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FISCAL POLICY, PRIVATE INVESTMENT AND MANUFACTURING SECTOR PERFORMANCE: EMPIRICAL EVIDENCE FROM NIGERIA WITH ARDL TECHNIQUE

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ABSTRACT: *One of the greatest challenges of the Sub-Saharan African economies today is how to develop the appropriate model that will propel development in the continent. The manufacturing sector instances in China, Malaysia, Taiwan, Korea and Japan are clear models to adopt for Nigeria. The question now is, what has Nigeria been doing to develop the manufacturing sector? To this end, this study set out to examine the effect of fiscal policy and private investment on the performance of the manufacturing sector in Nigeria from 1981 to 2021. The study is time series in nature and made use of the autoregressive distributed lag (ARDL) modelling technique. It was found that domestic private investment and aggregate government spending exert a significant positive influence on the manufacturing sector performance in the long run, while the influence from tax and government revenue was significantly negative. It was then recommended that government should improve on the factors that attract more FDI inflows into the country; boosts requisite educational training skills and financial market depth to drive the influence of domestic private investment on the manufacturing sector; increase government spending on the manufacturing sector development; and that tax revenues be judiciously utilized in the long-run so that they can positively impact the manufacturing sector.*

KEYWORDS: Fiscal Policy, Private Investment, Manufacturing Sector Performance, Financial Market, Nigeria

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INTRODUCTION

In development literature, manufacturing and industrialisation has been accepted as the major driving force of a modern economy, serving as the channels through which the production of goods and services, income levels and employment generation can be enhanced. In finding the model that best explains the state of manufacturing in Nigeria, pieces of literature have advocated fiscal policy (Uffie & Aghanenu, 2019; Abdulkarim & Saidatulakmal, 2021; Ighoroje & Akpokerere, 2021) and private investment activities (Rehman, Ali, Idrees, Ali & Zulfiqar, 2022; Iortyer & Onuh, 2022; Duramany-Lakkoh, Jalloh & Jalloh, 2021; Chinodzama, 2021; Ebelebe & Amaefule, 2020).

On the part of fiscal policy, Sola, Obamuyi, Adekunjo and Ogunleye (2013) availed that the Nigerian government did adopt the import substitution industrialisation strategy during the First National Development Plan (1962-1968) to reduce imports volumes and encourage foreign exchange savings and local production. From consolidating the import substitution industrialization strategy during the Second National Development Plan period (1970-74), it was discovered that the import-dependent industrial structure was unsustainable due to a lack of oil export earnings that could not cover the huge import bill. Since then, various policy measures were adopted to ameliorate the above situation, like the stabilisation measures of 1982, the restrictive monetary policy and the stringent exchange control measures of 1984, but all proved abortive. This led to the introduction of the Structural Adjustment Programme (SAP) in 1986, whose main thrust was to reduce the high dependence of the economy on crude oil as the major foreign earner, by promoting non-oil exports, particularly manufactured goods (Sola, Obamuyi, Adekunjo & Ogunleye, 2013).

Also, private investment has a strong mirror image of economic production and prides itself as a major component of the national income of industrialized countries (Ali, Li & Kamran, 2015). In the event of significant inadequate domestic savings, foreign direct investment (FDI) becomes important to bridge production gaps. In addition to utilising their assets and resources effectively, foreign investors benefit from acquiring technologies and becoming involved in international production and trade networks (Orji, Anthony-Orji, Nchege & Okafor, 2015). For a developing country like Nigeria, FDI could provide the much-needed capital resources to produce, as well as technology, managerial skills, entrepreneurial ability, brands, and access to markets. Nigeria has for several decades recognized the need for private investment capital, especially foreign capital, managerial and technological skills. It has also recognized that foreign investors would be reluctant to bring in their capital unless they are welcome and assured of a healthy investment climate. To this end, it has adopted a tax incentive strategy, regulation for liberalised foreign investments, the promulgation of the Enterprises Promotions Acts as well as the SAP policy.

Despite these efforts of the government, the performance of the manufacturing sectors is still not clear. Since the SAP reform, the manufacturing value added as a percentage of GDP in Nigeria declined by 16.40%, which is the highest since then. Even after the consolidation from 2004 to 2008, its aggregate decline was by 37.19%. So, the problem of Nigeria's manufacturing sector is not finance alone. In a bid to find the most significant determinants of the manufacturing sector together with finance, works of literature such as Rehman, Ali, Idrees, Ali and Zulfiqar (2022), Iortyer and Onuh (2022), Duramany-Lakkoh, Jalloh and Jalloh (2021), Chinodzama (2021) and Ebelebe and Amaefule (2020) show that private investment positively determines manufacturing sector performance, while Abdulkarim and Saidatulakmal (2021)

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has reported that taxes are deleterious to investment in Nigeria from 1980 to 2017. This was in disagreement with Ighoroje and Akpokerere (2021) who posit that fiscal policy affects the output of the industry sector in the short run as well as in the long run. The above results show that the individual effects of fiscal policy and private investments on the manufacturing sector performance are inclusive, based on the modelling framework. This study contributes to knowledge by applying disaggregated and combined interaction variables of both fiscal policy and private investments.

As can be seen, both fiscal and private investment policy tools in Nigeria are nearly inseparable, almost discussing one as the other. The interaction between fiscal and private investments is also very significant to economic and production activities. For instance, external debt level (as a share of GDP), is a variable that can represent the evolution of external credit in investment financing. A higher external debt level could be an indicator of over-indebtedness, signalling the lack of viability and sustainability of current macroeconomic policies in the long term, and most likely negatively impacting investors' expectations due to the increase in the degree of uncertainty on future policies. However, a country can have a large debt for a good reason, such as a good credit rating, hence signalling a higher level of credit availability.

Again, if financial resources are scarce, public investment may also reduce the possibilities of the private sector to obtain credit to finance investment. Moreover, if the public investment is financed through monetary financing, private investment may be seriously discouraged (Hermes & Lensink, 2001). In these cases, public investment is said to crowd-out private investment opportunities. Same way, increasing and reducing taxes can significantly impact economic activities. These reviews emphasize the interactive strength of fiscal policy and private investments.

Given the aforementioned, this study aims to give a summative evaluation of fiscal policy and private investments' effects on the manufacturing sector performance in Nigeria, and the study range is from 1981 to 2021. Section 2 discusses the functional theoretical and empirical reviews. Section 3 discusses the nature of the data and methods adopted for analysis. The results of the estimates are presented in Section 4 and Section 5 is reserved for the conclusion.

LITERATURE AND THEORETICAL REVIEWS

Pieces of literature have it that fiscal policy can affect the manufacturing sector through three main theoretical frameworks: Classical School of thought, Keynesian school of thought and Neoclassical of thought (Imide, 2019). The classical school of thought holds that fiscal deficit financed by debt, can crowd-out manufacturing sector investment and lower the level of economic growth and development. The Keynesians believe that fiscal policy is a tool used to overcome fluctuations in the economy, while the Neoclassicals proposed that the manner of fiscal deficit financing is capable of influencing the level of consumption, manufacturing sector investment and economic growth in general. The Keynesian theory holds true to some extent and is supported by findings from the study by Ighoroje and Akpokerere (2021) who found that fiscal policy has a long-run and short-run effect on industry sector output. To expatiate, Ubesie, Ananwude, Cyracus and Emmanuel (2020) found capital expenditure, fiscal deficit, and the company's income tax to significantly affect manufacturing sector performance.

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Besides the Classical, Keynesian and Neoclassical models, the institutional investment fitness theory, founded in the works of Wilhems and Witter (1998), has tried to explain the flow of Foreign Direct Investment (FDI) private capital as a function of the recipient country's dynamicity or ability to adapt or fit into the expectations of the potential investors (Chinodzama, 2021). It highlights a country as being supported by three pillars namely: the government; the market, and the sociocultural factors. The theory holds true to some extent and is too open and wide, thus any factor can easily fall into one of the three pillars of the institutional investment fitness theory.

Table 1: Review of Empirical Studies

Authors	Region/Country and Scope	Methodology	Relevant Finding (s)
Rehman, Ali, Idrees, Ali and Zulfiqar (2022)	Pakistan; 1973-2020	ARDL	positive and significant relationship among domestic private investment, exports and value-added, large-scale manufacturing
Iortyer and Onuh (2022)	Nigeria; 1981-2020	VECM	external investment inflow and domestic investment have long run positive impact on the manufacturing sector
Duramany-Lakkoh, Jalloh and Jalloh (2021)	Sierral Leone; 1970-2018	VAR; ECM	exchange rate and FDI availability are the main determinants of manufacturing sector output
Chinodzama (2021)	Zimbabwe;	ARDL	foreign private financing appeals highly to manufacturing firms
Abdulkarim and Saidatulakmal (2021)	Nigeria; 1980-2017	ARDL	components of direct taxes retarded the growth of private investment while indirect taxes stimulated the growth of private investment. Government capital spending had a favourable and statistically relevant impact on private investment while public external debt suggested a deleterious effect of inhibiting private investment
Ighoroje and Akpokerere (2021)	Nigeria; 1987-2019	ECM	fiscal policy has a long run and short run effect on industry sector output
Ebelebe and Amaefule (2020)	Nigeria; 1970-2017	ARDL	responses of output of the manufacturing sector to private domestic investment are positive and significant
Hammed and Arawomo (2020)	Nigeria; 1981-2019	SVAR	manufacturing output is jointly explained by inflation, revenue and oil price
Ubesie, Ananwude, Cyracus	Nigeria; 1986-2017	Ordinary Least Square (OLS)	capital expenditure, fiscal deficit, and the company's income tax significantly affect manufacturing sector performance
Uffie and Aghanenu (2019)	Nigeria; 1981-2016	ARDL; ECM	government expenditure upwardly drove manufacturing output; while company income tax dampened output
Rahman, Bakar and Idrees (2019)	Pakistan; 1972-2017	ARDL	domestic private investment in manufacturing, employment, and market size have significant and positive relationships with manufacturing growth

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Nwite, Nwanne, Onwe, Okereke and Ogiji (2019)	Nigeria; 1980-2017	ARDL	government capital expenditure will increase the agricultural sector growth
Oladipo, Iyoha, Fakile, Asaleye and Eluyela (2019)	Nigeria; 2000Q1 - 2016Q4	ARDL	positive relationship between corporate taxes and the output of the manufacturing sector, while value-added tax reveals a negative relationship with the output
Imide (2019)	Nigeria; 1980-2017	Ordinary Least Squares (OLS)	Government Expenditure and Company Income Tax do not have significant impact on the manufacturing output, while the Federal Government Domestic Debt Outstanding showed a negative and statistically significant impact on the manufacturing sector
Ajudua and Imoisi (2018)	Nigeria; 1981-2016	ECM	government expenditure was significant and positively related to manufacturing sector output in Nigeria while government revenue was not significant
Arikpo, Ogar and Ojong (2017)	Nigeria; 1982-2014	Ordinary Least Squares (OLS)	increases in government revenue reduce manufacturing sector output in Nigeria
Atlam, Soltan, and Mohamed (2017)	Egypt; 1990-2015	VAR; VECM	Negative impact of national private investment on manufacturing sector in short and long run.
Ezejiofor, Adigwe and Echekoba (2015)	Nigeria; 2008-2012	ANOVA	Taxation has a significant effect on the performance of Nigerian manufacturing companies
Karim and Yin (2015)	Malaysia; 1980-2011	Regression	private investment flows had statistically significant influences on the levels of employment and output
Osinowo (2015)	Nigeria; 1970-2013	ARDL	manufacturing sector has a positive relationship with all the determinant variables
Eze and Ogiji (2014)	Nigeria; 1990-2010	ECM	government expenditure significantly affect manufacturing sector output
Edo and Monye-Emina (2005)	Nigeria; 1975-2003	Newton-Raphson Iterative method	impact of foreign investment to the manufacturing sector is generally unimpressive

The Accelerator model of investment that rises in the manufacturing output rate can lead to a corresponding rise in the capital stock required to keep up with production demand (Ebelebe & Amaefule, 2020). If capital stock acquisition can be supported by appropriate fiscal decisions (ie spending, taxes and/or debt), then the capital-output relationship for the manufacturing sector can be adopted. Studies like Ebelebe and Amaefule (2020) that have adopted the accelerator model in the investment and the manufacturing sector have used investment as a partial determinant of the manufacturing sector's performance. Iortyer and Onuh (2022) found that external investment inflow and domestic investment have a long-run positive impact on the manufacturing sector, while Ebelebe and Amaefule's (2020) study supported that private domestic investment has a positive and significant impact on manufacturing output. Relatedly Duramany-Lakkoh, Jalloh and Jalloh (2021) conclude that exchange rate and FDI availability are the main determinants of manufacturing sector output. Chinodzama (2021) in his study availed that foreign private financing appeals highly to manufacturing firms.

In summary, all the empirical studies reviewed independently focused on either the fiscal policy-manufacturing sector or the private investment-manufacturing sector, yet the

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introductory part has seen both fiscal policy and private investment as simultaneous activities. In an attempt to mathematically capture a near-real-life model, this study improves on existing ones by examining the combined influence of fiscal policy and private investment on manufacturing sector performance in Nigeria. None of these studies focuses on the combined effects of fiscal policy and private investment on manufacturing sector value added in Nigeria. This study intends to fill this vacuum.

DATA AND METHODOLOGY

This study adopted a research design that relied on quantitative data to ascertain whether or not fiscal policy and private investment variables have the potential to stimulate manufacturing sector performance in Nigeria. The World Bank database and Central Bank of Nigeria (CBN) statistical bulletin reports served as the source of data ranging from 1981 to 2021. This study adopts the model of Arikpo, Ogar and Ojong (2017) and Ubesie, Ananwude, Cyracus and Emmanuel (2020) for fiscal policy and Ebelebe and Amaefule (2020) for private investment to mathematically state that:

$$MNP = f(FPI, GFKF, GSZ, TXR, INF)$$

The study then adopts the Autoregressive Distributed Lag (ARDL) Bounds testing proposed by Pesaran, Shin and Smith (2001) as used by Ebelebe and Amaefule (2020). Its acceptability has been hailed for being; (i) flexible to the order of integration, but none of the variables should be I (2); (ii) suitable for sample size study.

Besides other fundamental diagnostic tests, the ARDL modelling framework of the relative impact of fiscal policy and private investment on manufacturing sector performance is thus provided with three main specifications:

$$\begin{aligned}\Delta(MNP)_t &= \sigma_{01} + \sum_{k=1}^{p} \beta_{ak}\Delta(MNP)_{t-k} + \sum_{k=0}^{p} \beta_{bk}\Delta(FPI)_{t-k} + \sum_{k=0}^{p} \beta_{ck}\Delta(GFKF)_{t-k} \\ &+ \sum_{k=0}^{p} \beta_{dk}\Delta(GSZ)_{t-k} + \sum_{k=0}^{p} \beta_{ek}\Delta(TXR)_{t-k} + \sum_{k=0}^{p} \beta_{fk}\Delta(INF)_{t-k} + \alpha_1(MNP)_{t-1} \\ &+ \alpha_2(FPI)_{t-1} + \alpha_3(GFKF)_{t-1} + \alpha_4(GSZ)_{t-1} + \alpha_5(TXR)_{t-1} + \alpha_6(INF)_{t-1} \\ &+ \mu_{t1} \dots \dots \dots (3.1)\end{aligned}$$

Where $\beta_{a,\ b,\ c,\ d,\ e,\ f,}$ represent the short-run coefficients, $\alpha_{1,\ 2,\ 3,\ 4,\ 5,\ 6}$ indicate the long-run coefficients, Δ refers to the first difference operator and μ_t is the error term.

The null hypothesis for the ARDL bound test (H_0: $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = \alpha_7 = 0$) implies no cointegration between variables. The alternative hypothesis (H_0: $\alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq \alpha_5 \neq \alpha_6 \neq \alpha_7 \neq 0$) indicates the presence of cointegration.

$$\begin{aligned}MNP_t = \sigma_{02} &+ \alpha_1(MNP)_{t-1} + \alpha_2(FPI)_{t-1} + \alpha_3(GFKF)_{t-1} + \alpha_4(GSZ)_{t-1} + \alpha_5(TXR)_{t-1} \\ &+ \alpha_6(INF)_{t-1} \\ &+ \in_t \dots \dots \dots (3.2)\end{aligned}$$

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$$\Delta(MNP)_t = \sigma_{03} + \sum_{k=1}^{p} \beta_{ak}\Delta(MNP)_{t-k} + \sum_{k=0}^{p} \beta_{bk}\Delta(FPI)_{t-k} + \sum_{k=0}^{p} \beta_{ck}\Delta(GFKF)_{t-k} + \sum_{k=0}^{p} \beta_{dk}\Delta(GSZ)_{t-k} + \sum_{k=0}^{p} \beta_{ek}\Delta(TXR)_{t-k} + \sum_{k=0}^{p} \beta_{fk}\Delta(INF)_{t-k} + \delta ECT_{t-1} + \mu_{t2} \ldots \ldots \ldots (3.3)$$

Where,

Eqns 1 – 3 represents ARDL Bounds Testing model, ARDL long-run model and ARDL short-run models, respectively. The variables MNP is for manufacturing sector performance, FPI is foreign private investment proxied with foreign direct investment; GFKF is for gross fixed capital formation and it is a proxy for domestic private investment; aggregate government expenditure is represented by GSZ; aggregate tax and other government revenue is coded TXR; while the control variable is inflation (INF). $\sigma_{01}, \sigma_{02}, \sigma_{03}$ are model intercepts; μ_{t2}, μ_{t1} and $\in_t$ represents the residual. ECT is the error correction term derived from equation (3.3), and δ represents the speed of adjustment. δ Identifies the speed of adjustment parameter, whose coefficient should normally be negative and statistically significant to provide additional evidence of cointegration.

RESULTS AND DISCUSSION

In analysing the relative impact of fiscal policy and private investment on manufacturing sector performance in Nigeria, this section begins with descriptive analysis which is reported in table 2:

Table 2: Descriptive Statistics

	MNP	FPI	GFKF	GSZ	INF	TXR
Mean	14.31992	1.500125	35.63058	8.442274	18.94905	13.68175
Median	13.93340	1.159070	33.10736	8.176863	12.87658	13.37000
Maximum	21.09825	5.790847	89.38613	17.28638	72.83550	27.64000
Minimum	6.552817	0.195183	14.16873	5.089365	5.388008	5.530000
Std. Dev.	5.036123	1.229597	18.96943	2.521528	16.65935	6.111476
Skewness	-0.028369	1.743687	1.087484	1.513371	1.854175	0.553943
Kurtosis	1.408465	6.173670	3.924531	5.879173	5.306552	2.466331
Jarque-Bera	4.332679	37.98301	9.541464	29.81179	32.58139	2.583362
Probability	0.114596	0.000000	0.008474	0.000000	0.000000	0.274808
Sum	587.1165	61.50513	1460.854	346.1332	776.9108	560.9517
Sum Sq. Dev.	1014.501	60.47639	14393.57	254.3241	11101.36	1494.005
Observations	41	41	41	41	41	41

The data used in the research have been summarised in table 2, using descriptive analysis in the form of mean, standard deviation, minimum and maximum. The number of observations

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(41) represents the years covered by the study. The manufacturing sector's performance as a ratio to GDP was 14.32% on average. Among all the independent variables considered, domestic private investment (GFKF) had the highest average share of GDP, 35.63%. Again, domestic private investment was more volatile than all the variables considered for the study. This is evident with its standard deviation of 18.97 being higher than all the others.

Correlation Analysis

In determining whether or not a linear relationship exists between the variables employed in the model, the study made use of the Pearson correlation coefficient test. The test was also conducted to determine the possible existence of multicollinearity within the variables, which if present, can lead to errors in the coefficient estimates of the multiple regression.

Table 3: Correlation Analysis Test result

	MNP	FPI	GFKF	GSZ	INF	TXR
MNP	1					
FPI	-0.0524	1				
GFKF	0.8382	-0.1347	1			
GSZ	0.3946	0.3990	0.2675	1		
INF	0.4396	0.4530	0.2080	0.2213	1	
TXR	-0.1953	0.3877	-0.2152	0.4790	0.0082	1

Source: ***Authors' computation***

In this regard, none of the independent variables were correlated up to 0.7, which indicates no possibility of multicollinearity. This outcome entails that, reliance on the estimation results of multiple regression will be with the absence of multicollinearity.

To further analyse the relative impact of fiscal policy and private investment on manufacturing sector performance in Nigeria, the study then proceeds with the conventional test for stationarity of the series variable via the Augmented Dickey-Fuller (ADF) unit root test. The result is presented in table 4:

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Table 4: Stationarity Tests

ADF Tests: Levels				ADF Tests First Difference			
Variables	Test Statistic with intercept	p-values	Order of Integration	Variables	Test Statistic with intercept	p-values	Order of Integration
MNP	-1.3063	0.6174		Δ(MNP)	-7.1469	0.0000	*I(1)*
FPI	-3.9535	0.0040	*I(0)*	Δ(FPI)			
GFKF	-3.7761	0.0064	*I(0)*	Δ(GFKF)			
GSZ	-1.9512	0.3064		Δ(GSZ)	-10.1283	0.0000	*I(1)*
INF	-3.0091	0.0426	*I(0)*	Δ(INF)			
TXR	-2.4557	0.1337		Δ(TXR)	-5.8632	0.0000	*I(1)*

Source: ***Authors' computation***

Table 4 presents the result of the Augmented Dickey-Fuller unit root test on both level and first differenced values. The result indicates that the FPI, GFKF and INF were stationary at levels, while MNP, GSZ and TXR were stationary at first difference. This leads to the conclusion that the variables are integrated of mixed order [I(0), I(1)], which satisfies one of the main conditions for using the ARDL Bounds test and model estimation.

After confirming the stationarity of variables for the study, the next step is to conduct a bound F-test for cointegration to establish a long-run relationship among the series model specified for the study. The results of the bound F-test for cointegration together with the asymptotic critical values are reported in table 5 below;

Table 5: ARDL Bounds test

Model Specification	F-statistic	5% Upper Bound Value	Decision
GDPK	3.931341	3.38	Reject H0

Source: ***Authors' computation***

Since the computed F statistic of 3.931341 is higher than the 5% upper bound critical value of 3.38, we reject the null hypothesis and conclude that there is a long-run relationship in the fiscal policy, private investment and manufacturing sector model for Nigeria.

The long run model is given as:

$$MNP = 3.41 - 0.12 * FPI + 0.21 * GFKF + 0.58 * GSZ + 0.12 * INF - 0.25 * TXR$$

From the estimated long-run model shown above, it is evident that aggregate taxes and government revenues, as well as foreign private investment, exert a negative influence on

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manufacturing sector performance in Nigeria, while the effects from aggregate government spendings, inflation and gross fixed capital formation were positive. However, the greater influence on manufacturing sector performance in this model was aggregate government spending, accounting for 0.58 positive changes in manufacturing sector performance in Nigeria.

Owing to the fact that a cointegration relationship between the variables has been detected, Autoregressive Distribution Lag (ARDL) model is established to determine the long-run relationship between fiscal policy and private investment with manufacturing sector performance in Nigeria, the estimates of the ARDL test are presented in the table below.

Table 6: Estimated Long-run Co-efficient using ARDL approach

Variable	Coefficient	t-Statistic	Prob.
FPI	-0.1223	-0.2553	0.8007
GFKF	0.2091	4.8445	0.0001***
GSZ	0.5784	1.8959	0.0701*
INF	0.1249	3.5348	0.0017***
TXR	-0.2546	-2.5167	0.0189**
C	3.4140	1.9849	0.0587
Note: *, ** and *** denotes significance at 10%, 5% and 1%			

Source: ***Authors' computation***

Table 6 presents the results of the estimated long-run coefficient using the ARDL approach, the order of the ARDL is selected based on Akaike Information Criterion (AIC). Based on the result in table 6, the net inflows of FDI were seen to be negative in Nigeria (-0.1223). The result of their insignificant impact is inconsistent with Iortyer and Onuh (2022), Duramany-Lakkoh, Jalloh and Jalloh (2021), and Chinodzama (2021) who established that FDI, external investment inflow and domestic investment have a long-run positive impact on the manufacturing sector. The findings by Atlam, Soltan, and Mohamed (2017) that private investment exerts a negative impact on the manufacturing sector are in consonant with the findings of this study. This finding does not underscore the significance of FDI to the manufacturing sector in Nigeria but restates that the level of net inflows of FDI into the country is negligibly low to propel any influence on the manufacturing sector. This result is an outcome of the problem that FDI suffers. Mainly, this type of investment characterised by more advanced technology could not be relevant to the small-scale domestic manufacturing sector that heavily relies on a labour-intensive style of production.

Secondly, domestic private investment (represented by GFKF) was found to exert a positive and significant impact on the manufacturing sector's performance. The finding agrees with Rehman, Ali, Idrees, Ali and Zulfiqar (2022) who found a positive and significant relationship between domestic private investment and large-scale manufacturing when exports and value-added are considered. To further substantiate, Rahman, Bakar and Idrees (2019) posit that it is the employment and market size that helps domestic private investment in manufacturing to significantly influence manufacturing growth. So, there is a need to boost requisite educational

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training, skills and financial market depth to drive the influence of domestic private investment on manufacturing sector performance in Nigeria.

Finally, fiscal policy decisions (ie aggregate government spending, GSZ and taxes and government revenues, TXR) turned out to be theoretically significant on the performance of the manufacturing sector. This is the fundamental position of Ighoroje and Akpokerere's (2021) fiscal policy has a long-run and short-run effect on industry sector output. For aggregate government spending, the significant positive effect on the manufacturing sector is in agreement with Uffie and Aghanenu (2019), Imide (2019), Eze and Ogiji (2014) who found that government expenditure significantly affects manufacturing sector output, and Ajudua and Imoisi (2018) who concludes that government expenditure was significantly and positively related to manufacturing sector output in Nigeria. But besides just aggregate spending, Abdulkarim and Saidatulakmal (2021), Ubesie, Ananwude, Cyracus and Emmanuel (2020) and Nwite, Nwanne, Onwe, Okereke and Ogiji (2019) advocates that it is the capital aspect of government spending that is more relevant to the manufacturing sector development.

On the negative influence of taxes and government revenues, Uffie and Aghanenu (2019) taxes and government revenues, Oladipo, Iyoha, Fakile, Asaleye and Eluyela (2019) and Ezejiofor, Adigwe and Echekoba (2015) had earlier established this theoretical position. However, it should not be conveniently established for taxes to have a negative influence on the manufacturing sector when the revenue source to the government can be used to increase relevant government spending. As Abdulkarim and Saidatulakmal (2021) and Uffie and Aghanenu (2019) found that taxes retarded and dampen output and growth. In the event that tax revenues are judiciously utilized in the long run, taxes should impact the manufacturing sector positively (Ighoroje & Akpokerere, 2021; Abdulkarim & Saidatulakmal, 2021; Oladipo, Iyoha, Fakile, Asaleye & Eluyela, 2019).

Following the establishment of a long-run relationship between fiscal policy and private investment with manufacturing sector performance, it is now important to estimate the short-run dynamics of the ARDL model. Recall that it was earlier stated that the short-run model estimation is one of the three main estimation methods performed when using the ARDL.

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Table 7: ARDL Short-run and Error Correction Model Estimate

ARDL Error Correction Regression				
Dependent Variable: D(MNP)				
Selected Model: ARDL(3, 0, 2, 1, 2, 0)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MNP(-1))	-0.2180	0.1297	-1.6805	0.1058
D(MNP(-2))	0.3918	0.1424	2.7518	0.0111**
D(GFKF)	0.2014	0.0424	4.7527	0.0001***
D(GFKF(-1))	-0.1420	0.0400	-3.5472	0.0016***
D(GSZ)	0.0610	0.0862	0.7079	0.4858
D(INF)	0.0584	0.0127	4.5998	0.0001***
D(INF(-1))	-0.0765	0.0136	-5.6146	0.0000***
ECT(-1)*	-0.5349	0.0912	-5.8651	0.0000***
R-squared	0.6604			
Adjusted R-squared	0.5811			
Durbin-Watson stat	1.9481			

Note: *, ** and *** denotes significance at 10%, 5% and 1%

Source: ***Authors' computation***

Table 7 also revealed that short-run changes in domestic private investment are significant in explaining the changes in manufacturing sector performance in Nigeria. The ECT took up its proper sign (ie negative) and was statistically significant in the model for the study. There was no case of first-order autocorrelation problem as the Durbin-Watson statistics for the model (ie 1.9481) was below 2.0.

Diagnostic and Model Stability Tests

Diagnostic tests show that residual series are normally distributed, homoskedastic and have no serial correlation. The tests involved are Jacque Berra for normality, ARCH and Berusch-Godfrey for serial correlation.

Table 8: Diagnostic Tests Estimates

	Prob. Chi-Square	Remark
Jarque Bera test for normality	0.5738	Normally Distributed
Breusch-Pagan-Godfrey Test for Heteroskedasticity	0.8022	Homoskedastic Distribution
Breusch-Godfrey Serial Correlation LM Tests	0.7744	No Autocorrelation

Source: ***Authors' computation***

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Since the p-value of the probability values of the Chi-square in all three tests were greater than 0.05, it means that the null hypotheses are accepted. Hence, we conclude that the data series is overall normally distributed, homoskedastic and not serially correlated.

Stability Tests.

Finally, the plot of the stability test results (CUSUM) of the model is given in Figures 1 and 2. The CUSUM plot depicts the cumulative sum of deviation from the mean (on the Y-axis) against and sample period (on the X-axis).

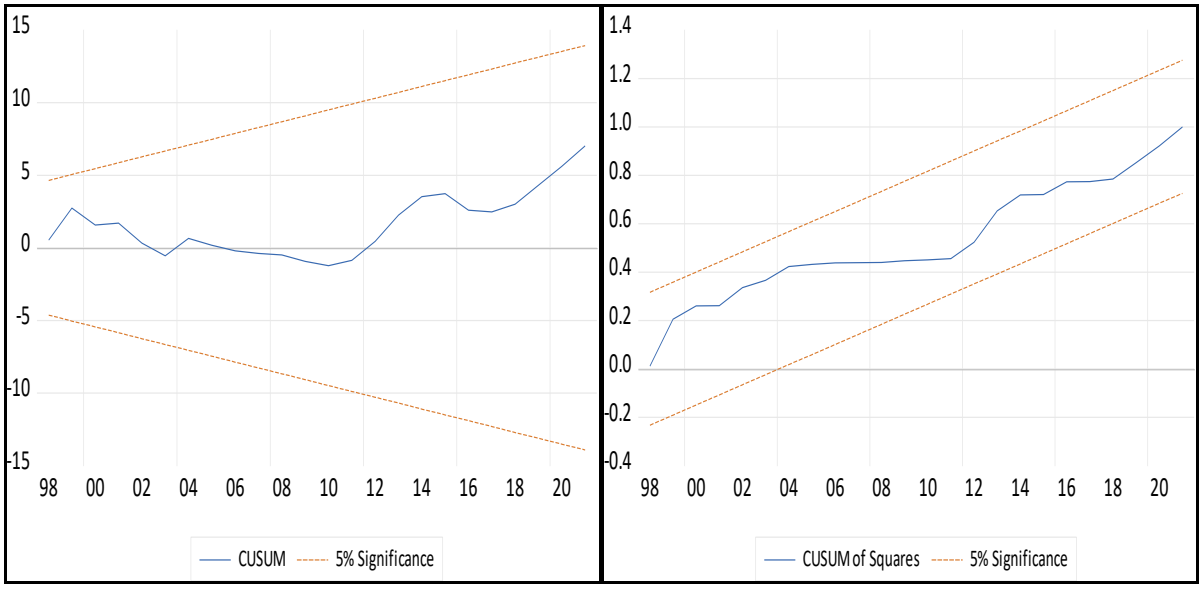

Figure 1: CUSUM and CUSUM SQR Tests

Source: ***Authors' computation***

A stable system should show the cumulative deviation plots lie between the upper and lower limits. An inspection of the CUSUM and CUSUM of squares graphs from the recursive estimation of the model reveals that there is stability, and there is no systematic change detected in the coefficient at the 5% significant level over the sample period.

CONCLUSION AND RECOMMENDATION

One of the greatest challenges of the Sub-Saharan African economies today is how to develop the appropriate model that will propel development in the continent. To this end, several reforms and policy initiatives have been adopted to enhance, not just complementary but more significant private sector activities. Nigeria lay claims to several development plans as well as structural and financial reforms as responsible drives in this direction. However, not much progress can be said to have been made. The manufacturing sector examples in China, Malaysia, Taiwan, Korea and Japan are clear models to adopt for Nigeria. The question now is, what has Nigeria been doing to develop the manufacturing sector? To this end, this study set out to examine the effect of fiscal policy and private investment on the performance of the

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manufacturing sector in Nigeria from 1981 to 2021. The study is time series in nature and made use of the autoregressive distributed lag (ARDL) modelling technique. It was found that domestic private investment and aggregate government spending exert a significant positive influence on the manufacturing sector performance in the long run, while the influence from tax and government revenue was significantly negative. It was then recommended that government work on the factors that attract more FDI inflows into the country; there is a need to boost requisite educational training, skills and financial market depth to drive the influence of domestic private investment on the manufacturing sector; capital aspect of government spending, that is more relevant to the manufacturing sector development, be consciously increased; and that tax revenues be judiciously utilised in the long-run so that they can positively impact the manufacturing sector.

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