
Abstract: This study broadly investigated the impact of government expenditure on manufacturing output in West African countries. The data for this study spanning from the period of 1986 to 2020 and the data were sourced from the Central Banks of various countries involved in the study as well the World Bank Development Indicator. The study utilized econometric technique of ARDL Panel Model to explore the relationship between government expenditure and manufacturing production in six selected ECOWAS countries of Benin Republic, Ghana, Nigeria, Mali, Cote d'lvoire and Togo. The results of the long-run estimate showed that virtually all the variables involved in the study have insignificant positive relationship with manufacturing output while only capital expenditure has insignificant negative relationship with manufacturing output. The indication is that capital expenditure has not significantly contributed to the output growth of manufacturing sector in West Africa. Based on the findings, governments of West African countries should endeavour to channel their expenditure on productive sector of the economy as well as maintaining the judicious use of these resources. Government of West African countries should work on institutional quality and also improve their policy measures on interest rate, exchange rate and inflation rate.

Keywords: Government Expenditure, Manufacturing Output, ARDL Panel Model and ECOWAS countries.

INTRODUCTION

Manufacturing sector is basically noted as trajectory of economic growth and development in the global world. Manufacturing sector has potentials of stepping forward the transformation of countries. Good examples are USA, UK, France, Germany, emerging countries like China and other southern Asian countries. Manufacturing has swiftly and structurally transformed the foregoing countries. It also alleviates poverty and drives development there. However, this narrative seems to exclude many African nations despite the abundant and huge natural endowments in Africa including ECOWAS countries. In actual fact, most of the countries in Africa are seriously lagged behind in terms of industrialisation and this has attributed to illiteracy, low education levels, poor health conditions, poor approach to innovations and new technologies, etc. This limited manufacturing output growth has also slowed down the growth performance of West African countries, makes them to miss opportunity of generating quality employment and also aggravate poverty challenges in West Africa. The Government of West Africa has deemed fit to revitalize the missed opportunities and also revive the moribund manufacturing sector in ECOWAS countries. The governments of ECOWAS countries have realised that the way out to address the issue is to improve the fiscal policy through the expansion of government expenditure mainly public investment. Considering the trend of fiscal policy in most of West African countries since year 2000 to 2020, there has been rapid increase in government expenditure majorly on capital expenditure as a way forward to step up the productive sectors of West African economies. Moreover, today, leaders in ECOWAS countries are increasingly realising that manufacturing is the major factor that can help Africa to achieve their goals of successfully meeting up the next stage of economic development. Governments of West Africa have put manufacturing sector on the frontline of Agenda 2030 and also seek new innovative ways of attracting investment and nurture industries, implement strategies that involve targeted investment in infrastructures as well as improving regional integration. However, despite the efforts of the ECOWAS governments in boosting manufacturing sector through fiscal adjustment has not translated into industrial growth and development in ECOWAS countries. Based on this backdrop, this study intends to explore the relationship between government expenditure and manufacturing output in West Africa. The rest of the paper is organized as follows: section two is on literature review. This is followed by the research methods and discussion of results in section three and four respectively. Section five concludes the paper.
2.0 LITERATURE REVIEW
2.1 Conceptual Issues
2.1.1 Concept of Government Expenditure

Government expenditure refers to government spending or public expenditure. It is incurred by federal, state and local government of a country. Most governments follow laissez-faire economic policies and their functions were only restricted to defence and maintaining law and order. The size of public expenditure was very small in 1930’s but now the expenditure of governments all over has significantly increased. In the early 20th century, John Maynard Keynes advocated the role of public expenditure in the determination of level of income and its distribution. Government expenditure can be disaggregated into recurrent and capital expenditure.

(i) Government Recurrent Expenditure

(Regina, Onwumere and Imo, 2012) define recurrent Expenditure are those expenditure incurred on either day to day basis, or weekly, monthly or even yearly basis and they include administration, internal security expenses, wages and salaries of public workers. Guthuri (2020) defines recurrent Expenditure as a type of spending that does not result in acquiring fixed assets in a country or business. They are all the regular payment and the expenses used to maintain and run a country. It also refers to all fees, exclusive of capital forms of payment.

(ii) Government Capital Expenditure

Malaysian Institute of Accountants (2005) defines capital expenditure as an investment to acquire fixed or long live assets from which a stream of benefit is expected. Such expenditure represents an organ of actions and commitment to produce and sell produces and engage in other activities. The common definition of capital expenditure according to Malaysian local government (2003 Act) is that capital expenditure is an expenditure that results in the acquisition or construction of a fixed asset (law, building, vehicle equipment) or enhancement of an existing fixed asset*. Bizled (2006) defines government capital expenditure as government spending on investment infrastructure. This then means spending on things that may include investment in hospitals, schools, equipment and roads. Among other things are gross of existing assets, capital expenditure for long-term assets such as factories, equipment, machinery and building that permit the production of more goods and services in future years.

Davina (2009) defines capital spending as physical assets with a useful life of more than one year. Capital spending is sometimes associated to investment or development spending, where expenditures have benefits extending years into the future. Under this definition, governments may include physical assets for government use (for example, office buildings), public good nature that also enhances private sector development (for example, roads and water systems), and intangibles (for example, education and research).

Farlex (2002) defines capital expenditure as payments made in cash or cash equivalents over a period of more than one year. Capital expenditures are used to acquire assets or improve the useful life of existing assets. Capital expenditures are for long-term assets such as factories, equipment, machinery and buildings that permit the production of more goods and services in future years. Capital expenditure therefore, acts as a catalyst for development, with the benefits accruing over more than fiscal year. It is about building future, incentivizing private sector investment, creating jobs, and achieving long term economic growth and economic stability. The main constituents are interested in infrastructure sectors such as transport, power, telecommunication, ports etc.

2.1.2 Empirical Review

Nekarda and Ramey (2011) investigated the effects of government purchases at the industry level in order to shed light on the transmission mechanism for government spending on the aggregate economy. The study creates a new panel dataset that matches output and labour variables to industry specific shifts in government demand. An increase in government demand raises output and hours, lowers real product wages and labour productivity, and has no effect on the markup. The estimates also imply approximately constant returns to scale. The findings are more consistent with the effects of government spending in the neoclassical model than the New Keynesian model.

Anyeneh, Ezu and Ananwude (2019) examined the long run and short dynamics between government expenditure and industrial development in Nigeria from 1981 to 2016. The Autoregressive Distributive Lag (ARDL) was the technique applied. The study revealed that there is negative relationship between government expenditure and industrial development in Nigeria both in long run and short run despite the continuous rise in government expenditure and various policies of the government towards improving industrial performance in Nigeria.

Ighoroje and Akpokerere (2021) employed multiple regression methods based on Johansson cointegration and Error Correction Modelling to analyse the fiscal policy and industrial sector output in Nigeria within a time period spanning 1987 to 2019. Fiscal policy was disintegrated into government expenditure, tax revenue and budget deficit while industrial output was measured as the GDP contribution from the industrial sector. The results showed that fiscal policy has a long run and short run effect on industrial sector output. The specific results evidenced that government expenditure and budget deficit have significant positive impact on industrial sector output in Nigeria; while tax revenue has positive but insignificant effect on industrial sector
output in Nigeria. Therefore, the study posits that fiscal policy drives the industrial sector of Nigeria.

Oyadonghan and Bingilir (2020) examined the impact of government expenditure on economic growth in Nigeria. The study employed Ordinary Least Squares (OLS) technique to analyse the relationship between government expenditure and economic growth. The results of the analysis showed that both inflation rate and interest rate have no significant effect on gross domestic product in Nigeria.

Falade and Olagbaju (2015) used Johansen cointegration approach and the error correction model to ascertain the relationship between government expenditure and manufacturing sector output in Nigeria. The study disaggregated government expenditure into two components of capital and recurrent government expenditure. The result of the study revealed that government capital expenditure has positive relationship with manufacturing sector output in Nigeria while recurrent expenditure exerts negative effect on manufacturing sector output.

Sydney and Araniyar (2021) examined the effect of government expenditure on the growth of the industrial sector in Nigeria. A regression analysis was applied in the analysis of the data. The study found that government capital expenditure has positive and significant effect on the industrial sector; tax has positive and significant effect on the industrial sector; monetary policy rate has positive and significant effect on the growth of the industrial sector, while real interest rate has a negative and no significant effect on the growth of the industrial sector.

Tawose (2012) also used ordinary least square multiple regression to carry out the analysis on the relationship between public expenditure and industrial sector productivity in Nigeria. The regression results showed that both government expenditure on administration and government expenditure on economic services have negative relationship with industrial productivity. The impact of each independent variable either negative or positive on industrial productivity is insignificant.

Iweriebor, Egharevba and Adebayo (2015) employed cointegration analysis and the error correction model to analyse the effect of public spending on the industrial sector in Nigeria using data covering the period 1980 to 2013. The study exhibited that public spending has no significant effect on industrial production in the short run. Moreover, government spending has a relatively weak effect on industrial production even in the long run. The study also showed that there is a disconnection between public spending and the real sector of the economy.

Enu, Hagan and Attah-Obeng (2013) also used ordinary least squares estimation technique to examine impact of macroeconomic indicators on industrial production in Ghana. The study identified real petroleum prices, real exchange rate, import of goods and services and government spending as the key macroeconomic factors that influence industrial production in Ghana.

Nwanne (2015) examined the effect of government capital expenditure on the manufacturing sector output in Nigeria. The study utilized time series data and multiple regression techniques in the analysis. The result of the co-integration test showed that there is long run relationship between manufacturing and government capital expenditure. It was also revealed that capital expenditure on road infrastructure and telecommunication affects the manufacturing sector output in Nigeria significantly while government capital expenditure on power has insignificant effect on manufacturing sector in Nigeria.

Njoku, Okezie and Idika (2014) examined the relationship between government capital expenditure and the growth of the manufacturing sector in Nigeria. The study employed ordinary least square (OLS) method to explore the relationship between capital expenditure and manufacturing output. The finding of the study revealed that there is a positive relationship between rate of growth of GDP, capital expenditure, money supply, openness of the economy, recurrent expenditure and manufacturing output in the country.

3.0 METHODOLOGICAL FRAMEWORK
3.1 The Theoretical Framework
3.1.1 Musgrave’s Theory of Public Expenditure/Development Model Theory

Musgrave’s (1969) theory of public expenditure: This theory was propounded by Musgrave as he found changes in the income elasticity of demand for public services in the three ranges of per capita income. He posits that a low level of per capita income, demand for public services tends to be low; this is so because according to him, such income is devoted to satisfy primary needs and that when per capita income starts to rise above these levels of low income, the demand for services supplied by the public sector such as health, education, and transport starts to rise, thereby, forcing government to increase expenditure on them. He observes that high levels of per capita income, typical of developed economies, the rate of public sector growth tends to fall as the more basic wants are being satisfied. In tracing the work of Rostow and Musgrave, where they put forward development model as the cause for growth in public expenditure, the theory, therefore, presents public expenditure as a prerequisite for economic development. The theory stressed that as economic growth takes place, the balance of public investment shifts towards human capital and infrastructural development.
3.2 Model Specification

This research work adopted the work of Anyeneh, Ezu and Ananwude (2021), which took its root from Musgrave’ Theory of Public Expenditure/Development Model Theory with modifications. The model specification considers the manufacturing output as dependent variable, while government recurrent expenditure, government capital expenditure, exchange rate, inflation and interest rate as independent variables. The Panel data model is thus specified below:

\[ MOP = f(REX, CEX, EXCH, INF, RIR) \]

Explicitly, it is restated as:

\[ MOP_{it} = \alpha_0 + \alpha_1 REX_{it} + \alpha_2 CEX_{it} + \alpha_3 EXCH_{it} + \alpha_4 INF_{it} + \alpha_5 RIR_{it} + \epsilon_t \]

Where

- \( REX \) = Recurrent Expenditure
- \( CEX \) = Capital Expenditure
- \( EXCH \) = Exchange Rate
- \( INF \) = Inflation Rate
- \( RIR \) = Real Interest Rate

\( i = \) entity or country, \( t = \) time or year

\( \epsilon_t \) = Error terms or stochastic terms

\( \alpha_0 - \alpha_5 \) = coefficients or parameters

3.3 Estimation Techniques

The estimating technique employed in this study is based on Panel data analysis. ARDL Panel data is used to examine the relationship between government expenditure and manufacturing output among selected countries of West Africa.

3.4 Sources of Data

The data used for this study were secondary in nature and were sourced from Central Banks of various countries involved in the study and the World Bank Development Indicator. The study made use of time series data spans from 1986 to 2020.

4.0 RESULTS OF THE ANALYSIS

4.1 Panel unit root test

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF</th>
<th>PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNMOP</td>
<td>2.00389</td>
<td>126.383**</td>
</tr>
<tr>
<td>LNREX</td>
<td>33.0693**</td>
<td>106.667</td>
</tr>
<tr>
<td>LNCEX</td>
<td>4.70169</td>
<td>117.179**</td>
</tr>
<tr>
<td>LNEXCH</td>
<td>26.9118**</td>
<td>117.194</td>
</tr>
<tr>
<td>INF</td>
<td>85.3447**</td>
<td>136.423</td>
</tr>
<tr>
<td>RIR</td>
<td>33.7960**</td>
<td>130.149</td>
</tr>
</tbody>
</table>

Source: Author’s Compilation (2021)

Note: The null hypothesis indicates the presence of unit root with ** significant at 5%.

In the Table 4.1, the panel unit root result both the Augmented Dicey-Fuller (ADF) and Philip-Perron (PP) unit root test showed that the variables in the study are integration of different orders. Recurrent expenditure (REX), exchange rate (EXCR), Inflation rate (INF) and real interest rate (RIR) are of integration of order zero which indicate that these variables retained innovative shock passed on to them for a short while beyond the same period, though after a short while, the M tends to let go. Hence, the variables used in the study are combination of 1(0) and 1(1), the condition to proceed to ARDL Panel model is met.

4.2 Auto-regressive Distributed Lag (ARDL) Panel Model Results for 6 West African Countries

4.2: Long Run

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Prob. Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNEXCH</td>
<td>0.388405</td>
<td>0.8418</td>
</tr>
<tr>
<td>LNCEX</td>
<td>-0.103100</td>
<td>0.8172</td>
</tr>
<tr>
<td>INF</td>
<td>0.688985</td>
<td>0.2330</td>
</tr>
<tr>
<td>RIR</td>
<td>0.051942</td>
<td>0.8039</td>
</tr>
<tr>
<td>LNREX</td>
<td>1.220508</td>
<td>0.1262</td>
</tr>
</tbody>
</table>

Source: Author’s Compilation (2021)
Considering Table 4.2, the long-run estimation results of ARDL Panel Model showed that virtually all the variables such as recurrent expenditure, exchange rate, inflation and interest rate have positive relationship with manufacturing output except capital expenditure that has negative impact on MOP. The surprising result is that none of the variables is significant. The implication of this result is that recurrent expenditure has contributed to the manufacturing output in small measure while capital expenditure has no significant impact on manufacturing output in West Africa. This result is at variance with the theoretical connotation. The reasons for these findings may be attributed to poor institutional framework and inefficiency on the part of government public investment.

4.3: Short Run

In the Table 4.3, the results of short-run estimation of ARDL Panel model is better in the sense that both recurrent and capital expenditure have positive impact on manufacturing output though, both are insignificant. This implies that government expenditure are capable to contributing to output growth but in weaker manner. The control variables such inflation, exchange rate, interest rate have negative impact on manufacturing output but exchange rate is significant in the short run.

### Table 4.3: Short-Run Estimate Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Prob. Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECM(-1)</td>
<td>-0.012202</td>
<td>0.0440**</td>
</tr>
<tr>
<td>D(LNEXCH)</td>
<td>-0.647288</td>
<td>0.0033**</td>
</tr>
<tr>
<td>D(LNCEX)</td>
<td>0.029405</td>
<td>0.7442</td>
</tr>
<tr>
<td>D(INF)</td>
<td>-0.000116</td>
<td>0.9147</td>
</tr>
<tr>
<td>D(RIR)</td>
<td>-0.005792</td>
<td>0.2108</td>
</tr>
<tr>
<td>D(LNREX)</td>
<td>0.192097</td>
<td>0.2497</td>
</tr>
<tr>
<td>C</td>
<td>-0.118493</td>
<td>0.0993*</td>
</tr>
</tbody>
</table>

**Source:** Author’s Compilation (2021)

**Note:** Variables are significant at probability value of ** p<0.05, * p<0.1.

### Conclusion and Policy Recommendations

This study examined the impact of government expenditure on manufacturing output in West Africa. The results of the long-run estimate showed that all the variables involved in the study have insignificant positive relationship with manufacturing output except capital expenditure that is insignificantly negative. The indication is that capital expenditure has no significant impact on the output growth of manufacturing sector in West Africa. Based on the findings, governments of West African countries have to channel their expenditure on productive sector of the economy as well to maintain judicious use of these resources. Governments of West African countries should work on institutional quality and also improve their policy measures on interest rate, exchange rate and inflation rate.

### References