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Original Article

Fiscal Policy and Financial Depth in Nigeria: An Application of Threshold Regression Modeling

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Abstract: The study examines Nigeria's non-linear relationship between fiscal policy and financial depth. In essence, the study is concerned with the impacts of fiscal deficit, domestic debt, and government expenditure on financial depth. The study uses four indicators of financial deepening: liquid liabilities, credit to the private sector, deposit money banks' assets and financial system deposits (all indicators are expressed as percent of GDP). In particular, the government is the threshold variable expected to have a threshold effect on Nigeria's financial depth. The study covers 60 years between 1961 and 2020 and employs a threshold regression model to achieve the research objectives. A linear regression model is employed for the robustness test by including the government expenditure square to test the significance of non-linearity. The study's findings establish fiscal policy's significance in driving financial depth. Beyond the threshold of 8.11 percent, government expenditure significantly increases financial deepening. This is consistent across the indicators of financial depth and the overall financial depth. It further shows the important role of fiscal deficit and domestic debt in deepening the financial market as the threshold value exceeds 8.11 percent. However, fiscal may have a negative, though insignificant, effect on financial depth when the threshold of government expenditure is no more than 8.11%. Real per capita is also a key factor in promoting financial depth. Therefore, higher income is important for a financially deeper financial system. Therefore, attaining minimum government expenditure is crucial for accelerating financial development in Nigeria.

Keywords: Fiscal policy; Government expenditure; Financial depth; Threshold regression, Nigeria context

1. Introduction

Financial development is unconnected to economic growth (Hutauruk et al., 2023). Fast growing economies may experience financial development as a result of an increase in access to funds for investment purposes (Achyarsyah et al., 2023; Sinta et al., 2023). Besides, government actions may propel or hamper financial development (Nur et al., 2023; Zalukhu et al., 2023). Financial development can be promoted when the government provides sound regulatory policies and an enabling environment for the financial

market, which benefits the economy (Karina et al., 2023; Prayogo et al., 2023). In an effort to accelerate the development of the financial system, Nigeria introduced the "Financial System Strategy 2020" to become one of the top 20 economies in the globe. The strategy is based on the premise that a strong financial system would make the Nigerian economy among the fastest growing in 2020. In a bid to actualize the vision of FSS 2020, different reform measures were taken. As highlighted by Soludo (2007), the key outcomes include an increase in GDP and income per capita, soundness and stability of the banking sector, price and monetary stability, and promotion of viable external sector, among others (Soludo, 2007).

However, it stresses the need to overcome other challenges for the continued success of the financial system. Some challenges include macroeconomic instability, deepening the banking and financial system, expanding the total credit base relative to GDP, and financing the infrastructure deficit, particularly in roads and power. This spotlight is importance of propelling financial development in the country to strengthen the financial system and reduce the possibility of banking distress. Similarly, FSS 2020 is built on three key strategies, which include i) building a strong domestic financial market, ii) facilitating integration with international financial markets, and iii) attaining sustainable economic growth (Oshikoya & Durosinmi-Etti, 2019). The first strategy for strengthening the domestic financial market is divided into five operational targets: developing internal capacity, developing various financial market products, diversifying the financial market, improving the payment system, facilitating the credit system and instilling a culture of saving. Besides the role of financial factors, FSS 2020 appreciates the non-financial system-related factors in attaining the objectives of FSS 2020. For example, politics, infrastructure and fiscal measures are important in promoting a strong financial system (Soludo, 2007). These factors need to be well planned to promote the financial sector. In order to deepen the financial market for sustainable development, FSS 2020 identified the government's role in fiscal and structural policy as the foundation for long-term stability of the financial system" (Gunu Suleiman & Gunu, 2020).

FSS 2020 views the government's fiscal role as one of the key drivers of Nigeria's financial system. In particular, fiscal measures such as the government's discretionary fiscal action must be well planned to facilitate the development of the domestic financial market. It implies that reckless fiscal policy may adversely affect the country's financial depth. Due to Nigeria's underdeveloped financial sector, FSS 2020 envisages government interventionist policies to facilitate financial development. It proposes that a certain level of government expenditure has to be attained to boost financial development in the country. Despite the significance of the threshold effect of government expenditure on Nigeria's financial development, the subject matter remains largely unexplored. Most of the previous works that concentrate on fiscal policy and financial development without addressing this gap (Alenoghena, 2015; Evans, 2020; Gnimassoun & Do Santos, 2021; Ismihan & Ozkan, 2012; Mun & Ismail, 2015; Nwaogwugwu, 2018; Umaru et al., 2023). Also, Banerjee et al. (2021) reasoned that the financial sector is strongly linked to macroeconomic performance. Therefore, this research aims to establish the threshold effect of government expenditure on financial depth and examine how the threshold affects the direction of fiscal deficit and domestic debt. The study is organized into five sections, including the introduction and section one. Section two surveys are related to the theoretical and empirical literature. Section three explains the research methodology. Section four presents, analyzes and discusses the results of research findings. Section five makes conclusion and provides policy implications of the findings.

2. Literature Review

Fiscal policy plays an important role in advancing or constraining financial development. A strand of theoretical and empirical research has documented the negative implications of fiscal policy on financial development in emerging and developing economies (Alenoghena, 2015; Caballero & Krishnamurthy, 2004; Evans, 2020; Ismihan & Ozkan, 2012; Mun & Ismail, 2015; Nwaogwugwu, 2018; Umaru et al., 2023). Theoretically, Caballero & Krishnamurthy (2004) conceived financial depth as the supply of funds to both private and public sectors. Besides, expansionary fiscal policy harms financial deepening during financial crises in emerging market economies. Similarly, Ismihan & Ozkan (2012) defined financial depth as "…the total supply of funds in the economy". The authors developed a theoretical model to establish a theoretical link between public debt and financial development. In the model, the demand for public borrowing depends on fiscal and monetary factors. They further argued that large public borrowing from the banking sector (i.e. contractionary effect of fiscal expansion) tends to reduce the financial depth in the emerging and developing economies.

On the basis of the empirical study by Evans (2020), he examined the impact of fiscal discipline and fiscal policy (crowding-out effect) on financial development in Nigeria using the ARDL Bound test. The findings revealed that fiscal deficit and policy uncertainty significantly depressed financial development in

the short and long run, respectively. The author found that total debts have a significant positive short-term relationship with financial development; however, the findings established a significant negative long-term relationship between total debts and financial development. A recent study by Umaru et al. (2023) examined the impact of public debt on financial development in Nigeria between 1980 and 2018. Using the ARDL model, the findings established the significant negative of public debt on financial development both in the short and long run. The impact is highly significant in the long and moderately significant in the short run.

Gnimassoun & Do Santos (2021) investigated the structural factors affecting fiscal deficit in 110 emerging and developing economies. The authors established significant positive effects of financial development and public debt on public deficits. A study by Nwaogwugwu (2018) on the effect of fiscal policy on Nigeria's financial development suggested that fiscal deficit and government expenditure constrained financial development in the country. In a related study, Alenoghena (2015) examined the effects of fiscal policy variables on the development of Nigeria's financial market between 1981 and 2014 using the ARDL model. The findings revealed that fiscal deficit and domestic debt significantly negatively affect financial market development. However, government expenditure was not significant in influencing Nigeria's financial market. The author concluded that sound fiscal policy can have significant stabilizing role in Nigerian financial sector. (Mun & Ismail, 2015) analyzed the impact of domestic public borrowing on financial development in the Malaysian economy. The empirical evidence showed that domestic borrowing and inflation have significant negative impact on financial development.

Moreover, Hauner (2009) used cross-country analysis to determine the relationship between public debt and financial development for 1994 and 2007. The findings showed a significant positive role of domestic public debt in enhancing financial development. Similarly, it established the significant importance of financial development in facilitating domestic debt market development. Hauner (2006) found that fiscal deficit via excessive government borrowing from banks negatively affects domestic financial deepening in the long run. In addition, the findings established the significant effects of per capita GDP (positive) and inflation (negative) on financial development. Caballero & Krishnamurthy (2004) documented a negative relationship between financial development and fiscal policy variables (including government expenditure and public deficit as GDP ratios).

Similarly, Ersoy (2012) found the impact of banks' sovereign debt exposures on Turkey's financial development. The findings reveal that high domestic public debts in Turkish banks' portfolios negatively affect financial development. Similarly, the findings of Akitoby & Stratmann (2008) indicate that financial markets react to the composition of spending. The debt-financed current spending increases sovereign risk, while tax-financed current spending lowers spreads. In light of the above discussion, the study develops the following hypotheses:

H1: Fiscal deficit has a significant effect on financial depth
H2: Public debt has a significant effect on financial depth
H3: Government expenditure has a significant effect on financial depth
H3a: Government expenditure has no significant effect on financial depth at the threshold
H3b: Government expenditure significantly affects financial depth beyond the threshold.

3. Materials and Methods

3.1. Data Source and Measurement

The study obtained annual time series data from the Central Bank of Nigeria Statistical Bulletins (various issues). The datasets span between 1961 and 2020. The dependent variable of interest is the financial depth. In constructing financial depth, different proxies include liquid liabilities, credit to the private sector, deposit money banks' assets and financial system deposits. Again, an overall financial depth is constructed by taking the arithmetic average of the four financial deepening measures. The explanatory variables consist of the independent and control variables, respectively. The fiscal policy independent variables include the fiscal deficit, domestic debt and government expenditure. Similarly, real per capita GDP, inflation and trade openness are control variables. The description of the variables is presented in Table 1.

Table 1. Summary of Definition of Operational Variables and Measurement

Variable(s)	Definition	Source(s)
Liquid liabilities	Broad money supply to GDP ratio	Central Bank of Nigeria

Variable(s)	Definition	Source(s)
Credit to the private sector	Total domestic credit provided to the private sector by the financial institutions as a percent of GDP	Central Bank of Nigeria
Deposit money banks' assets	Assets of deposit money banks as percent of GDP	Global Financial Development Database
Financial system deposit	Deposits in money banks and other financial institutions as percent of GDP	Global Financial Development Database
Financial depth	Arithmetic mean of four measures of financial deepening indicators	Authors' own calculation
Fiscal deficit	Fiscal deficit as a percent of GDP	Central Bank of Nigeria
Domestic debt	Domestic debt as a percent of GDP	Central Bank of Nigeria
Government expenditure	Ratio of government expenditure to GDP	Central Bank of Nigeria
Real GDP per capita	Real GDP divided by total population	Central Bank of Nigeria
Inflation	Consumer price index	Central Bank of Nigeria
Trade openness	The sum of exports and imports as percent of GDP	Central Bank of Nigeria

3.2. Econometric Modelling

In examining the effect of fiscal policy on financial depth, the study employs a threshold regression model. Bardhan et al. (2019) applied it to the connection between capital adequacy and non-performing assets in India. The threshold model uses conditional least squares to estimate the parameters, formally presented in Eq. 1 and Eq. 2.

$$y_t = \delta x_t + \theta_1 w_t + \varepsilon_{1t} \quad \text{if} \quad q_t \leq \varphi \tag{1}$$

$$y_t = \delta x_t + \theta_2 w_t + \varepsilon_{2t} \quad \text{if} \quad q_t > \varphi \tag{2}$$

y_t is the dependent variable, δ is a vector region-invariant variable parameter, x_t contains the explanatory variables and lagged values of the dependent variable, θ_1 and θ_2 are vectors of region-specific parameters, w_t consists of the independent (exogenous) variables, ε_{1t} and ε_{2t} are the respective error terms that are independently and idiosyncratic distributed, q_t is the threshold variable, which may be region-specific or region-invariant and splits the sample into two groups, while φ is the threshold value. In estimating the threshold, the model minimizes the least square with T years and two regions and combines the two regions model of Eq. 1 and Eq. 2 into a single equation as written in Eq. 3.

$$y_t = \delta x_t + \theta_1 w_t I(q_t \leq \varphi) + \delta x_t + \theta_2 w_t I(q_t > \varphi) + \varepsilon_t \tag{3}$$

For the values of a set of T_1 in q_t, where the set of $T_1 < T$. We set the trimming value to 20% rather than 10% because the sample size is 60, which is not fairly large. Therefore, the study develops five econometric models to measure the threshold effect of government expenditure on the individual financial deepening indicators and the overall financial depth. Following the work of Iyidogan & Turan (2017), the study models each dependent variable as in Eq. 3. The first model is based on liquid liabilities (LL) as the dependent variable; it is written in Eq. 4.

$$\begin{aligned} ll_t = {} & \delta_1 rpc_t + \delta_2 inf_t + \delta_3 op_t + (\theta_{11} fd_t + \theta_{12} dd_t + \theta_{13} g_t)\, I[q_t \leq \varphi] \\ & + (\theta_{21} fd_t + \theta_{22} dd_t + \theta_{23} g_t)\, I[q_{t_t} > \varphi] + \varepsilon_t \end{aligned} \tag{4}$$

The second indicator of financial depth is credit to the private sector (CPS) and the model is expressed in Eq. 5.

$$\begin{aligned} cps_t = \delta_1 rpc_t + \delta_2 inf_t + \delta_3 op_t + (\theta_{11} fd_t + \theta_{12} dd_t + \theta_{13} g_t)\, I[q_t \leq \varphi] \\ + (\theta_{21} fd_t + \theta_{22} dd_t + \theta_{23} g_t)\, I[q_{t_t} > \varphi] + \varepsilon_t \end{aligned} \quad (5)$$

The third model uses deposit money banks' assets (DBA) as an indicator of financial depth, and the model is expressed in Eq. 6.

$$\begin{aligned} dba_t = \delta_1 rpc_t + \delta_2 inf_t + \delta_3 op_t + (\theta_{11} fd_t + \theta_{12} dd_t + \theta_{13} g_t)\, I[q_t \leq \varphi] \\ + (\theta_{21} fd_t + \theta_{22} dd_t + \theta_{23} g_t)\, I[q_{t_t} > \varphi] + \varepsilon_t \end{aligned} \quad (6)$$

The fourth model is based on financial system deposit (FSD) as a proxy of financial depth. Eq. 7 presents the model.

$$\begin{aligned} fsd_t = \delta_1 rpc_t + \delta_2 inf_t + \delta_3 op_t + (\theta_{11} fd_t + \theta_{12} dd_t + \theta_{13} g_t)\, I[q_t \leq \varphi] \\ + (\theta_{21} fd_t + \theta_{22} dd_t + \theta_{23} g_t)\, I[q_{t_t} > \varphi] + \varepsilon_t \end{aligned} \quad (7)$$

The fifth model uses overall financial depth (OFD) as the dependent variable; the model is expressed in Eq. 8.

$$\begin{aligned} ofd_t = \delta_1 rpc_t + \delta_2 inf_t + \delta_3 op_t + (\theta_{11} fd_t + \theta_{12} dd_t + \theta_{13} g_t)\, I[q_t \leq \varphi] \\ + (\theta_{21} fd_t + \theta_{22} dd_t + \theta_{23} g_t)\, I[q_{t_t} > \varphi] + \varepsilon_t \end{aligned} \quad (8)$$

Where rpc is the real per capita GDP, inf represents inflation op is the trade openness fd stands for fiscal deficit, dd is the domestic debt, and ge represents government Expenditure. Next, we test the hypotheses regarding the significance of region-specific and region-invariant parameters. Fiscal deficit, domestic debt, and government expenditure are the region-specific explanatory variables, while real per capita GDP, inflation, and trade openness are the region-invariant (and control) variables.

$$H_{01}: \theta_{1i} = \theta_{2i} = \theta_{3i} = 0 \quad i = 1, 2, 3 \quad (9)$$

$$H_{02}: \delta_1 = \delta_2 = \delta_3 = 0 \quad (10)$$

As part of the test for robustness, the study applies a linear regression model to test for robustness of the results of overall financial depth. The model includes the government expenditure square as an additional variable to confirm whether non-linearity exists. The model is written in Eq. 11.

$$ofd_t = \beta_0 + \beta_1 fd_t + \beta_2 dd_t + \beta_3 ge_t + \beta_4 ge_t^2 + \beta_5 rpc_t + \beta_6 inf_t + \beta_7 op_t + \varepsilon_t \quad (11)$$

4. Results and Discussion

4.1. Descriptive Statistics

This subsection presents the summary statistics of the variables, pairwise correlations and collinearity test using variance inflation factor (VIF). Table 2 shows the descriptive statistics of the dependent, independent and control variables, respectively.

Table 2. Result of Descriptive Statistics Analysis

Variable(s)	Mean	Minimum	Maximum	Std. Dev
Liquid liabilities	16.22	8.46	30.42	5.29
Credit to private sector	10.37	4.96	22.75	4.90
Deposit money banks' assets	12.16	4.37	26.01	4.90
Financial system deposit	11.08	4.82	20.92	4.78
Financial depth	12.46	6.64	22.54	4.63
Fiscal deficit	-0.36	-0.11	14.4	5.33
Domestic debt	11.51	2.26	23.04	4.80

Government expenditure	10.99	5.09	30.16	6.25
Real per capita GDP	177489.5	47.54	381058.3	137596.6
Inflation	16.22	0.29	72.81	15.92
Openness	31.98	7.52	55.02	10.41

Table 2 captures that the mean values of the financial deepening indicators are 10% to 16%, with credit to the private sector having the lowest mean of 10.37%. In comparison, liquid liabilities have the highest average value of 16.22%. The average fiscal deficit is 0.36%, with a minimum deficit of 0.11% and a maximum fiscal surplus of 14.4%; however, there is large variability in fiscal deficit as shown by a very high standard deviation of 5.33. Domestic debt and government expenditure are about 11% of GDP each, with a minimum of 2.26% and 5.09% respectively, and a maximum of 23.04% and 30.16% respectively.

Table 3. Result of Pairwise Correlations and Multicollinearity Testing

Variable	LL	CPS	DBA	FSD	OFD	FD
LL	1.000					
CPS	0.79**	1.000				
DBA	0.67**	0.86**	1.000			
FSD	0.80**	0.93**	0.92**	1.000		
OFD	0.88**	0.96**	0.92**	0.97**	1.000	
FD	-0.09	-0.25	-0.28**	-0.36**	-0.26**	1.000
DD	-0.05	-0.17	-0.14	-0.11	-0.12	-0.47**
GE	0.34**	-0.14	-0.09	0.02	0.04	-0.19
RPC	0.05	0.57**	0.56**	0.55**	0.46**	-0.49**
INF	-0.25**	-0.15	-0.18	-0.10	-0.19	-0.31**
OP	0.18	-0.02	0.07	0.09	0.09	0.12

Note: ***, **, * is significant at 1,5 and 10 percent, standard errors in parenthesis

Table 4. Result of Pairwise Correlations and Multicollinearity Testing (Cont'd)

Variable	DD	GE	RPC	INF	OP	VIF
LL						
CPS						
DBA						
FSD						
OFD						
FD						4.46
DD	1.000					1.71
GE	0.31**	1.000				4.87
RPC	-0.09	-0.6**	1.000			5.44
INF	0.32**	0.02	0.13	1.000		1.18
OP	-0.09	0.47**	-0.27**	0.00	1.000	1.59

Note: ***, **, * is significant at 1,5 and 10 percent, standard errors in parenthesis

Table 3 captures the government expenditure (GE) is significantly having positive correlation with LL only. Real per capita income (RPC) is positively associated with CPS, DBA, FSD and OFD at 5% significance level but it is not correlated with LL. Fiscal deficit (FD) is negatively correlated with DBA, FSD and OFD at 5% level of significant. Inflation (INF) has only significant negative association with LL but it has no significant correlation with other measures of financial depth. In contrast, domestic debt (DD) and trade openness (OP) have no significant correlation with all measures of financial depth. In addition, the results of variance inflation factor (VIF) show no multicollinearity among the explanatory variables. Each of the explanatory variables has VIF below 10 which is within the acceptable limit.

4.2. Regression Analysis

The study uses four indicators of financial depth, including liquid liabilities (LL), domestic credit to private sector (CPS), deposit money banks' assets (DBA) and financial system deposits (FSD) (see Table 1 for variable measurement). Table 4 presents the results of threshold regression models for the four dependent and explanatory variables.

Table 5. Threshold regression results fiscal policy and financial deepening indicators

Threshold value	**LL**		**CPS**	
	≤ 6.67	**> 6.67**	**≤ 8.11**	**> 8.11**
Constant	44.05***	11.65***	20.20***	-7.54
	(14.29)	(4.45)	(6.93)	(5.56)
Fiscal deficit	-1.51***	-0.03	-0.41*	0.26
	(0.38)	(0.18)	(0.24)	(0.20)
Domestic debt	-1.59***	-0.07	-0.59**	0.22
	(0.55)	(0.12)	(0.26)	(0.15)
Govt. expenditure	-1.26	0.42***	-1.46*	0.41**
	(2.04)	(0.15)	(0.85)	(0.17)
Real PCGDP	-0.20		0.68**	
	(0.29)		(0.31)	
Inflation	-0.04		-0.04	
	(0.03)		(0.03)	
Openness	0.05		0.05	
	(0.06)		(0.06)	

Note: ***, **, * is significant at 1,5 and 10 percent, standard errors in parenthesis

Table 6. Threshold regression results fiscal policy and financial deepening indicators (Cont'd)

Threshold value	**DBA**		**FSD**	
	≤ 8.11	**> 8.11**	**≤ 8.11**	**> 8.11**
Constant	5.90	-12.19**	11.67**	-13.81***
	(6.53)	(5.24)	(5.74)	(4.61)
Fiscal deficit	-0.23	0.48**	-0.27	0.37**
	(0.22)	(0.19)	(0.20)	(0.17)
Domestic debt	-0.54**	0.27*	-0.61***	0.23*
	(0.25)	(0.14)	(0.22)	(0.13)
Govt. expenditure	0.05	0.58***	-0.84	0.67***
	(0.81)	(0.16)	(0.71)	(0.14)
Real PCGDP	1.17***		1.09***	
	(0.30)		(0.26)	
Inflation	-0.07**		-0.04	
	(0.03)		(0.03)	
Openness	0.05		0.05	
	(0.05)		(0.05)	

Note: ***, **, * is significant at 1,5 and 10 percent, standard errors in parenthesis

Table 4 indicates the findings show the optimal thresholds for the four proxies of financial depth. The government expenditure threshold for liquid liabilities (LL) is 6.67%, while credit to private sector (CPS), deposit money banks' assets (DBA) and financial sector deposits (FSD) have 8.11% as optimal thresholds. The findings further reveal that both fiscal deficit and domestic debt have a significant negative effect on LL at the threshold. However, they become insignificant as the threshold exceeds 6.67%. Government spending significantly increases LL beyond the threshold level by 0.42%. For the credit to private sector (CPS), fiscal deficit reduces it by 0.41% at threshold level 8.11%. Similarly, domestic debt exerts significant negative effect on CPS by nearly 0.6% at threshold. In the same vein, governments spending significantly reduce the

CPS by 1.46%. However, beyond 8.11% government expenditure results in significant increase in CPS by 0.46%. Real GDP per capita shows significant positive influence on CPS in Nigeria.

Both deposit money banks asset (DBA) and financial sector deposit (FSD) have 8.11% threshold value. The results of two indices are qualitatively similar as well. Fiscal deficit significantly drives up financial depth beyond the threshold. But domestic debt has significant decreasing effects on DBA and FSD at the threshold; however, it positively propels financial depth (DBA and FSD) above the threshold value. Beyond threshold value, increase in government expenditure significantly explains DBA and FSD by 0.58% and 0.67% respectively. For the control variables, real per capita shows significant positive influence on DBA and FSD by 1.17% and 1.09% respectively while inflation drives it down DBA by 0.07%.

4.3. Robustness Test

To test for robustness of the results, we use overall financial depth (OFD) which is the arithmetic mean of the four proxies of financial deepening as a direct function of fiscal measures. In addition, we include government expenditure square to test for non-linearity effect as shown in Table 5 column 2.

Table 7. Result of Regression fiscal policy and Financial Depth (N=60)

Threshold value	**Overall Financial Depth (OFD)**		
	Linear Regression Model	**Threshold Regression Model**	
		≤ 8.11	**> 8.11**
Constant	17.29*** (5.39)	17.75*** (6.14)	-8.52* (4.92)
Fiscal deficit	-0.15 (0.18)	-0.33 (0.21)	0.34* (0.18)
Domestic debt	0.15 (0.15)	-0.55** (0.23)	0.25* (0.13)
Government expenditure	-1.80*** (0.43)	-1.08 (0.76)	0.58*** (0.15)
Government expenditure2	0.05*** (0.01)		
Real per capita GDP	0.28 (0.30)	0.77*** (0.28)	
Inflation	-0.11*** (0.03)	-0.05 (0.03)	
Openness	0.11* (0.06)	0.05 (0.05)	
R-Square	0.3956		

Note: ***, **, * is significant at 1,5 and 10 percent, standard errors in parenthesis, Robust standard errors for linear regression model.

Table 5 indicates the column 2 presents the results of linear model. The results reveal that government expenditure has significant positive non-linear effect (β_4=0.05%) on overall financial depth (OFD). However, the coefficient is not numerically large, implying that the effect is numerically marginal. Government spending is found to be significantly crowding out the financial depth, a percentage point rise in government expenditure tends to decrease OFD by 1.8%. We notice a change of sign for the square of the government expenditure; the effect changes and positively affects OFD. This reveals evidence of non-linearity in the study of the relationship between fiscal policy and financial deepening in Nigerian context. Further, trade openness has a positive and significant impact on OFD, while inflation shows decreasing effect on OFD. On the contrary, real GDP per capita as an increasing function of financial depth is not statistically significant. In Table 5, column 3, the threshold value for OFD is 8.11%, similar to the thresholds for CPS, DBA and FSD. Real GDP significantly propels OFD at the threshold level, while domestic debt exhibits a significant dampening effect. Again, government expenditure and fiscal deficit show an insignificant negative relationship with OFD, thus confirming the earlier results in Table 4. Beyond 8.11% threshold value, fiscal deficit, domestic debt, government expenditure and real GDP significantly positively affect OFD. These results are qualitatively similar to those in Table 4 for CPS, DBA and FSD. However, they contrast with the results of LL where only government expenditure has a significant positive effect on financial depth above the threshold value of 6.67%. At the same time, fiscal deficit, domestic debt, real GDP and other controls appear insignificant.

4.4. Discussion

Beyond threshold values, government expenditure has a consistent significant positive effect on financial depth across various proxies. As government expenditure exceeds 8.11%, financial deepening will

be increased. However, at a lower ratio of government expenditure, financial deepening is not significantly promoted. Besides, other fiscal policy fundamentals (deficit and debt) facilitate financial deepening as government expenditure exceeds 8.11%. Nonetheless, fiscal policy may be detrimental to financial depth when government expenditure is low, i.e. (at ≤ 8.11%). The implication is that fiscal policy promotes financial development at a higher threshold value of government expenditure. The findings of the insignificant effect of government spending on financial development align with the work of Alenoghena (2015). In contrast, Caballero & Krishnamurthy (2004) and Mun & Ismail (2015) found that government spending significantly decreases financial depth. Previous studies show that fiscal deficit is negatively related to financial development (Alenoghena, 2015; Caballero & Krishnamurthy, 2004; Evans, 2020), while Gnimassoun & Do Santos (2021) found a positive effect. It has been confirmed that domestic debt drives down financial depth (Alenoghena, 2015; Ersoy, 2012; Hauner, 2006; Ismihan & Ozkan, 2012; Mun & Ismail, 2015; Umaru et al., 2023). However, Kutivadze (2011) found the contrary, as the author indicates that debt positively influences financial development.

5. Conclusions

In this study, we have shown the fiscal policy's interaction effect on the various financial depth proxies in Nigeria by estimating the threshold regression. In particular, we found that government expenditure can enhance financial development beyond the 8.11 percent threshold value. At this point, fiscal policy facilitates financial development. Real GDP is important for sound financial development as well. In essence, the research confirms the strong link between finance and fiscal policy, particularly in adopting optimal government expenditure. It highlights the importance of government rational policy decisions in ensuring a sound and stable financial system that provides a level playing field for nurturing and promoting financial development. The research has many policy implications for the Nigerian economy. First, it pointed to the need for policy alignment between the financial sector and fiscal policy. Fiscal policy has enormous repercussions for the financial system in such a way that poor fiscal may depress the performance of the financial system. Second, Nigeria's financial development policy requires government intervention. It is because market players in the financial system are driven by self-motives, i.e., pursuing firms' goals. In this scenario, other stakeholders, particularly the consumers, may be excluded from the system without government intervention.

Consequently, fiscal policy through optimal government expenditure is beneficial in bringing the excluded population into the financial system. It will promote financial depth and development in the country. Third, excessive fiscal policy is inimical to Nigeria's financial development. As the government borrows excessively from the domestic financial market, it constrains financial development. It occurs by channeling loanable funds to the public sector, thus crowding out the private sector. The implication is the rise in interest rates, discouraging private investments and stifling financial development. In order to bolster financial depth in Nigeria, the government must carefully finance its deficits optimally without being profligate in spending. Fourth, a large share of government spending should be devoted to financing productive activities such as health, education, and infrastructure because these sectors have substantial positive externalities on the economy. Regarding financial development, productive public spending will promote financial inclusion and deepen financial development.

In addition, productive government expenditure should be high enough to drive financial development. Specifically, optimal government expenditure coupled with low fiscal deficit is expected to boost the spill-over effects of human capital and infrastructure on the economy, thereby propelling financial deepening indicators. Fifth, no meaningful financial development can be achieved without robust macroeconomic fundamentals, particularly a high growth rate. A robust financial system requires a stronger and vibrant economy. However, the connection between growth and financial development must be supported with sound governance and stronger institutions in the Nigerian case. Nigeria may achieve her FSS 2020 and surpass her set targets in this respect.

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