (GDP). Gacanja (2012) [27] Results suggested that there is a positive relationship between government tax revenue and economic growth of Kenya. Taha et al (2011) [73] their results show a unidirectional relationship between economic growth and total government tax revenue. Magu's (2010) [49] the investigation reasoned that administration income positively influenced economic development which was high. Lutfunnahar (2007) [48] The study revealed that Bangladesh along with other penal countries are not utilizing full tax revenue collection potential, therefore, have low tax effort (less than unity index). It is recommended to finance budget deficit through increase in tax revenue. (Grace Ofori-Abebrese,

2020 [31]) This study estimates the optimal tax rate that maximizes the economic growth for Ghana. Gale and Samwick (2014) [28] noted that reducing taxes may encourage saving and investment, which may lead to economic growth. (Hope, 2019 [38]) he fails to estimate the optimal tax rate that maximizes economic growth. A number of structural reforms in tax system have been implemented with the aim of maximizing revenue and boosting economic growth (Ali-Nakyee, 2014 [4]). As noted in Keynesian economics, changes in taxation will have a multiplier effect on the economy (Nelson, 2006 [57]). (Khan, 2021 [42]); The results revealed that the exchange rate and foreign direct investment have significantly affected the country's economic growth. Rapetti (2020) [63] estimated the effect of real exchange rate volatility on economic growth and found a positive relationship between them. Ybrayev (2021) [81] claimed that there is a positive linkage between real exchange rate undervaluation and growth. (Fatbardha Morina, 2020 [25]) According to their results the measures of exchange rate volatility have a significant negative effect on economic growth. (Coskuner, 2021 [16]) investigate that undervaluation has a significant effect on economic growth. Ribeiro et al (2019) [66], by taking into account the structural features of the developing economies, examined the relationship between real exchange rate and economic growth. (Gluzmann, 2012 [29]) conclude that there is a positive association between undervalued exchange rates and growth. MBaye (2012) [51] found that total factor productivity growth was encouraged by undervaluation. Uddin (2014) [77] examined a bivariate relationship between GDP and exchange rate without incorporating other relevant variables that could also influence output growth. (Miles, 2006 [52]) concludes that exchange rate negatively affect the long run growth. (Miles, 2006 [52]) found that exchange rate positively affect economic growth. (Thapa, 2002 [75]) the relationship between the exchange rate and economic activities (indirect relationship with economic growth) is considered to be strong for a small open economy like Malaysia. According to several studies (Akinbobola and Oyeyayo, 2010 [3]), exchange rate has a positive impact on output growth. Levy-Yeyati and Sturzenegger (2003) [47] show that floating rates lead to increased growth. (Gosh et al., 2003 [30]), however, believes that the exchange rate does not matter for growth, but the real exchange rate is absolutely crucial for economic growth. Ayen (2014) [8] found that currency depreciation had a negative effect on output growth in the long-run in Ethiopia. Gylfason and Schmid (1983) [32]. The results showed that devaluation had expansionary effects in all five countries except Brazil and United Kingdom. Edwards (1989) [24] in the short-run, devaluation had resulted in a decline in real output in all sample countries. Kamin & Rogers (1997) [44]

showed that irrespective of exchange rate regime adopted by each group of countries, depreciation of home currency had positive impact on real output in both categories of nations.

Methodology

Collection of Data

The data for this study comprises of annual public financial management proxied by the total annual revenue and expenditure of the Government of Ghana as well as the yearly series of nominal GDP, which is a proxy for economic development. All the series were obtained from the statistics database of Central Bank of Ghana. The period under consideration ranges from 2000 to 2019. The series were converted to growth rates at time t , proxied by the difference change in the individual series as follows:

$$Y_t = (X_t / X_{t-1}) - 1 \quad (1)$$

Where, Y_t represents the growth rates for individual series under study in year t and S_t is a vector of the annual series of the variables (i.e., public financial management and economic development).

Analytical Techniques

To investigate impact of public financial management on economic development in Ghana, I employ descriptive analysis and regression analysis. Descriptive analysis is the presentation of summary of the important statistics in a data set. Our descriptive statistics involve plotting of time series graph and computation of mean, standard deviation, skewness, kurtosis, and Jarque-Bera statistic as well as unit root test for the level and growth series of public financial management market and economic development proxies. While the mean presents information on the average of the public financial management and economic development series, the standard deviation shows the level of variation of the series from their average. The skewness and the kurtosis provide insight into their distributional pattern. The regression analysis, on the other hand, was conducted using multiple ordinary least square (OLS) regression method. The multiple regression technique enables the measure of the impact of independent variable(s) (X) on the dependent variable (Y). It is specified as follows:

$$GDP_t = \beta_0 + \beta_1 FR_t + \beta_2 FE_t + \beta_3 INF_t \quad (2)$$

The a priori expectation of the slope coefficient is: $\beta_1 > 0$, $\beta_2 > 0$. Where GDP_t is the dependent variable and is the observations of yearly nominal gross domestic products at time t , FR_t and FE_t denote the annual observations of the public revenue and expenditure at time t , β_1 and β_2 are the coefficients

of the public financial management variables and indicates their effects on economic development, and ε_t is the stochastic error term at time t . Statistically significant slope coefficients (β_1 and β_2) will indicate that public financial management impacts economic development in Ghana. The sign of the coefficient will show that nature of impact - that is, whether negative or positive.

Empirical Results and Discussions

Graphic Presentation

Figure 1 displays a time series graph of the relationship between growth in public financial management and growth rate in economic development. Notice from this figure that the movement in public financial management and economic growth are not exact. While the public financial management had negative change in the first quarter of 1983, economic growth remained positive. Similar movement is also notice in first quarter of 1994 and 2000. From 2003, however, their movements appear to be related.

Descriptive Statistics

Descriptive statistics of the public financial management and economic development series are presented in Table 1 below. From Table 1, notice that the average FR, average FE and average GDP are N2578.30, N1217.43 and N13336.07 respectively for the sample period. However, the sample mean for growth rates of FR, FE and GDP are 0.016, 0.041 and 0.029 respectively. The standard deviations are 0.019, 0.052 and 0.029 for FR, FE and GDP respectively. The skewness and kurtosis coefficients under normality assumption are zero (0) and three (3) respectively. But the skewness coefficients for growth rates of FR, FE and GDP are 0.101, 0.061 and 0.813 respectively. The kurtosis coefficients for growth rates of FR, FE and GDP are 0.059, 0.271 and 0.100 respectively. The p-values show that the excess kurtoses of all series are zero, suggesting that series are not leptokurtic. In the same vein, the Jarque-Bera statistics suggest that FE and GDP appear normally distributed but that FR series are not normally distributed.

Table 1: Descriptive Statistics

Variable	Mean	Std Dev	Skewness	Kurtosis	J-B Stat.	Obser.
GDP	13336.07	21816.24	2.094*	3.468*	40.661*	33
FR	2578.30	3474.93	1.284*	0.442	9.346*	33
FE	1217.43	1602.46	1.353*	0.585	10.548*	33
INF	20.370	18.276	1.613*	1.466	17.266*	33
Panel B: st	Differenced S	Eries				
GDP	0.029	0.029	0.813	0.100	3.540	32
GFR	0.016	0.019	0.101	0.559	8.973*	32
GFE	0.041	0.052	0.061	0.271	0.118	32
GINF	0.025	0.284	0.580	-0.186	1.844	32

Note: GDP is the nominal GDP. FR is the total revenue of the Government in Ghana. FE is the total expenditure of the Government in Ghana. GGDP is the growth in nominal GDP, GFR is the growth in revenue, GFE is the growth in public expenditure and GINF is the growth in inflation rate. *, **, *** indicate significance at the 1%, 5% and 10% levels respectively.

Unit Root Test Results

The Augmented Dickey-Fuller (ADF) test is conducted to determine whether the variables under study are stationary or not. Granger and Newbold (1974) show that regression analysis between two nonstationary series could lead to a spurious or nonsense result. This means that one could find statistically significant relationship

whereas apriori there should be none. Table 2 presents the results of unit root tests performed on log-level and growth rates of public financial management and GDP series. All the variables contain unit root at their levels but at first difference there is no unit root at 5% significance level. The ADF results therefore indicate that the series require first differencing to achieve stationarity, that is they are I(1) variables.

Table 2: Unit Root Test Results

	GDP	FR	FE	INF	Test
Level	-2.313 {-3.551}	-1.924 {-3.551}	-0.741 {-3.556}	-3.966* {-3.556}	ADF
Diff.	-5.463** {-3.556}	-6.876** {-3.556}	-5.392** {-3.556}	-5.928** {-3.561}	ADF

Note: The trace bracket { } embodies the 5% critical value. * and ** indicate 5% and 1% significance level respectively.

Regression Results

The summary of the results for the OLS model specified in equation (1) are presented in Table 3 below. As Table 3 shows, there is a positive and significant relationship between the growth in public revenue and economic development in Ghana. This is evident in coefficient of the public revenue parameter (0.174) with t-statistic and p-value stood at 2.641 and 0.013 respectively. With 99% confidence, these results clearly show that public revenue contributes positively to economic development in Ghana. The value of the coefficient of determination (R^2) stood at 0.695. This indicates that 70% of the total variation in economic development is accounted for by the public financial management and inflation, and the remaining 30% of the variation is accounted for by other variables not included in the model. The Durbin-Watson coefficient (2.134) indicates that there is no first order serial correlation in residuals. This result is in agreement with earlier empirical findings on the relationship between public revenue and economic growth. Dang (2019), for example,

reports among others, that revenue have significant causal relationship with economic development in Ghana.

Public expenditure coefficient, on the other hand, is not statistically significant. This implies that public expenditure does not significantly impact economic growth in Ghana. Lack of statistical significance between public expenditure and economic development is not surprising. This is because of bureaucratic bottleneck and corruption that characterize the Ghana public sector. As a result of these economic ills, the funds that are budgeted for public goods, such infrastructure facilities, that are supposed to enhance economic development, may end up in private pockets of corrupt public officials. Again, the results agree with some empirical findings. Pere and Buseni (2019), for example, reports that government expenditure on administration and economic services have negative impact on industrial productivity. Egunjobi (2019) also reports among others that total expenditure and public consumption impact negatively on economic growth.

Table 3: Regression Results

Variable	Coefficient	t-statistic	p-value
Constant	0.02 0	3.687	0.000
GFR	0.17 4	2.641	0.013
GFE	0.00 1	0.015	0.987
GINF	0.03 9	2.500	0.018
$R^2 = 0.695$,	$F(3, 28) = 5.962 [0.002]$,	DW= 2.134	

Table 4 presents the results of diagnostic tests conducted to ascertain robustness of the estimated regression model. Observe from the Table 4 that the Ljung-Box Q-statistic for the residuals (ε_t), and McLeod-Li statistic for

squared residuals are not significant. These suggest that there is no correlation in the residuals and squared residuals. Consequently, there seem to be no specification error in the model.

Table 4: Diagnostic Tests

	Statistic	P-value
Ljung-Box Q(8)	8.535	0.382
McLeod-Li(8)	6.344	0.608

Conclusion

Given the importance of public financial management for effective and sustainable economic development and public service delivery, this paper examines the impact of public financial management on economic development in Ghana using regression analysis. The data for analysis were obtained from the statistics database of Central Bank of Ghana and covers the

period 2000 to 2019. The main technique OLS is applied to estimate the impact of government expenditures, government revenues and exchange rate on GDP growth. Furthermore, in regression analysis the results from the ADF unit root test provide evidence to show that both the public financial management and the economic development proxies are integrated of order one and require first differencing to achieve

stationarity. The results of the regression model provide evidence to show that the public revenue has significant positive impact on economic development in Ghana, whereas public expenditure does not have significant impact. Consequently, our conclusion is that effective public financial management can enhance economic development. It is concluded that government expenditures, government revenues and exchange rate are caused of increment in GDP growth. Suitable use of public funds and revenues promote the economic growth and positive effects of exchange rate increase trade in country which ultimate cause of increment in economic growth. The study therefore recommends that the Government of Ghana should put in place institutions that will enhance and consolidate sound public financial management systems in Ghana.

Conflict of Interest

There is no conflict of interest between the authors in this manuscript.

References

1. Abu-Bader, S. & A. S. Abu-Qarn, (2003). "Government Expenditures, Military Spending and Economic Growth: Causality Evidence from Egypt, Israel, and Syria". *Journal of Policy Modeling*, 25, 567-583.
2. AbuDalu, A., Ahmed, E. M., Almasaied, S. W., & Elgazoli A., (2014). "The real effective rate impact on ASEAN-5 economic growth". *International Journal of Economics & Management Sciences*, 3(2), 1-11.
3. Akinbobola T O and Oyetayo O J, (2010). "Econometric Analysis of Real Exchange Rate and Domestic Output Growth in Nigeria". *International Journal of Academic Research*, 2(5), 339-344.
4. Ali-Nakyea, A., (2014). "Taxation in Ghana: Principles, practice and planning (3rd ed.)". Accra: Black Mask Limited.
5. Amgain, J., (2017). "Estimating optimal level of taxation for growth maximization in Asia". *Applied Economics and Finance*, 4(3), 47-55.
6. Aschauer, D. A., (1989). "Is Public Expenditure Productive?". *Journal of Monetary Economics*, 23, 177-200.
7. 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, DOI: 1016/S2212- 5671(13)00010-5.
8. Ayen, Y. W., (2014). "The effect of currency devaluation on output: The case of Ethiopian economy". *Journal of Economics and International Finance*, 6(5), 103-111.
9. Villar, Anne Cecille C., Poserio, Angel Feliz C., Quinto, Angelica S., Ramirez, Jemeela Lois C., Rodriguez, James Patrick U., Singzon, Exequiel Renzo B., Villamayor, Kennedy Win M., Villano, Patricia Aerielle T., Vitug, Frances Kailah D. & Cruz, Esther O. Dela, (2021). "Internet Gaming Experiences of Nursing Students in Metro Manila During Covid-19 Pandemic". *Cosmos An International Journal of Management*, 11(1), 7-13.
10. Bahmani-Oskooee, M., (1998). "Are devaluations contractionary in LDCs?". *Journal of Economic Development*, 23(1), 131-145.
11. Barro, R.J. (1989). "Economic growth in a cross section of countries". NBER Working Paper, 3120, DOI: 10.1017/CBO9781107415324.004.
12. Barlas, A. W., (2020). "The impact of government expenditure on economic growth in Afghanistan". *Journal of Economics and Business*, 3(2), 729-733.
13. Busler, M., (2013). "Income tax policy: Is a single rate tax optimum for longterm economic growth?". *World Journal of Entrepreneurship, Management and Sustainable Development*, 9(4), 246-254.
14. Canning, D. and Pedroni, P., (2004). "The effect of infrastructure on long-run economic growth". Mimeo, Harvard University.
15. Chandana Aluthge, A. J., (2021). "Impact of Government Expenditure on Economic Growth in Nigeria". *CBN Journal of Applied Statistics*, 1-36.
16. Coskuner, M. S., (2021). "Real exchange rate effect on economic growth". *Journal of Applied Economics*, 1-15.
17. d'Agostino, G., Dunne, J. P. & Pieroni, L., (2019). "Military expenditure, endogeneity and economic growth". *Defence and Peace Economics*, 30(5), 509-524.
18. Deepti Ahuja, D. P. (2020). "Public Expenditure and Economic Growth: Evidence from the Developing Countries", *FIIB Business Review*, 1-9.
19. Devarajan, S., P. Swaroop & H. Zou, (1996). "The Composition of Public Expenditure and Economic Growth". *Journal of Monetary Economics*, 37, 313-344.
20. de Haan, J. and Romp, W., (2007). "Public capital and economic growth: a critical survey". *Perspektiven der Wirtschaftspolitik* 8(Special Issue), 6-52.
21. Dornbusch R., (2001). "Fewer Monies, Better Monies". *American Economic Review*, 91(2), 238-242.
22. Ebaid, A. & Bahari, Z., (2019). "The nexus between government expenditure and economic growth: evidence of the Wagner's law in Kuwait". *Review of Middle East Economics and Finance*, 15(1), 1-9.
23. Dayao, Evangeline P., (2021). "CBEA Internship: An Aftermath (An Experiential Study of The Cbea Practicum Program)".

- Cosmos An International Journal of Management, 11(1), 36-45.
24. Edwards, S., (1989). "The Real Exchange Rates, Devaluation and Adjustment: Exchange Rate Policy in Developing Countries". MIT Press, Cambridge, MA.
 25. Fatbardha Morina, E. H. (2020). "The Effect of Exchange Rate Volatility on Economic Growth: Case of the CEE Countries", *Journal of Risk & Management*, 1-13.
 26. Friedman, M., (1997). "If only the U.S. were as free as Hong Kong". *Wall Street Journal*, A14. Retrieved from: <https://www.wsj.com/articles/SB868305843450108500> (25.10.2018).
 27. Gacanja, E. W., (2012). "Tax revenue and economic growth: an empirical case study of Kenya". Unpublished MBA Project, University of Nairobi.
 28. Gale, W. G. & Samwick, A. A., (2014). "Effects of income tax changes on economic growth". *American Economic Review*, 91(3), 574-595.
 29. Gluzmann, P. A., Levy-Yeyati, E. and Sturzenegger, F., (2012). "Exchange rate undervaluation and economic growth: Diaz Alejandro (1965) revisited". *Economics Letters*, 117(3), 666-672.
 30. Gosh A, Gulde A M and Wolf H, (2003). "Exchange Rate Regimes: Choices and Consequences". MIT Press, Massachusetts.
 31. Grace Ofori-Abebrese, S. T., (2020). "Optimal tax rate for growth in Ghana: An empirical investigation". OFORI-ABEBRESE ET AL, 1-9.
 32. Gylfason, T. & Schmid, M., (1983). "Does devaluation cause stagflation?" *Canadian Journal of Economics*, 16, 641-654.
 33. Harris Maduku, B. T., (2021). "Government Expenditure and Macroeconomic Stability Conundrum in Zimbabwe". *Economics of Development*, 1-18.
 34. Hasnul, A.G., (2015). "The effects of government expenditure on economic growth: the case of Malaysia". MPRA Paper. Retrieved from: <https://mpra.ub.uni-muenchen.de/71254> (25.10.2018).
 35. Haini, Hazwan, (2020). "Spatial spillover effects of public health and education expenditures on economic growth: Evidence from China's provinces". *Post-Communist Economies*, 1-18.
 36. Han, Jong-Suk and Jong-Wha Lee, (2020). "Demographic change, human capital, and economic growth in Korea". *Japan and the World Economy*, 53: 100984.
 37. Holms, J. M. & Hutton, P. A., (1990). "On the Causal Relationship Between Government Expenditures and National Income". *Review of Economics and Statistics*, 72, 87-95.
 38. Hope, A. D., (2019). "Tax structure and economic growth in Ghana". (Unpublished thesis), University of Ghana.
 39. Islam, A. & A. Nazemzadeh, (2001). "Causal Relationship between Government Size and Economic Development: An Empirical Study of the U. S. Southwestern Economic Review". 28, 75-88.
 40. Jibir, A. & Aluthge, C., (2019a). "Modelling the determinants of government expenditure in Nigeria". *Cogent Economics & Finance*, 7(1), 10.1080/23322039.2019.1620154.
 41. Karahan, Ö., (2020). "Influence of Exchange Rate on the Economic Growth in the Turkish Economy". 1-14.
 42. Khan, M. F., (2021). "Impact of Exchange Rate on Economic Growth of Bangladesh". *European Journal of Business and Management Research*, 1-3.
 43. Kimaro, E.L., Keong, C.C. & Sea, L.L., (2017). "Government Expenditure, Efficiency and Economic Growth: A Panel Analysis of Sub-Saharan African Low Income Countries". *African Journal of Economic Review*, V(II), 34-54.
 44. Kamin, SB and Rogers, H, (1997). "Output and the real exchange rate in developing countries: An application to Mexico". *International Finance Discussion Papers*, No. 580.
 45. Kong, S., (2021). "Non-linear Effect of Exchange Rate on Economic Growth in OECD Countries". *EDP Sciences*, 1-4.
 46. Kushwaha, Manisha and Tiwari, Radha, (2019). "An Empirical Investigation of Public Expenditure on Education and Economic Growth in Gujarat". Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3457074 (accessed on 11 May 2021).
 47. Levy-Yeyati E and Sturzenegger F, (2003). "To Float or to Fix: Evidence on the Impact of Exchange Rate Regimes on Growth". *American Economic Review*, 93(4), 1173-1193.
 48. Lutfunnahar Begum, (2007). "A Panel Study on Tax Effort and Tax Buoyancy with Special Reference to Bangladesh". Policy Analysis Unit (PAU) Research Department, Bangladesh Bank Head Office, Dhaka, Bangladesh.
 49. Magu, M. C., (2010). "The Relationship between Government Revenue and Economic Growth in Kenya". Published M.Sc. Project, Department of Finance and Accounting. School of Business, University of Nairobi.
 50. Mankiw, N. G., (2010). "Macroeconomics (7th ed.)". New York, NY: Worth Publishers.
 51. MBaye, S., (2012). "Real exchange rate undervaluation and growth: Is there a total factor productivity growth channel?". (Etudes et Documents, E 2012.11, pp. 1-26). ClermontFerrand, France: CERDI.
 52. Miles W., (2006). "To Float or Not to Float? Currency Regimes and Growth". *Journal of*

- Economic Development, 31(2), 91-105.
53. Marton, G. K., (2020). "The long-term impact of public expenditures on GDP-growth". *Society and Economy*, 1-17.
 54. Motloja, L., Makhoana, T., Kassoma, R., Houdman, R. & Phiri, A., (2016). "Changes in the optimal tax rate in South Africa prior and subsequent to the global recession period". (Munich personal RePEc archive (MPRA) paper, no. 74342).
 55. Mario, C., Sebastian, F. & Gabriel, P., (2011). "Real exchange rate and the structure of exports". Retrieved from http://mpa.ub.uni-muenchen.de/37846/1/MPRA_paper_37846.pdf
 56. Ahmad, Najid; Ahmad, Arslan & Yasmeen, Kausar, (2013). "The Impact of Tax on Economic Growth of Pakistan". *Journal of Basic and Applied Scientific Research*, ISSN 2090-4304.
 57. Nelson, C. R., (2006). "Macroeconomics: Chapter 11". An introduction, Keynesian fiscal policy and the multipliers. Internet ed.
 58. Nurudeen, A. and Usman, A., (2010). "Government expenditure and economic growth in Nigeria, 1970-2008: A disaggregated analysis". *Business and Economics Journal*, 4, 1-11.
 59. Onifade, S.T., C, evik, S., Erdogan, S., Asongu, S. and Bekun, F. V., (2020). "An empirical retrospect of the impacts of government expenditures on economic growth: new evidence from the Nigerian economy". *Economic Structures* 9(6).
 60. OpenStax College, (2014). "Principles of macroeconomics". Houston, TX: Rice University.
 61. Phiri, A., (2019). "Does military spending nonlinearly affect economic growth in South Africa?". *Defence and Peace Economics*, 30(4), 474-487.
 62. Ram, R., (1986). "Government Size and Economic Growth: A New Framework and Some Evidence from Cross-Section and Time Series". *American Economic Review*, 76, 191-203.
 63. Rapetti, M., (2020). "The real exchange rate and economic growth: A survey". *Journal of Globalization and Development*, 11(2). doi:10.1515/jgd-2019-0024.
 64. Galvez, Rosalyn S., (2021). "Graduate Studies Students' Scholastic Abilities And Their Effects On Comprehensive Examination". *Cosmos An International Journal of Management*, 11(1), 112-119.
 65. Razmi, A., Rapetti, M. & Skott, P., (2011). "The Real Exchange Rate and Economic Development (Economics Department Working Paper Series. 116)". Amherst: University of Massachusetts.
 66. Ribeiro, R. S. M., McCombie, J. S. L. and Lima, G. T., (2019). "Does Real Exchange Rate Undervaluation Really Promote Economic Growth?". *Structural Change and Economic Dynamics*, 50, pp. 408-417.
 67. Sadia Ejaz, H. A., (2019). "Public Expenditure and its impact on Economic Growth: A case of Pakistan". *Kashmir Economic Review*, 1-17.
 68. Sáez, M.P., Álvarez-García, S., Rodríguez, D.C., (2017). "Governmen expenditure and economic growth in the European Union countries: New evidence". *Bulletin of Geography. Socioeconomic Series*, 36, 127-133, DOI: 10.1515/bog-2017-0020.
 69. Samuel Daniel Ugochukwu, L. I., (2021). "Government Expenditure and Economic Growth in Nigeria". ISSN 2413-9009, 1-14.
 70. Schaltegger, C., Torgler, B., (2006). "Growth effects of public expenditure on the state and local level: evidence from a sample of rich governments". *Applied Economics*, 38(10), 1181-1192, DOI:10.1080/00036840500392334.
 71. Ahmad, Shahzad; Sial, Dr Maqbool H. & Ahmad, Dr. Nisar, (2016). "Taxes and Economic Growth - An Empirical Analysis of Pakistan". *European Journal of Business and Social Sciences*, 5(2).
 72. Sharma, Vishal, and Mittal, Ashok, (2019). "Fiscal deficit, capital formation, and economic growth in India: A nonlinear ARDL model". *Decision*, 46, 353-63.
 73. Taha, R., Nanthakumar L. and Colombage, S. R. N., (2011). "The Effect of Economic Growth on Taxation Revenue: The Case of a Newly Industrialized Country". *International Review of Business Research Papers*, 7(1), 319-329.
 74. Tarawalie, A. B., Sissoho, M., Conte, M. & Ahoritor, C. H., (2012). "Exchange rate, inflation and macroeconomic performance in the WAMZ". *WAMI Occasional Papers*, 1, 1-59.
 75. Thapa N B, (2002). "An Econometric Analysis of the Impact of Real Effective Exchange Rate Economic Activities in Nepal". *Economic Review Occasional, Paper No. 14*.
 76. Tyers R, Golley J, Yongxiang B and Bain I, (2006). "China's Economic Growth and its Real Exchange Rate". *Working Papers in Economics and Econometrics No. 476*, Australian National University.
 77. Uddin, K. M. K., Rahman, M. M. & Quaosar, G. M. A. A., (2014). "Causality between exchange rate and economic growth in Bangladesh". *European Scientific Journal*, 10(3), 11-26.
 78. Van Heerden, Y., (2009). "Finding the optimum tax ratio and tax mix to maximise growth and revenue for South Africa: A balanced budget approach."

79. Vtyurina, S., (2020). "Effectiveness and equity in social spending: the case of Spain". IMF Working Paper, No. WP/20/16.
80. Worlu, C. N. and Emeka, E., (2012). "Tax Revenue and Economic Development in Nigeria: A Macro econometric Approach". Academic Journal of Interdisciplinary Studies, 1(2), 221-223
81. Ybrayev, Z., (2021). "Real exchange rate management and economic growth: Export performance in Kazakhstan", 2009-2019. International Review of Applied Economics, 35(1), 64-90.
82. Zaika, Svitlana, and Oleksandr Gridin, (2020). "Human capital development in the agricultural economy sector". Technology Audit and Production Reserves, 1, 51.