

Impact of Fiscal Discipline on Plateau State Government Expenditure

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Abstract

The main objective of the public sector as part of the macro-economy is the provision of necessary government services to the public in order to achieve macro-economic stabilisation. Fiscal discipline is the application of fiscal rules to achieve deficit reduction and long-term fiscal consolidation. The aim of the study was to examine the impact of fiscal discipline on Plateau state government expenditure and to determine, given the existence of fiscal discipline, if a significant relationship exists between state government expenditure and the following demographic and economic variables: disposable income, population density, inter-governmental revenue, retirement benefit expenditure, and capital expenditure. State government expenditure, if properly deployed, should lead to expansion of public goods and services and the attainment of economic growth and development. The study made use of secondary data which were collected from Plateau State Ministry of Finance and the National Population Commission Jos. The data were analysed using the linear ordinary least square regression analysis. The result shows that state government expenditure has a significant positive relationship with disposable income, intergovernmental revenue and retirement benefit expenditure, a significant negative relationship with population density and capital expenditure. It was concluded that (i) state government expenditure is not geared towards the expansion of public goods and services that will enhance growth and development (ii) economies of scale in the production and provision of government services is yet to be attained and (iii) state government expenditure is incurred in order to implement possible fiscal discipline mechanisms of balanced-budget or deficit reduction. The study recommends that fiscal discipline mechanisms should be implemented only to the extent that the decision does not constrain expenditure on public goods and services that may result in growth and development

Keywords: *Public expenditure, Fiscal discipline, Budget institutions, Budget process, Fiscal rules*

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Background to the Study

The main objective of the public sector as part of the macro-economy is the provision of necessary government services to the public in order to achieve macro-economic stabilisation. The provision of these services has a relationship with the growth and stability of the economy. According to Perekunah, Vincent, and Emeka (2019). Growth and stability are macro-economic objectives that can only be achieved with proper implementation of the right combination of macro-economic policies. From the inception of the country, the government has been spending huge sum of money to provide services like security, public roads, education, and health care and so on. In Nigeria, the public sector comprises of the three tiers of government which includes; the federal, state and local government. The three tiers of government are saddled with various responsibilities and functions with laid down rules and regulations/ policies as contained in the 1979 constitution of the federation as variously amended to carry out in order to achieve macro-economic stabilisation. To achieve macro-economic objective, fiscal federalism must be put in place. That is, the division of power for the allocation of government resources and spending to the various tiers of government. However, this research put in focus state government which is the second tier of government with particular emphasis on plateau state in order to achieve the objective of the study which is to examine the impact of fiscal discipline on state government expenditure. Ethical codes for promoting fiscal discipline are put in place but this has not prevented on due financial infractions on the state government finance. An attempt is therefore made by the researcher to examine fiscal discipline which is the result of the application of fiscal rules at the state government level. Fiscal discipline is the key to deficit reduction and long – term fiscal consolidation (Alesina and perotti, 1996; Alesina and Perotti, 1995a).

It has been worrisome that despite the huge sum of internally generated revenues and federal allocations, received by the state government to finance recurrent and capital expenditures, disposable income is not sufficient to meet government spending on both recurrent and capital expenditures leading to budget deficit and budget surplus. Also, the monies allocated by the state government for the purchase, maintenance, repairs, and upgrading of capital asset are not efficiently and adequately utilised resulting to poor quality capital projects and capital projects abandoned. Furthermore, monies allocated to take care of retirement benefit expenditure of retirees are not efficiently utilised resulting to lack of payment and inadequate payment of gratuity and pension of the retired civil servants of a state. With all these short comings in the financial system of a state, one begins to wonder if the government measures of accountability, transparency and fiscal responsibilities have any significant effects on the financial management in the country or not.

Budget Institutions

Budget institutions assist in strengthening fiscal discipline. Alesina and Perotti (1996), defines budget institutions as “ all the rules and regulations according to which budget are drafted, approved and implemented” (401). The rules and regulations relates to:

- i. The qualitative targets on the budget such as balance budget law;
- ii. Procedural rules that guide the preparation and legislative approval of the budget such as voting rules and

iii. The rules regarding the transparency of the budget.

Benefits for budget rules and regulations the critic against the concept of balanced budget law is based on “tax smoothing theory” the theory suggests that budget deficits and surpluses are necessary to smooth temporary fluctuations in expenditures and fiscal revenues. Barro (1979), Lucas and Stokey (1983), and Alesina and Perotti. (1996), in Ekoja (2008), argued that the balanced- budget rule is neither necessary nor sufficient condition to ensure fiscal discipline. For the authors, the procedural rules in particular, the rules for voting and approval of the budget and the degree of transparency are the crucial points. Among the voting rules, the sequence of voting on the budget project and the types of amendment rules allowed in the legislative discussion stand out. Thus, the procedures that first determine the voting on budget size and then its compositions, rules that limit the ability of the legislature to propose amendments and the rules that require disclosure of the information concerning the preparation and the execution of the budget tend to promote fiscal discipline (Giuberti 2015).

Thus, Birchwood and Mathias (2007), found out that a government is likely to operate a balance or surplus budget where the current account earnings of the country are in surplus and its income level is in the low middle to high income categories. Persistent fiscal deficits are the result of both fiscal ill-discipline and structural factors such as negative current account earnings/ low level of wealth and inadequate foreign direct investments. Similarly, Hallerberg and Marier (2004), argued that the common pool resources (CPR) problem affects the level of budget discipline. At the executive level, the CPR problem prevalent is a situation where ministers consider the implications of decisions on their ministries only. At the legislative level, the CPR problem depends on whether the electoral system encourages high personal vote or high party vote (low personal Vote). They found that executive power in the budget process is much more effective in reducing budget deficits when in the legislature electoral incentives for the personal Vote is high. Dabla Noris et al. (2010:5), exemplify, this problem arises when politicians can extract economic rents and appropriate public resources at the expense of voters' preferences. The concept of fiscal or budget discipline can be viewed in two (2) schools of thought. The first school known as the “Budget institutionalism” opined that greater centralisation of the Budget process leads to Budget discipline, Balledez and John (1999) and Hallerberg (2004). The second school known as “Electoral institutionalist” concentrated their argument on the fact that plurality electoral systems maintain tighter fiscal discipline than proportional representation systems, Milesi, Perotti and Rostagno (2002) and Persson and Tabellini (2002). The next section deals with the budget process which provides the implementation platform for the rules & regulations set in the budget institutions framework.

Budget Process

Budget is an important tool in governance and most relevant to the economic policy. It is the second most important document after the constitution in any nation. It signifies that budget is an expression of the constitution and statutes of government which endows the executive and legislature with designated financial and managerial responsibilities

(Miftahu et al, 2018). Budget undergoes some processes before it becomes both a law and an economic tool. Budget processes are designed to set priorities and control revenues and expenditures. In budgeting, the most significant factors perpetuating the existence of budget deficit is known as common pool resource problem (Ostrom, 1990). According to Ekoja (2008), to overcome the common pool resource (CPR) problems the budget process should be concentrated in the cabinet (in the ministry of finance) in order to strengthen fiscal discipline. However, the various attempts to reduce the common pool resource (CPR) problem are affected by a shock from the possible introduction of IMF program. Shocks related to current revenues and expenditures are identified separately.

Growth Related Expenditure

Growth is the annual percentage increment in the adjusted per capita gross domestic product. Generally, a country can increase the level of economic growth by increasing expenditure on the level of education and technology in the economy and promoting increased protection of property right. Jamali, Wandschneider and Wannave (2007). A number of growth models abound. The neoclassical growth model recognises expenditure on human capital and technology as the engine that sustains growth. Solow (1956) Romer (1986), Lucas (1988), Easterly and Livine (2001). On the effect of political regimes on growth Rodrick, Subramanian and Trebbi (2002), Assane and Grammy (2003), and Bhattacharyya (2004) show the importance of institutional quality on long-term growth and development. Similarly, Stiglitz (2002) assert that participations, transparency and openness propel institutional change and enhance long term development and growth. Conversely, Galenson (1959) points out that misappropriation of resources from investment to consumption has adverse effect on economic growth. Also, Przeworski, and Limongi (1993) stress that large investment in human and Machine capital investments and a reduction current spending leads to economic growth. On the measure of income inequality, Alesina and perotti (1996), perotti (1996), and Islam and Montenegro (2002) found greater positive relationship between income equality and economic growth.

Relationship between Growth and Development

Growth leads to development and development leads to growth. Economic growth and economic development are interrelated concepts. For a sustainable economic development to exist, business need to be built from the ground up and at the same time providing support for the growth of existing enterprise. Therefore, small businesses and entrepreneurs would have to be developed and supported the infrastructure expanded and improved the highly skilled and educated work force recruited and developed. Edmiston, (2007). Thus, the economic development strategy that focuses on small businesses and entrepreneurs leads to net increase in job creation, gross job flows, self-employment and greater innovation. Edmiston (2007), suggest that concentrating on organic growth or the growth of existing or “home-grown” businesses, will more positively affect economic development than the recruitment of new forms of businesses.

Review of Empirical Studies

Several Studies have focused on the relationship between government expenditure and economic growth in developed and developing countries like Nigeria. This is a calculated effort aimed at ascertaining the validity of the theoretical work. The result of the empirical studies varied from one study to another. Abu and Abdullahi (2010), investigate the relationship between government expenditure and economic growth in Nigeria from the period ranging from 1970 to 2008. They used disaggregated analysis in an attempt to unravel the impact of government expenditure on economic growth. Their result revealed that government total capital expenditure, total recurrent expenditure and Education have Negative effect on economic growth.

Ekoja (2008), studied the impact of fiscal discipline on Nigerian federal government expenditure. Using the time series data from 1996-2004. Applying the O.L.S technique, the result revealed that disposable income has significant negative effect on the overall federal government expenditures, population density have a significant positive effect on federal expenditure and it also shows that inter-governmental revenue, expenditure on retirement benefits and capital expenditure do not significantly affect federal expenditure.

Agbonkhese and Asekome (2014), studied the impact of public expenditure on the growth of Nigeria economy. Using the time series data for 30 years and econometric technique of the ordinary least square (OLS). The empirical result portrayed that total public expenditure credit to the domestic economy, private capital formation, exchange rate and lagged value of gross domestic product were not quite sensitive to the explanatory variables. Meaning economic growth in Nigeria adjusted fairly to change in the explanatory variables.

Olaniyi (2020), studied fiscal discipline, financial development and economic growth in Nigeria, Using the ARDL bounds testing approach for the case of Nigeria in the 1980-2017 period. The study revealed that policy, uncertainty, corruption and fiscal deficits will lead to reduced levels of financial development and economic growth. Stephen et al. (2020) investigates an empirical retrospect of the impact of government expenditures on economic growth: new evidence from the Nigerian economy and applied the pasaran ARDL approach. Using the time series data from 1981-2007. The empirical findings support the existence of a level relationship between public spending indicators and economic growth in Nigeria. Incisively, recurrent expenditure of government was found to be significantly impacting on the economic growth over the period of the study.

Some of the studies found that public expenditure impacted positively on economic growth, some shows that public expenditure impacted negatively on economic growth in Nigeria. Whereas, others shows that public expenditure does not significantly affect economic growth and development in Nigeria. In line with the empirical findings, of Agbonkhese and Asekome (2014) and Ekoja (2008); federal expenditure is aimed at the expansion of public goods and services to attain growth and development when fiscal

discipline is not instilled in such a way that hinders expenditure on the expansion of public goods and services aimed at achieving economic growth and development. Therefore, possible fiscal discipline mechanisms of balanced -budget or deficit reduction should be implemented in order to attain growth and development.

Research Methodology

The research design adopted for this study is causal research design which is quantitative in nature because it investigates the casual relationship between the dependent and independent variable; that is impact of fiscal discipline on Plateau State Government expenditure. The setting of this research work is contrived because the researcher determined the number of years for the purpose of data collection that is, data were collected from 2005 – 2014.

The quantitative analysis to be used in this study is in line with Kreuger and Neuman (2006), describing three or more variable (multivariate). However, the study will concern itself with examining an existing demographic and economic variables on the total real per-capita state government expenditure. The study will rely mainly on historical data (Moses and Kalton, 1980). These raw secondary data will be converted into real per-capita data and analysed using the linear ordinary least square regression technique in line with Bhattacharjee (2012).

In line with empirical studies on government expenditures, this study utilises the ordinary least square regression technique consistent with Bails and Teislau (2000). The model is expressed in the following regression equation.

$$\begin{aligned} (\text{Expenditure})_t = & b_1 + b_2 (\text{income})_t + b_3 (\text{density})_t \\ & + b_4 (\text{government revenue})_t \\ & + b_5 (\text{retirement expenditure})_t \\ & + b_6 (\text{capital outlay})_t \\ & + b_7 (\text{budget discipline})_t \end{aligned}$$

Where: t = time series data from 1 – t

Expenditure = dependent variable of the model and it represents real per- capita expenditure.

The independent variables are the data on the exogenous demographic and economic variables that affect per capita spending levels. These are;

Income = real per capita disposable income

Density = population density of plateau state

Government Revenue = real per-capita inter-governmental revenue

Retirement Expenditure = real per capita expenditure on public employee retirement benefit

Capital Outlay = real per capita capital expenditure.

Above are the demographic and economic variables that are considered to have impact on government expenditure and are consistent with Cournat, Gramheh, and Rubinfeld (1978).

Budget discipline = A proxy or dummy variable for the Existence of budget discipline. The theoretical argument for the inclusion of real per capita disposable income in the model is that there is a positive relationship between demands for publicly provided market basket of services and consumers income levels, Abram and Dougan (1986). Population density may indicate a positive relationship to per capita expenditure. Thus, a dense population increases the marginal benefits of spending if it generates unique public goods problem. Bail and Tieslau (2000). Conversely, a dense population may indicate a negative relationship to real per capita expenditure if the population density leads to economies of scale in the production and provision of government services. Matsusaka (1995). Real per capita internally generated revenue is believed to have a positive influence on expenditure due to the fact that grants from foreign governments create a matching grant process at the federal level (Osman, 1996), Dougan and Kenyon (1984). Real per capita retirement expenditure is argued to have a positive effect on the real per capita government expenditure. Thus, the size of the state government public sector employees may affect the total expenditure decisions, Bails and Tieslau (2000).

Real per-capita capital out lay should have a positive effect on the total level of state government expenditure. The total level of state government expenditure should fluctuate with capital outlays. Generally, overall expenditure may be low if capital projects are not under taken and may be unusually high if capital projects are under taken in a concentrated or clustered manner. Bails and Tieslau (2000).

Budget discipline mechanism includes:

1. Budgetary constraints such as tax and expenditure limits, veto power, balanced budget requirements 2/3 majority voting requirements and
2. Administrative constraints such as length of budget cycle. Bail and Tieslau (2000).

However, since this study is not a study across state governments in Nigeria, the existence of budget discipline mechanism is merely recognised as a proxy variable. Its effect should be seen in the light of the directional effect of the demographic and economic variables on the total real per- capita state government expenditure.

Data Presentation and Sources

The data to be analysed utilises the time series data from 2005 – 2014. The economic variables were converted to real per- capita figures. The fiscal discipline variables were all considered as dummy or proxy variables and are deemed to be in existence at the state government level. Data on state government expenditures, disposable income, population density, intergovernmental revenue, retirement benefit expenditure and capital expenditures were collected from Plateau State Ministry of Finance Approved Budget Books and National Population Office Jos. Table 1 shows the raw secondary data while table 2 shows the real per- capita data.

Table 1: Raw Secondary Data on Demographic and Economic Variables

Years	Disposable income ₦ millions	Populati on in millions	Inter- governmental revenue ₦ millions	Capital expenditure on government Retirement benefit ₦ millions	Capital expenditure ₦ millions	Total expenditure ₦ millions
2005	2,119,733.47	310.60	22,753,336.10	646,665,297.71	2,104,782.30	17,336,228.84
2006	2,381,909.07	320.65	28,681,748.50	693,395,517.14	740,490,759.02	16,054,865.70
2007	2,448,705.52	329.66	30,483,461.84	1,052,679.50	3,323,534.40	15,994,888.31
2008	4,064,587.83	338.86	33,483,969.30	1,261,303.99	8,763,266.31	29,989,342.80
2009	4,401,959.36	348.35	42,093,825.95	2,213,391.22	16,092,468.70	36,687,884.50
2010	4,426,556.60	358.10	50,781,481.40	1,786,878.30	15,787,079.30	41,430,906.61
2011	5,384,536.13	368.13	71,424,751.70	1,274,774.44	17,043,849.23	48,829,992.80
2012	7,129,219.60	378.44	69,830,087.96	1,292,460.50	18,547,670.30	57,037,703.43
2013	8,830,318.79	389.03	96,914,293.80	2,224,159.26	50,191,796.30	102,530,485.09
2014	7,661,510.40	399.93	102,967,348.74	1,158,440.62	34,681,126.96	108,569,104.83

Source: Plateau State Ministry of Finance Approved Budget Books and National Population Office Jos.

Table 2: Real per Capita Data

Years	Per Capita Govt. Expenditure	Per Capita Disposable Income	Population Density	Per Capita Govt Revenue	Per Capita Retirement Benefit	Per Capita Capital Expenditure
2005	0,06	0,0068	310600000	0,0733	2,082	0,01
2006	0,0501	0,0074	320650000	0,087	2,1625	2,3093
2007	0,0485	0,0072	329660000	0,0925	0,0032	0,0101
2008	0,0885	0,012	338860000	0,0988	0,0037	0,0259
2009	0,1053	0,0126	348350000	0,1208	0,0064	0,0462
2010	0,1157	0,0124	358100000	0,1418	0,005	0,0441
2011	0,1326	0,0146	368130000	0,194	0,0035	0,0463
2012	0,1507	0,0188	378440000	0,1845	0,0034	0,049
2013	0,2636	0,0227	389030000	0,2491	0,0057	0,129
2014	0,2715	0,0192	399930000	0,2575	0,0029	0,0867

Source: Field Computation

Data Analysis

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Regression Analysis: B 1 versus B2, B3, B4, B5, B6.

Where: B1 = real per capita state government expenditure

B2 = real per capita disposable income

B3 = population density

B4 = real per capita inter-governmental revenue

B5 = real per capita expenditure on retirement benefit

B6 = real per capita capital expenditure

Table 3: Regression Analysis

Variable	Coefficient	Std. Error	t-statistic	prob.
The Regression equation is $B1 = -0.0673 + 4.5350 - 1.13 + 0.8807 + 0.0132 - 0.0088$				
Constant	-0.067267	0.685285	0.098159	0.9265
B1	4.535035	5.667227	0.800221	0.4684
B2	1.13E - 12	2.30E - 09	0.000493	0.9996
B3	0.880738	0.789528	1.115526	0.3271
B4	0.013191	0.024708	0.533866	0.6217
B5	0.008817	0.018900	0.466525	0.6651
R-Squared	0.944797	Mean dependent variable		0.128230
Adjusted R-Squared	0.875794	S.D dependent variable		0.081202
S. E of regression	0.028618	Akaike info criterion		3.985858
Sum squared resid.	0.003276	Schwarz criterion		3.804307
Log likelihood	25.92929	Hannan-Quinn criterion		4.185019
F. statistic	13.69204	Durbin-Watson Stat.		1.101024
Prob. (F-statistic)	0.012604			

Source: eviews 9

Discussion of Findings

The result of the t-test and p-value on table 3 for the impact of disposable income, inter-governmental revenue and retirement benefit expenditure which stood at: t-test 0.80 and p-value 0.47, t-test 1.12 and p-value 0.33 and t-test 0.53 and p-value 0.62 shows that disposable income, inter-governmental revenue and retirement benefits expenditure have significant positive relationship or impact on the overall state government expenditure. However, the result of the t-test and p-value for population density and capital expenditure which stood at: t-test - 0.00 and p-value 1.0 and t-test - 0.47 and p-value 0.6 shows that population density and capital expenditure have a significant negative relationship or impact on the overall state government expenditure the negative result contradicts the expectation of a positive relationship. This is an interesting result as all the variables were expected to have significant positive relationships to the state expenditure.

However, since the t-test and the p-value of disposable income, inter-governmental revenue and retirement benefit expenditure are 0.80 and 0.47, 1.12 and 0.33 and 0.53 and 0.62 we will accept our Alternative Hypothesis H1 and reject our Null Hypothesis Ho. Also, we will reject our alternative hypothesis H1 and accept our null hypothesis Ho since the t-test and p value of our capital expenditure stood at - 0.47 and 0.67. However, we will accept our alternative hypothesis H1 and reject our null hypothesis Ho since the t-test and the p-value of population density stood at - 0.00 and 1.00.

The results and outcomes showed that:

- i. There is a significant positive relationship between disposable income over total state government expenditure, which means that the expansion of public goods and services to enhance growth and development were considered by the state government in incurring expenditure during the period under study.

- ii. There is a significant negative relationship between population density over total state government expenditure, which means that the state government expenditure is not increased relative to increase in population that is not to say; the budget process originally accommodated the expected increase in population. Economies of scale in the production and provision of state government services is yet to be attained.
- iii. There is a significant positive relationship between inter-governmental revenue over total state government expenditure, which means that matching funds for external grants were properly expended at the State government level.
- iv. There is a significant positive between retirement benefit expenditure over total state government expenditure, which means that, some retirement benefits were paid sufficiently paid to retirees.
- v. There is a significant negative relationship between capital expenditure and total state government expenditure, which indicates that capital expenditure, did not match the developmental stage of the state government. Based on the above findings and outcomes, the following conclusion and recommendations were made.

Conclusion and Recommendations

Base on the findings discussed above, the following conclusions were drawn.

- (i) State government expenditure is not geared towards the expansion of public goods and services that will enhance growth and development.
- (ii) Economic of scale in the production and provision of government services is yet to be attained, and
- (iii) State government expenditure is incurred in order to implement possible fiscal discipline mechanisms of balanced-budget or deficit reduction. Therefore, fiscal discipline should not be implemented in such a way that would inhibit expansion of expenditure on public goods and services aimed at achieving growth development.

Finally, it is recommended that, state government should implement fiscal discipline mechanisms only to the extent that the decision does not constrain expenditure on public goods and services that may result in growth and development, this will help the state government to achieve a balanced budget or deficit reduction in the budget process of the state. The followings are also recommended.

- i. Government have done well with the measure they took to expand public goods and services. However, government are encouraged to ensure strict compliance with fiscal discipline mechanism.
- ii. Government should increase their expenditures relative to increase in population so that economies of scale in the production and provision of government services will be attained.
- iii. Government have done well with regards to the prudent usage of their external grants at the state government level. Government is encouraged to embark on the use of a sound internal control systems in order to ensure continues prudent use of both internally generated revenue and external grants allocated to them.

- iv. Governments have done well in terms of payment of pensions and gratuities. Government should continue in that manner since the welfare of their citizens is one of their primary aim in order to achieve microeconomic stabilisation.
- v. Government should put in place financial discipline mechanism and inspection to ensure that monies allocated for capital projects are expended and accounted for accordingly so that capital projects will be carried out as and when due

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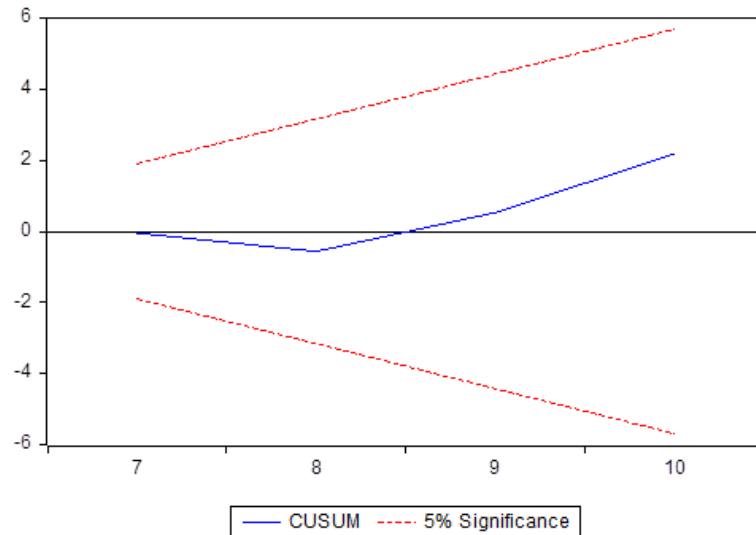
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APPENDIX Stability Test



Source: eviews 9

The diagram above represents the stability test which shows that the result is at 5 level of significance. The result is useful in determining the level of significance of the analysis that is whether it is statistically significant or not statistically significant. The diagram indicated the influence of the explanatory variable to be statistically significant at 5% level of significance.

Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	12.22857	Prob. F(2,2)	0.0756
Obs*R-squared	9.244060	Prob. Chi-Square(2)	0.0098

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.377974	0.309860	-1.219822	0.3469
B1	0.204345	3.340365	0.061174	0.9568
B2	1.36E-09	1.07E-09	1.274171	0.3306
B3	-0.753289	0.356122	-2.115257	0.1687
B4	0.004039	0.009643	0.418899	0.7160
B5	-0.002282	0.007423	-0.307336	0.7876
RESID(-1)	0.671789	0.333806	2.012511	0.1818
RESID(-2)	-1.511517	0.382566	-3.950995	0.0585

R-squared	0.924406	Mean dependent var	2.88E-17
Adjusted R-squared	0.659827	S.D. dependent var	0.019079
S.E. of regression	0.011127	Akaike info criterion	-6.168237
Sum squared resid	0.000248	Schwarz criterion	-5.926169
Log likelihood	38.84118	Hannan-Quinn criter.	-6.433785
F-statistic	3.493876	Durbin-Watson stat	3.118893
Prob(F-statistic)	0.240514		

Source: eviews 9

The table above shows the result of Breusch –Godfrey serial correlation test. The dependent and the independent variables are shown on the table, the coefficient, standard error, t-statistics, and prob. (F-statistics) are also shown on the table. the result was interpreted and findings discussed.

Heteroskedasticity Test

Heteroskedasticity Test: ARCH

F-statistic	0.282639	Prob. F(1,7)	0.6114
Obs*R-squared	0.349290	Prob. Chi-Square(1)	0.5545

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.000307	0.000198	1.552104	0.1646
RESID^2(-1)	0.198064	0.372554	0.531638	0.6114
R-squared	0.038810	Mean dependent var		0.000364
Adjusted R-squared	-0.098503	S.D. dependent var		0.000475
S.E. of regression	0.000498	Akaike info criterion		-12.17956
Sum squared resid	1.73E-06	Schwarz criterion		-12.13573
Log likelihood	56.80803	Hannan-Quinn criter.		-12.27414
F-statistic	0.282639	Durbin-Watson stat		1.943064
Prob(F-statistic)	0.611424			

Source: eviews 9

The table above shows the result of the Heteroskedasticity test carried out. It shows the result of the f-statistics which is the 0.282639, prob. f(1,7) which is 0.6114, obs* R-squared which is 0.349290 and prob. chi-square (1) which is 0.5545. It also shows the dependent and independent variables, coefficient, standard error, t-statistics and prob. (f-statistics). The results were interpreted and finding discussed.

Normality Test

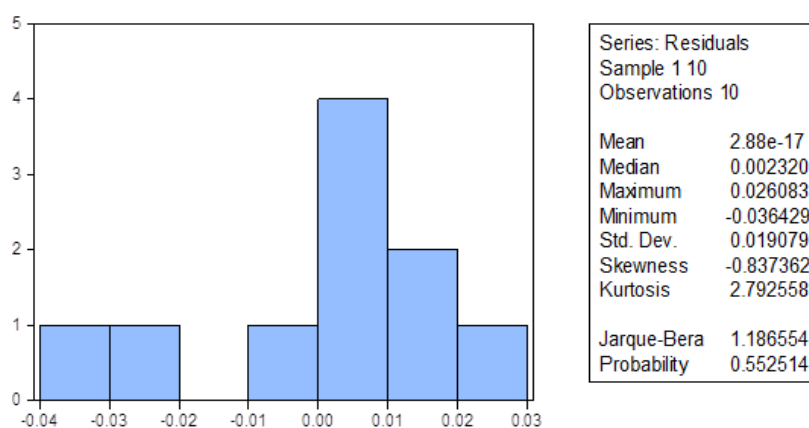


Figure 3: Source: eviews 9

The diagram above shows result of the normality test carried out. The results were represented in bar charts the result also shows 10 observations. Also, the result shows the mean standard at $2.88e-17$, median 0.002320, maximum 0.026083, minimum - 0.036429, standard deviation 0.019079, skewness - 0.837362, kurtosis 0.792558, Jarque-Bera 1.186554 and probability standing at 0.552514.

All the test above were carried out to show the level of significance and relevance of the analysis carried out.

Test of Hypotheses

The following Null hypotheses were tested.

- H01:** There is no significant positive relationship between disposable income over total state government expenditure.
- H02:** There is no significant negative relationship between population density over total state government expenditure.
- H03:** There is no significant positive relationship between intergovernmental revenue and state government expenditure.
- H04:** There is no significant positive relationship between retirement benefit expenditure over total state government expenditures.
- H05:** There is no significant positive relationship between capital outlay over total state government expenditure.

Below are the interpretation of the result in table 3 based on the hypotheses tested:

1. The result of B1 on table 3 shows the coefficient of disposable income standing at 4.54 and the P-value standing at 0.47.
2. The result of B2 on table 3 shows population density standing at a coefficient of - 1.13 and the p-value standing at approximately 1.0
3. The result of B3 on table 3 shows intergovernmental revenue coefficient standing at 0.8 and the p-value standing at 0.33.
4. The result of B4 on table 3 shows the coefficient of retirement benefit standing at 0.01 and the p-value standing at 0.62.
5. The result of B5 on table 3 shows capital outlay standing at -0.01 and the p-value standing at 0.67.

The result of the multivariate linear regression showing also the t-test and p-value results are stated in table 3. In determining the explanatory power and utility of the model, the F-test is used and the result stated in table 3 shows the F-test = 23.17 and p-value = 0.013. Therefore, the model is very useful in determining the linear relationship between state government expenditure and disposable income, population density, intergovernmental revenue, retirement benefit expenditure and capital expenditure. However, this indicated the influence of the explanatory variables to be statistically significant at 5% level of significance.