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THE NEXUS
OF FISCAL POLICY AND FINANCIAL INCLUSION
NIGERIA

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Executive Summary

This paper explores the relationship between financial inclusion and fiscal policy in Nigeria.

This research is a response to the recent drive towards financial inclusion in Nigeria and the imperatives of revenue generation enhancements and fiscal spending optimization that are important to improving fiscal policy in Nigeria. The impetus for this exploration comes from the potential of financial inclusion to maximise fiscal revenue collection and spending efficiencies, since these segments of policy function through payment systems overseen by the financial sector. It also comes from the potential for financial inclusion to contribute to growth of output and incomes as well as the formalization of informal economic activities, both of which widen tax revenue generation prospects.

Using time series data of quarterly frequency sourced from the World Bank (WB), the Central Bank of Nigerian Statistical Bulletin (CBN), the National Bureau of Statistics (NBS) and EFInA, this report establishes the relationship between financial inclusion and various measures of fiscal policy, calibrated to incorporate the three elements of policy – revenue, spending and budget financing – with the aid of VAR modelling technique. The results obtained show the existence of a bi-directional or feedback relationship between fiscal policy and financial inclusion. This feedback relationship suggests that (i) fiscal policy - the share of government revenues and expenditure in economic activity drives financial inclusion; however, the impact is stronger on formal financial inclusion (ii) financial inclusion, especially formal financial inclusion, plays a pivotal role in shrinking the shadow economy and plugging government leakages.

Based on these findings, we recommend the following:

(i) Policymakers should intensify the drive towards bolstering financial inclusion as a means to strengthen non-oil revenue generation.

(ii) Exorbitant taxes on financial transactions should be discouraged whilst conditions that engender competitive pricing of financial services should be encouraged. This would keep from elevating the costs of financial services in ways that inhibit meaningful financial inclusion.

(iii) Payment platforms should be more readily available and payments should be digitized across the public and private sectors.

(iv) Government should curtail borrowing from DMBs in order to free up space for private investment and reduce private investment crowd-out.

(v) Government spending on transfers from enhanced revenues, should be more accommodating of the unbanked and the informally served.

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SECTION 2
Introduction

In almost all emerging economies, the drive towards greater financial inclusion has been reinforced by the perceived link between increased financial inclusion and direct reduction in poverty, increase in income, reduction in income inequality, improvement in social welfare and reduction in social tension. The benefit of greater financial inclusion to the unbanked and under-banked poor, who are known to reside primarily in rural areas, can range from increased income to improvements in social welfare conditions.

The benefits of financial inclusion also redound on the public sector. Financial inclusion has the potential to drive formalization by bringing informal economic activity within the purview of government, expanding the tax base, and in the process, boosting public sector revenue. As a technical consideration, a by-product of the deployment of financial inclusion infrastructure could be the enhancement of the process of tax revenue enumeration and collection. Beyond this, the potential for financial inclusion to lead to the expansion of economic activity which ultimately broadens the tax base, with positive knock-on effects for public sector revenue.

Globally, financial inclusion – defined as greater access to and use of financial services in a jurisdiction – has become prominent as a developmental aspiration due to its perceived importance in promoting inclusive and sustainable growth. At the outset of the financial inclusion drive, financial inclusion meant the delivery of financial services to low-income populations at an affordable cost (Mohieldin, Iqbal, Rostom, and Fu, 2011). However, the concept of financial inclusion has been widened to include the access and full utilisation of quality financial services at affordable prices, in a convenient manner and delivered by a range of providers in a stable and competitive market (Financial Inclusion 2020 Progress Report, 2015).

There are two (2) primary tools at the disposal of policymakers when seeking to influence the economy — monetary policy and fiscal policy. Fiscal policy refers to the deliberate use of the instruments of government spending and revenue to achieve economic growth and stability, by modulating production and demand in an economy. In the use of fiscal policy, the government controls the economy by modifying the level and types of taxes, the extent and composition of spending, and the

degree and form of borrowing. This way government, directly and indirectly, influences the way resources are used in the economy. Government spending is one of the components of aggregate demand inherent in the fundamental equation of national income accounting, the familiar Keynesian Identity.

Our foregoing discussion on the potential benefits of improvements in financial inclusion on public finances could be extended into a wider conversation on the relationship between financial inclusion and fiscal policy. One possible way of doing this is to anticipate the effects of fiscal policy on financial inclusion.

A priori, it is possible to envisage a positive, albeit indirect, effect of expansionary fiscal policy on financial inclusion. This would be predicated on expansionary fiscal policy – through tax cuts or increased government spending – raising economic growth, thus household incomes, and in the process raise the demand for financial services. A proviso could be that the income gains from growth are well-distributed, since it may be assumed that financially excluded populations correlate with low-income populations.

In Nigeria, available data from the financial sector development agency, Enhancing Financial Innovation and Access (EFInA), points to improvements in financial inclusion between 2008 (when the earliest survey results were published) and 2014, before a decline was recorded by 2016, the period for which we have the latest available data. This throws open the possibility that regression in financial inclusion conditions may not be unconnected to the economic headwinds the Nigerian economy plunged into between 2015 and 2016, including economic contraction and a general deterioration in fiscal conditions, characterised by diminished revenues and spending.

Empirical evidence on the relationship between fiscal policy and financial inclusion is sparse. However, Gupta, Keen, Shah, and Verdier (2018) suggests that financial digitization is transforming the way budgetary systems are designed and implemented. UNCTAD (2012) suggests that financial inclusion can be instrumental in efficient delivery of social security benefits and that, worldwide, government fiscal policy is linked to financial inclusion conditions. Viable financial systems which encourage financial inclusion play a pivotal role in tax revenue collection (Ajide and Bankefa; 2017). Similarly, government spending policies aimed at driving economic growth could have a direct impact on financial inclusion.

This report explores the relationship between fiscal policy and financial inclusion conditions in Nigeria. Specific questions raised in the report include; does fiscal policy significantly enhance financial inclusion? Or is financial inclusion the current driver of increased government spending?

Following the introduction, Section 2 gives a brief background of fiscal policy in Nigeria. Section 3 discusses the theoretical relationship and empirical evidence while section 4 is the conceptual and modelling framework. Section 5 discusses the results and recommendations while section 6 concludes the paper.

> The **benefits of financial inclusion** also redound on the public sector. Financial inclusion has the **potential to drive formalization** by bringing informal economic activity within the purview of government, expanding the tax base, and in the process, boosting public sector revenue

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SECTION 2
Fiscal Policy in Nigeria

Fiscal policy refers to government's deliberate actions of spending money and generating revenue with the intention of directly influencing economic activities. Fiscal policy gained theoretical prominence in the years following the Great Depression as macroeconomic thinking expanded to include the possibility of governments stepping in to moderate economic cycles and shocks. Governments in major economies stepped in to prop up financial systems, restore and sustain economic growth and alleviate the impact of economic crisis on vulnerable groups, offering a historical lesson on the usefulness of government intervention in modulating the cycles of boom and bust inherent in market-driven economies. The essential tools of fiscal policy include public revenue (tax and non-tax), public expenditure (recurrent and capital) and direct government financing.

Nigeria's fiscal landscape is characterised by a range of peculiarities. It excludes Ministries, Departments and Agencies (MDAs) while it restricts subnational governments to domestic financing. Until recently, revenue generation and expenditure were mostly dependent on the monetization of the economy's principal source of revenue (crude oil) which accounted for over 75 percent of gross federally generated income in 2014 (See Figures 1a and 1b).

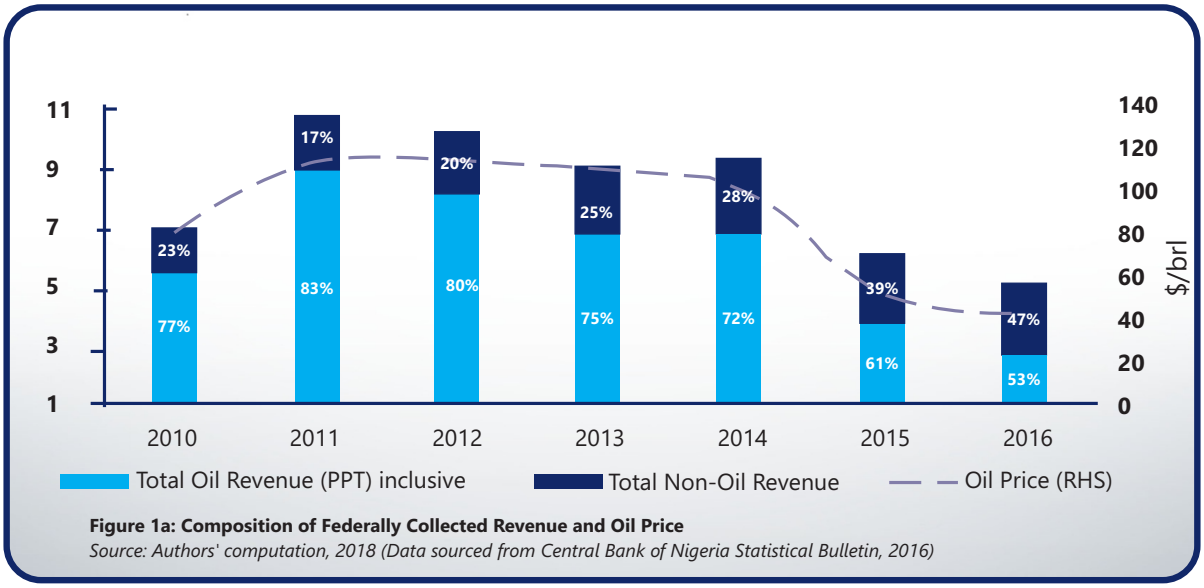

Figure 1a: Composition of Federally Collected Revenue and Oil Price
Source: Authors' computation, 2018 (Data sourced from Central Bank of Nigeria Statistical Bulletin, 2016)

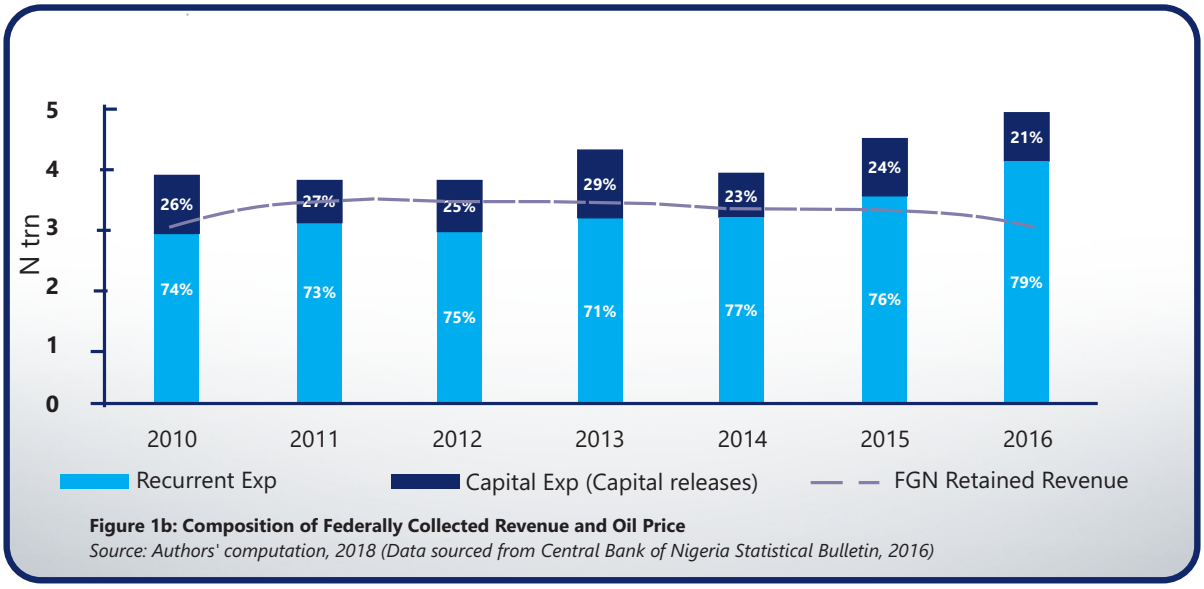

Figure 1b: Composition of Federally Collected Revenue and Oil Price
Source: Authors' computation, 2018 (Data sourced from Central Bank of Nigeria Statistical Bulletin, 2016)

Figure 1a shows the composition of federally collected revenue and movement in international oil price from 2010 to 2016 while Figure 1b shows the structure of federal government expenditure during the same period. Evidence from the trend line indicates that despite a steep decline in the price of crude oil and the Federal Government's efforts towards a more diversified revenue base, revenue from oil sales still constitutes over 53 percent of government revenue in 2016 compared to 77 percent and 83 percent in 2010 and 2011 respectively. It is conceivable that a return to familiar levels of structural dominance of oil over non-oil revenue may accompany a resurgence of oil prices.

Consistent fiscal deficits are a regular feature of Nigeria's public-sector finances. In 2016, the federal government spent 5.32 trillion Naira against retained revenue[1] of 2.97 trillion, leading to a deficit of 2.35 trillion Naira (slightly over 2 percent of Nigeria's 2016 GDP). A larger deficit was averted only on account of spending adjustments made in light of sharply diminished revenues. Consistent deficits are also a regular feature of the finances of subnational governments in Nigeria as well.

Spending is also characterized by the dominance of recurrent expenditure (the combination of public sector wage bills, overhead costs and, increasingly, the servicing of debt) over capital expenditure. The applicable ratio for fiscal year 2016 was 79% to 21% respectively.

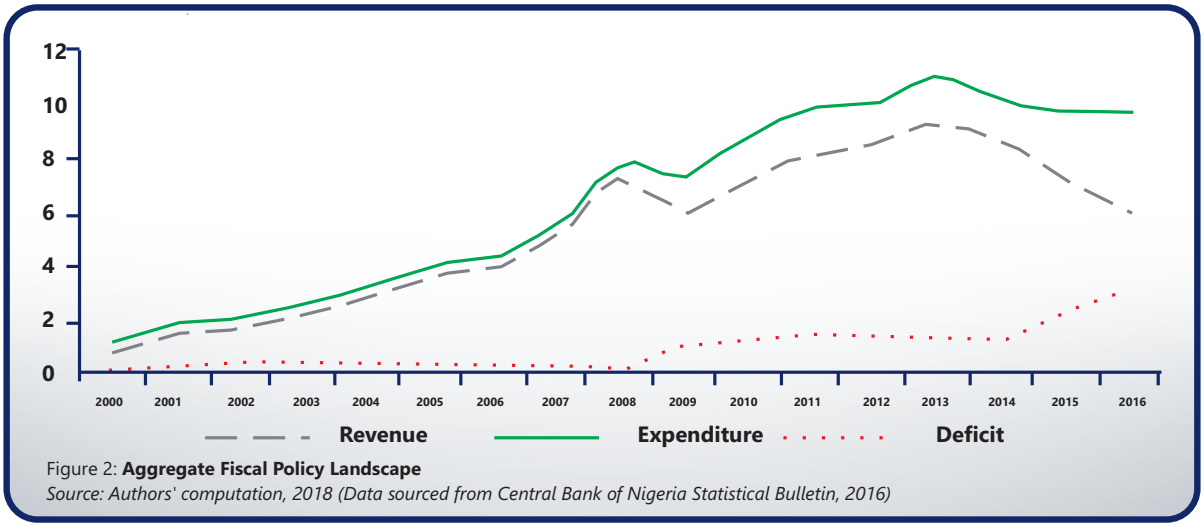

Figure 2: **Aggregate Fiscal Policy Landscape**
Source: Authors' computation, 2018 (Data sourced from Central Bank of Nigeria Statistical Bulletin, 2016)

Figure 2 shows trends in government revenue, expenditure and fiscal deficit over the periods 2000 - 2016. On the aggregate, the trend shows rising budget deficit driven by sustained increases in government expenditure, accompanied by the recent decline in revenue associated with the oil price slump. Over the last decade, the domestic environment constitutes 40 percent of financing of which deposit money Bank (DMB's) contributes 78 percent of domestic finance.

The need to intensify efforts towards diversifying Nigeria's public-sector revenue base is obvious, as is the importance of financial institutions and payment systems to the effort to boost the enumeration and collection of non-oil taxes.

Table 1: Composition of the Nigeria Fiscal Space

	Federal Govt.		State Govt.		Local Govt.	
	2015	2016	2015	2016	2015	2016
REVENUE	6,912.50	5,679.03	2,859.02	2,471.81	1,245.64	1,054.58
Oil	3,830.10	2,693.91				
FAAC	5,845.83	4,523.45	1,482.60	1,016.58	822.87	595.96
Non-oil	3,082.41	2,985.13	1,376.42	1,455.23	422.77	458.62
Retained revenue	3,431.07	2,952.51				
EXPENDITURE	4,988.86	5,160.74	3,469.16	3,439.17	1,246.32	1,057.84
Recurrent	4,170.50	4,525.93	2,267.34	2,468.56	1,150.43	980.56
Capital	818.37	634.80	1,201.82	970.61	95.90	77.27
DEBT	10,948.53	14,537.12			39.69	12.03
Domestic	8,837.00	11,058.20	2,503.26	2,958.52		
External	2,111.53	3,478.92				
Deficit (-)/Surplus(+)	-1,557.79[a]	-2,208.22	-610.14	-967.36	-0.68	-3.25

***a – federal deficit is the difference between retained revenue and expenditure [2]

[1] *Its share of the pool of federally collected revenue accruable to the three tiers of government*
[2] *Although state governments borrow and service debt independently, Nigeria's fiscal responsibility statute mandates the federal government to guarantee states' external debt obligations and to oversee states' debt sustainability strategies*

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SECTION 3

Financial Inclusion and Fiscal Policy

What does Literature tell us?

A survey of empirical literature appears to suggest a positive relationship between the development of the financial system and (the stance of) fiscal policy. Financial sector development could directly and positively influence tax revenues as a result of its roles in facilitating record tracking and tax collection (Capasso and Jappeli, 2013).

On the one hand, a well-developed, transparent and efficient financial system would motivate corporate bodies and individual taxpayers to conduct their financial transactions through existing and functional financial institutions (Ajide and Bankefa; 2017). Kumhof and Tanner (2005) find a net positive effect of expansionary fiscal policy on financial sectors. Notable authors such as Roubini and Sala-i-Martin (1992); Boyd, Levine and Smith (2001); Bencivenga and Smith (1992); Catão and Terrones (2005) opine that (expansionary) fiscal policy (which leads to financial repression and inflation) is detrimental to financial development and growth.

While financial inclusion is the strategy to bring people into the formal economy, digital payments are the channels of transmission. Cull, Ehrbeck and Holle (2014) conclude that a low-cost financial system helps governments better execute other social policies and payments (transfers).

Their findings, however, did not state whether these payments can, in turn, lead to a virtuous cycle by including more citizens in the financial system and keeping them there.

The link between the informal economy and tax avoidance is well researched in both developing and developed nations. In a study of Europe's shadow economy, Schneider (2013) found that increasing digital payments (which plays a major role in enabling financial inclusion) can shrink the shadow economy and influence the behaviour of merchants who underreport sales.

The United Nations based Better Than Cash Alliance (BTCA) (2016) reports that Tanzania's digital payment initiatives would help it generate at least 477 million USD annually from a number of sources, ranging from a 42 percent increase in the collection of vehicle taxes to a 40 percent boost in Value Added Tax (VAT) collection from small businesses. As digital payment initiatives take hold, governments can expect tax revenues to increase in most categories.

As to the specific relationship between financial inclusion and fiscal policy, McKinsey and Co. (2016), focusing on the economic impact of digital finance in select countries by 2025, reckons that financial inclusion would reduce government leakages by as much as 110 billion USD cumulatively in seven emerging economies including Brazil, China, Ethiopia, India, Pakistan, Mexico and Nigeria. Specifically, about 2 billion USD in savings was estimated for Nigeria.

Financial inclusion and digital payments hold out the possibility of alleviating the difficulties associated with tax collection in Nigeria, especially by conferring the attendant benefit of bringing more informal economic activity into the formal sector, widening the tax net in the process.

“As to the specific relationship between financial inclusion and fiscal policy, McKinsey and Co. (2016), focusing on the economic impact of digital finance in select countries by 2025, reckons that financial inclusion would reduce government leakages by as much as 110 billion USD cumulatively in seven **emerging economies** including **Brazil, China, Ethiopia, India, Pakistan, Mexico and Nigeria**. Specifically, about 2 billion USD in savings was estimated for Nigeria”

We remain mindful of the degree to which some fiscal variables are unable to respond to improvements in financial development. According to Hauner (2006), the overall deficit (which includes external financing, central bank financing and nonbank financing); government expenditure, government revenues and grants are unlikely to bear a robust relationship with domestic financial development.

Some scholars believe that a low-cost financial system helps governments better execute other social policies and payments (transfers) but can't be certain whether these payments can, in turn, lead to a virtuous cycle by including more citizens in the financial system and **keeping them there**

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SECTION 4
Theoretical Framework

From the empirical literature, three primary frameworks can be established to guide the objectives of this study (see also *Nexus between Financial Inclusion, Economic Growth and Income*; *Nexus between Financial Inclusion* and *Job Creation: Evidence from Nigeria*).

The first is the demand side hypothesis (see Figure A) driven by the three divides of fiscal policy (revenue generation {tax}, expenditure, and deficit financing {domestic debt}). The framework and the direction of the arrows in Figure 3a illustrate the a priori expectation that an increase in government spending leads to a rise in aggregate demand (increase in economic activity {output}, employment and an increase in income) and thus to increased financial inclusion.

On the revenue side, it is surmised that fiscal policy which leads to an increase in the tax rate on bank transactions will lead to a rise in financial exclusion. An increase in tax rate on financial services will induce banks to pass the cost increases associated with the tax on to customers, assuming price inelasticity (which often holds in the case of financial transactions), making the cost of services prohibitively high for new entrants demanding financial services. A greater proportion of the adult population remains excluded from the financial services sector as a result.

The final element of fiscal policy identified in our framework is debt financing, which includes both domestic and external borrowing. Accordingly, an increase in domestic borrowing, mainly from deposit money banks (DMBs), will lead to higher interest rates and a decline in private investments as hypothesized in the "crowding out" effect. Cottarelli et al (2005) find a negative impact of public sector debt on private sector credit. The decline in credit availability, coupled with high borrowing costs, may lead to decreases in formal inclusion as investors seek alternative sources of finance from the informal sector.

The second hypothesis derives from the supply side effect (See Figure 3b). As is illustrated in Figure 3b, financial inclusion is assumed to be driven by increases in financial inclusion stimulants of the socio-economic variety such as higher literacy levels, infrastructure and high level of education amongst the youth. Direct intensification of these stimulants is believed to lead to increase in the access and use of credit which supports growth in economic activity as well as job creation, boosting tax revenues whilst reducing government leakages and tax avoidance. However, the financial inclusion drive that leads to the establishment of more informal jobs may create more government leakages in the system.

Finally, a feedback loop may exist in the potential for increased financial inclusion to enhance government revenues, create the scope for increased government spending, which in turn stimulates growth in economic activity and incomes, bolstering the prospects for increased financial inclusion.

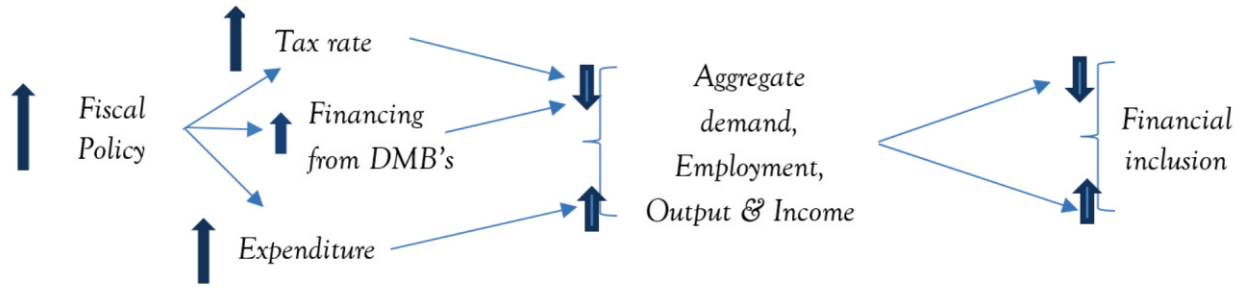

Figure 3a: Demand side Hypothesis – fiscal policy leads financial inclusion

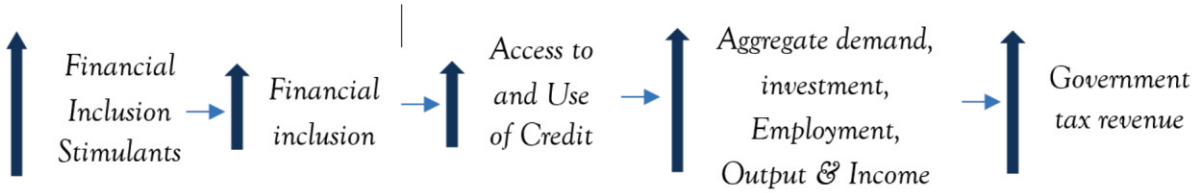

Figure 3b: Supply side Hypothesis – financial inclusion leads fiscal policy

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Models, Method and Estimation

On the basis of the discussed theoretical framework above, we deploy a vector autoregressive (VAR) modelling technique and the associated forecast variance decomposition and impulse-response functions in our investigation of the relationship between financial relationship and fiscal policy. Our model is specified as a 4-variable VAR equation in which financial inclusion and the three (3) indicators of fiscal policy (revenue, expenditure and deficit) are used as a ratio of economic activity. Granger causality tests are also employed to test for the direction of causality in the case of each of the aforementioned elements of fiscal policy versus financial inclusion. The VAR model specified is:

$$Z_t = \alpha + \sum_{i=1}^{n} \beta_i Z_{t-1} + \varepsilon_t$$

To avoid too many or too few parameters, the Z_t is the vector of financial inclusion (FI) and aggregate fiscal policy (FP), the sum of federal, state and local government revenue (AR), expenditure (AE) and deficit (AD). α is the intercept of the autonomous variable while β is the coefficient of all variables in the model. Z_(t-1) is the vector of the variable after one lag and ε_t is the stochastic error term.

The frequency of the time series data used is quarterly, covering the period 2008-Q1 to 2016-Q4. We sourced the variables directly from the World Bank (WB) Indicator database, the Central Bank of Nigerian Statistical Bulletin (CBN), the National Bureau of Statistics (NBS) and the EFInA database. Given the non-availability of the raw data in quarterly frequency from source, especially in financial inclusion, available biannual data was spliced using appropriate techniques to generate quarterly observations. Data on financial inclusion, available biennially from EFInA, runs from 2008 to 2016.

Granger causality tests are also employed to test for the direction of causality in the case of each of the aforementioned elements of fiscal policy versus financial inclusion.

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SECTION 5

Discussion of results, implication and recomendation

Below are the summary of descriptive statistics as well as results of correlation analysis, pairwise Granger causality tests, forecast error variance decomposition and the impulse-response functions. The Granger causality tests examine the causal relationships between financial inclusion, our aggregate fiscal policy measures and activity, whilst the forecast error variance decomposition and the impulse-response functions were used to analyse the short-run dynamic properties of the variables. On the understanding that stationarity tests are not necessary for VAR simulations, we do not test for the presence of unit roots in our variables.

Table 2 is a summary of the descriptive statistics. From the table, the Jarque-Bera statistic suggests that all variables, apart from informal financial inclusion (IFFI), were normally distributed despite the fact that traces of skewness and peakedness are evident by the kurtosis. Thus, the result generated is deemed to be credible and reliable.

Table 3 displays the correlation matrix, featuring pair-wise correlation coefficients, which shows the degree and direction of relationship that exists between the variables. The result shows that a weak but positive correlation of 28 percent exists between financial inclusion (FI) and aggregate revenue (AR). The weak positive relationship between financial inclusion (FI) and aggregate revenue (AR) is augmented by the existence of a weak negative relationship of about 5 percent between informal inclusion (IFI) and the level of aggregate revenue (AR). The relationship between formal financial inclusion (FFI) and the level of aggregate revenue was, however, positive and moderately stable at 53 percent.

The result showed the existence of a strong and positive relationship between FI and aggregate expenditure (AE, 79 percent); FFI and AE (91 percent) but was negative at 63 percent between IFI and AE. Similarly, a positive and strong relationship of about 75 percent existed between FI and aggregate deficit (AD); 56 percent between FFI and AD while a negative but strong relationship of 84 percent existed between IFI and AD.

Table 2: Summary of Descriptive Statistics Results

*Source: SDFI computation using EViews 7.0. * and ** represent significant level of one percent and five percent respectively*

	FI	FFI	IFI	AD	AE	AR
Mean	36.700	8.6111	15.878	3.5E+11	2.3E+12	2.0E+12
Median	37.781	9.9813	17.088	3.1E+11	2.4E+12	2.0E+12
Maximum	47.066	12.353	25.888	8.9E+11	2.8E+12	2.5E+12
Minimum	18.263	1.2344	9.7594	-8.1E+10	1.8E+12	1.6E+12
Std. Dev.	9.1873	3.5645	4.5065	2.1E+11	3.0E+11	2.9E+11
Skewness	-0.4496	-0.7155	0.2512	0.8239	-0.6362	-0.0309
Kurtosis	1.9387	2.1231	2.3137	3.9747	2.3126	1.7224
Jarque-Bera	2.9023**	4.2249*	1.0852	5.4982*	3.1373*	2.4543**
Observations	36	36	36	36	36	36

Table 3: Correlation Matrix

Source: SDFI Authors computation using EViews 7.0.

	FI	FFI	IFI	AD	AE	AR
FI	1					
FFI	0.9494	1				
IFFI	-0.9649	-0.8501	1			
AD	0.7540	0.5605	-0.8382	1		
AE	0.7870	0.9054	-0.6296	0.3747	1	
AR	0.2762	0.5330	-0.0530	-0.3211	0.7572	1

Table 4: Pairwise Granger Causality Tests (Lags: 2)
*Source: SDFI Authors computation using EViews 7.0. **means both oil and non-oil revenue*

Variables	Driver	Remark	Hypothesis Supported
FI and AR **	**FI → AR**	**Unidirectional**	**Supply lead**
---FFI and AR	*FFI → AR*	*Unidirectional*	*Supply lead*
---IFI and AR	*IFI → AR*	*Unidirectional*	*Supply lead*
FI and AE	**FI → AR**	**Unidirectional**	**Supply lead**
---FFI and AE	*FFI → AE*	*Unidirectional*	*Supply lead*
---IFI and AE	*IFI ← AE*	*Unidirectional*	*Demand lead*
FI and AD	**FI → AD**	**Unidirectional**	**Supply lead**
---FFI and AD	*FFI → AD*	*Unidirectional*	*Supply lead*
---IFI and AD	*Nil*	*No casual*	*Neutral*

Table 4 presents the results of the Granger causality tests which established a unidirectional relationship between financial inclusion (FI) and fiscal policy (FP). This relationship runs from FI to FP validating the 'supply leading'[3] and 'demand following'[4] hypothesis. With Informal financial inclusion (IFI) specifically, the causal relationship is found to run in the reverse direction, as the ratio of government spending to economic activity drives IFI. IFI does not drive AE because the expenditure are directly connected to the formal economy with a spillover effect on the informal sector overtime. Recently, a developing relationship between government revenue and the informal sector in Nigeria has emerged. The causality is stronger for FFI suggesting that fiscal policy is driven by a well-developed formal financial system. The result shows increase in aggregate government revenue (oil and non-oil) was made possible by changes in financial inclusion (FI) both in the form of FFI and IFI. While the effect of FFI was stronger than the impact of IFI on oil revenue, the impact of IFI on non-oil revenue was stronger than its impact on FFI.

Appendix 1, Figure 6a – 6f represents the short run dynamic properties (6a, 6c and 6e) and variance decomposition (6b, 6d and 6f) of financial inclusion and fiscal policy in Nigeria. The impulse response together with the forecast error variance decomposition displays the proportion of forecast error variance for each variable that is attributable to its innovation as well as to innovations in the other endogenous variables. The result from Figure 6a and 6b suggests that the predominant source of variation in financial inclusion (FI) is due to the existing level of FI attained, level of aggregate revenue (AR) and the overall fiscal deficit (AD). On the one hand, fiscal policy (AR and AD) has a one-quarter delay and incomplete transmission of shocks to FI. On the other hand, fiscal policy changes were as a result of innovation from FP and FI. The shocks exhibited in aggregate revenue (AR) were driven by innovations from both AR and FI. As expected, revenue was the main source of expenditure shock. However, shocks in FI increases over time with an immediate but incomplete transmission.

Finally, AD was due to FI, AR and AE. While the shocks from AR intensified with time, shocks in FI and AE got smaller after four quarters and one quarter respectively. This change is because AE is endogenously determined and sustained while revenue is exogenously determined and very unpredictable.

Disaggregated, the analysis suggests that variations in formal financial inclusion (FFI) was due to already attained levels in FFI and AE, although AE had an effect delayed by 1 period. On the fiscal side, the impact on aggregate revenue (AR) were significantly reflexive i.e. stemming from already existing levels of AR in previous periods. FFI, AE and AD also exerted substantial shocks on AR. Impact from AE and AD were delayed, with the impact of AE increasing in intensity over time while the impact of AD decreased over time. Shocks in FFI were immediate and increased, contributing over 67 percent shock in AR. Furthermore, shocks in AE are directly transmitted and are due to AR, FFI and partly own innovation (existing level of informal inclusion) as a result of extra-budgetary spending while shocks in the AD are driven by AE and FFI with an immediate transmission of momentum from FFI and AE to the AD.

[3] *Financial inclusion–led fiscal policy*
[4] *Financial inclusion–follow fiscal policy that is fiscal policy-led financial inclusion*

Variation in IFI was due to own innovation (existing level of informal inclusion). Furthermore, shocks from AE and AD were delayed but shocks transmitted increase with time. Shocks in AR were due to innovations in revenue, IFI and AE. While the shocks from IFI were immediate and increased over time to about 32 percent, it took one quarter before transmitting shocks from AE to AR. As expected, shock in AE was driven by AR. IFI and innovation in AE also contribute to the variation in AE. Shocks in IFI increased over time and were immediately transmitted, shock from AR decreases over time. Shocks in the AD were due to AE and IFI. However, the shocks caused by IFI decline over time while shocks from AR pick up.

From the foregoing, we can conclude that both formal and informal financial inclusion are critical for fiscal policy implementation. However, formal financial inclusion is a stronger driver. Despite the neutral causal relationship between IFI and fiscal deficit, the variance decomposition exhibits a feedback relationship as shown by the delayed transmission of shocks from fiscal policy (specifically AD) to IFI.

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SECTION 6

Policy Implication, Recommendation And Conclusion

This report analyzed the nexus between financial inclusion (in both aggregate terms as well as in terms of its formal and informal components) and three fiscal policy measures (for revenue, spending and deficit financing) in Nigeria using a combination of vector autoregressions and Granger causality tests. The Granger causality tests established the existence of a supply-side, demand-side and neutral causal relationship between financial inclusion and fiscal policy. The results of the forecast error variance decomposition showed that innovations in the endogenous variables are mostly explained by shocks from the variables themselves, which was consistent with the findings of the impulse-response operations. Based on the results obtained, the hypothesis of a bidirectional (feedback) relationship between financial inclusion and fiscal policy in Nigeria is validated.

From our findings, we can assert that financial inclusion plays a pivotal role in shrinking the shadow economy and plugging government leakages. We recommend that policymakers intensify the drive towards bolstering financial inclusion as a means to strengthen non-oil revenue generation. Sustained efforts at boosting financial inclusion through financial literacy, empowerment programmes and other interventions hold out the possibility of not just improving the wellbeing of Nigerians but also enhancing revenue generation by government.

Where financial services, driven by exorbitant tax rates on transactions and associated operations, are costly, financial inclusion faces an obstacle. Unregulated appropriation of credit advancement by financial institutions (deposit money banks to be specific) will be an obstacle for FI. This follows from the assumption that banks in Nigeria are less willing to take the risk of financing some business ventures even at the subprime maximum lending rate (MLR) and as such they prefer to hold government securities which are less risky. Financial industry concentration, especially in the commercial deposit money banks (DMBs) and microfinance banking segments, are potential inhibitors to financial inclusion, given that these structures allow for oligopolistic pricing of financial services, elevating their cost. Engendering more competitive conditions in the private sector to allow for more efficient pricing of financial services enhances financial inclusion prospects. Also, government should curtail borrowing from DMBs so as to free up space for private investment and reduce private investment crowd-out.

While government expenditure drives overall financial inclusion, fiscal policy measures in general are seen to exert a stronger impact on formal financial inclusion. Therefore, to boost financial inclusion, government spending on transfers from enhanced revenues, should be more accommodating of the unbanked and the informally served.

Increased government spending/payment to the unbanked and the under-banked when fully digitized, will bring more people into the formal financial system which in turn will lead to improved revenue generation and planned government spending.

Financial inclusion, particularly formal financial inclusion, in addition to driving government revenues as a share of economic activity, also drives government expenditure. Government payments should be further digitized while private sector firms should also be encouraged to digitize their business to persons (B2P) payments. These efforts will drive government expenditure as more revenue is generated through the establishment of a more robust payment system that is accepted by all Nigerians.

> Our findings assert that **financial inclusion** plays a pivotal role in shrinking the shadow economy and plugging government leakages and can thus recommend that policymakers intensify the drive towards bolstering financial inclusion as a means to strengthen non-oil revenue generation

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APPENDIX 1

Figure 6a: Impulse Response of FI, RAR, RAE, and RAD

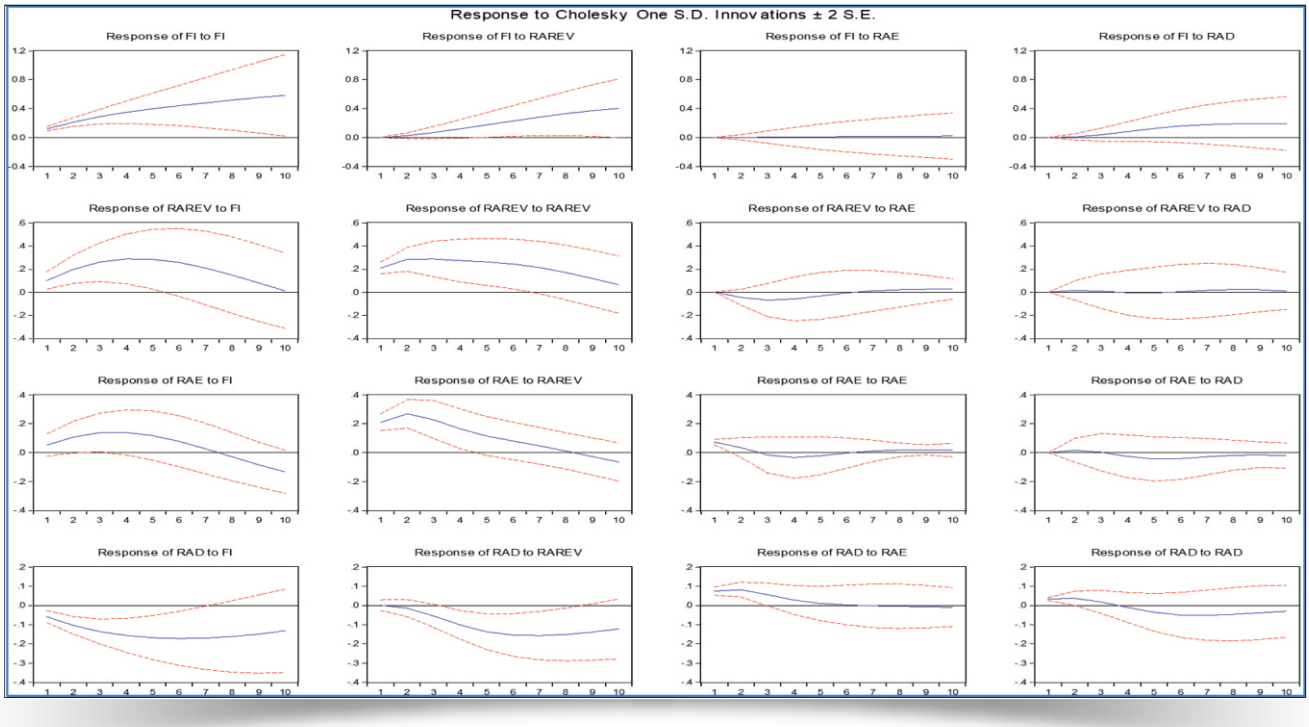

Figure 6b: Variance Decomposition of FI, RAR, RAE, and RAD

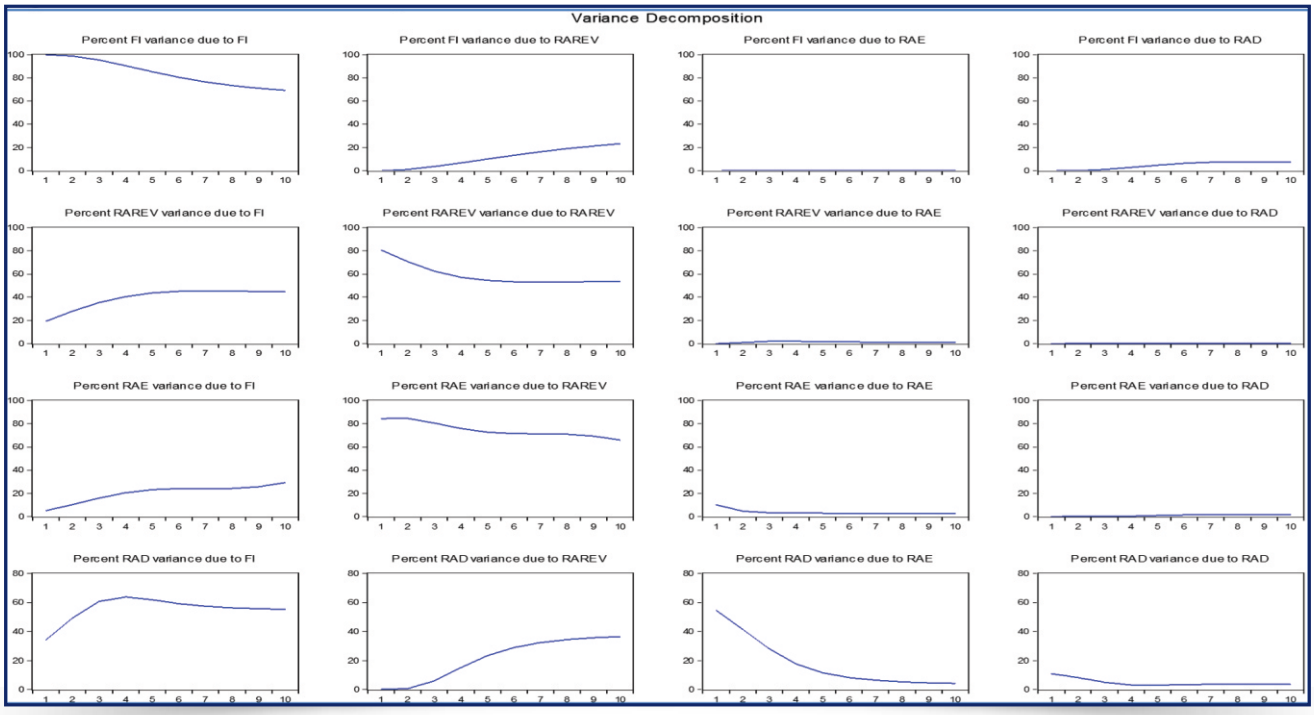

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Figure 6c: Impulse Response of FFI, RAR, RAE, and RAD

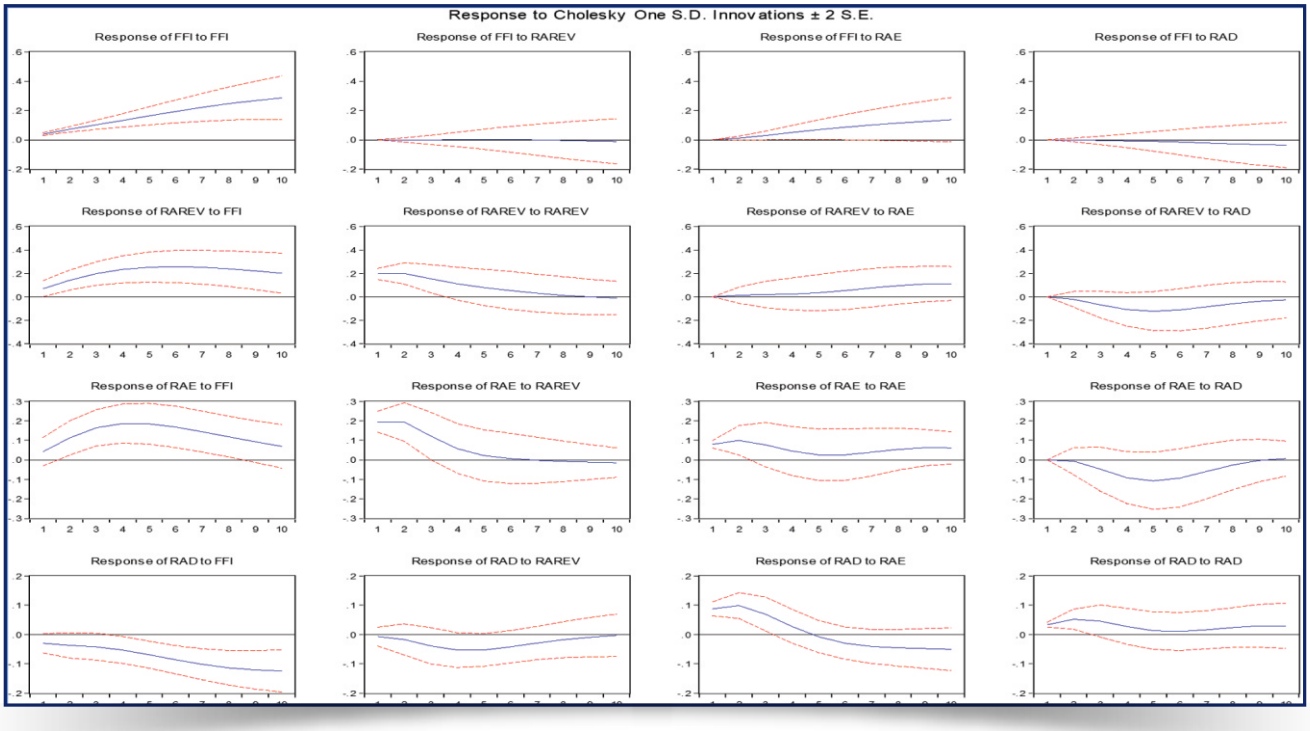

Figure 6d: Variance Decomposition of FFI, RAR, RAE, and

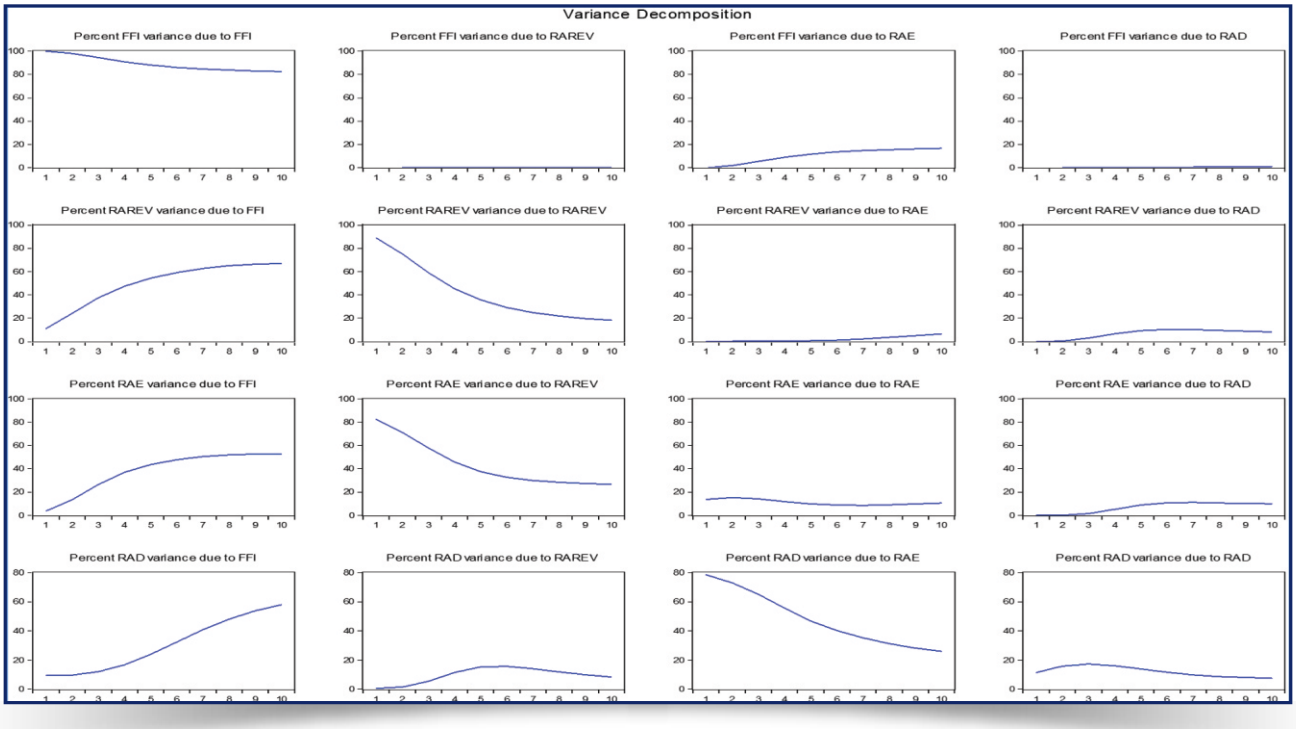

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Fig 6e: Impulse Response of IFFI, RAR, RAE, and RAD

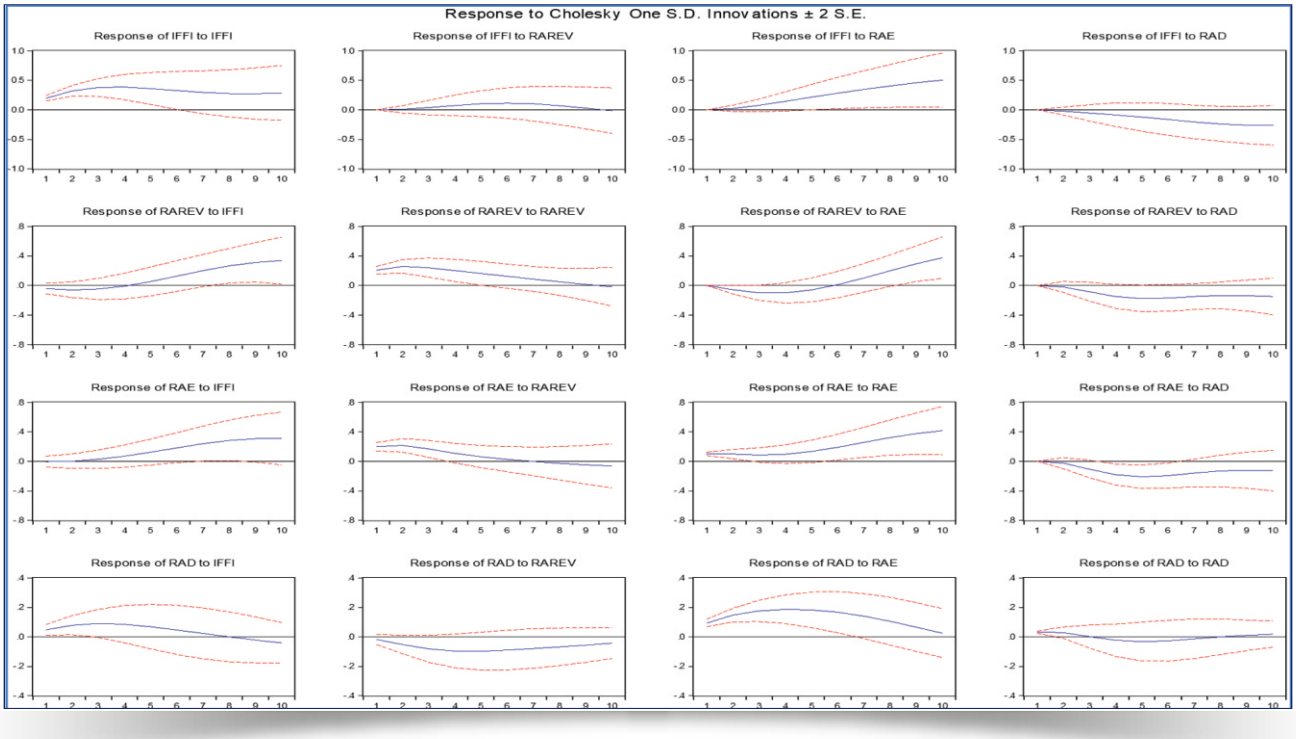
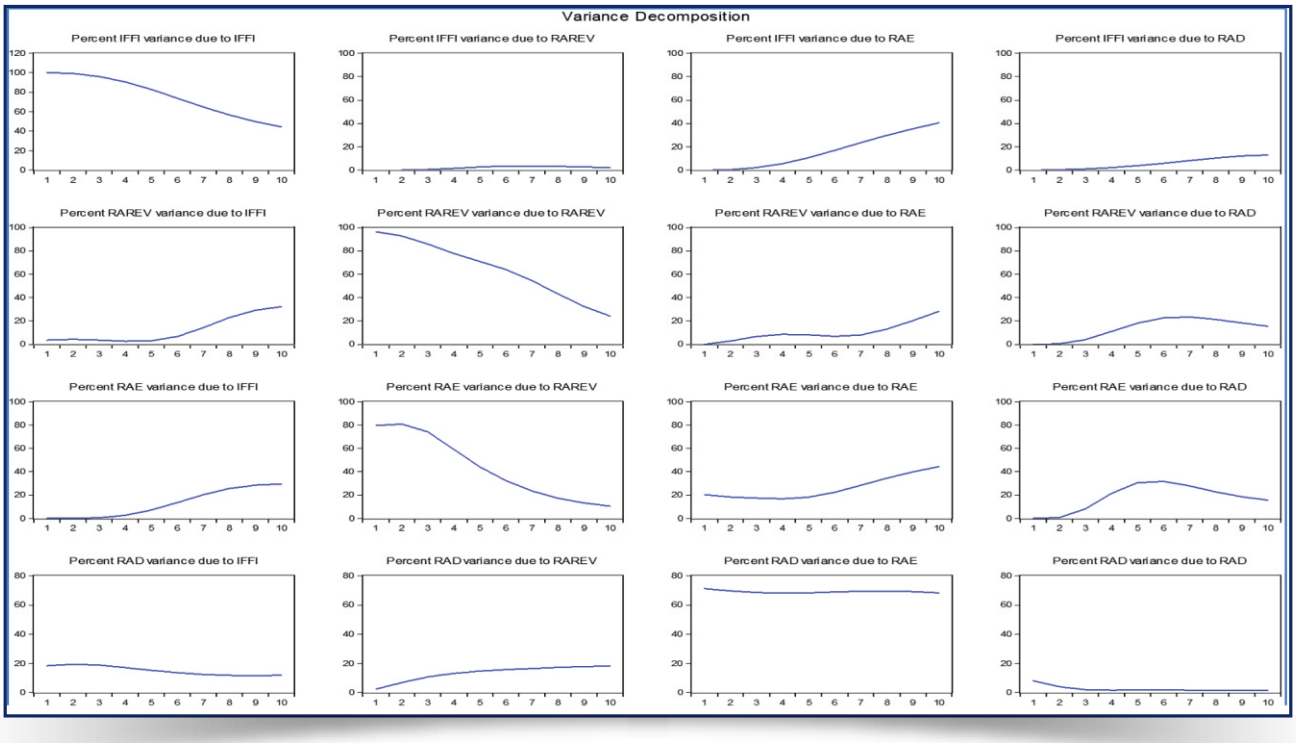


Figure 6f: Variance Decomposition of IFFI, RAR, RAE, and RAD



About SIDFS

The Sustainable and Inclusive Digital Financial Services (SIDFS) initiative of the Lagos Business School engages in research and advocacy projects with the goal of creating an inclusive ecosystem for financial services. The initiative seeks to gain an in-depth understanding of the digital financial services and financial inclusion landscape while providing thought leadership on sustainable business models to deliver digital financial services to the unbanked poor. Our overall objective is to support the development and promotion of sustainable solutions to Nigeria's financial inclusion challenges and help more Nigerians access the financial services they need to improve their lives.

Founded in 2015, the initiative combines rigorous research (which informs a pragmatic approach to responsible market development) with an evidence-based advocacy platform (to inform policy and influence key decision makers in the industry).

The Nexus Series consists of six technical papers exploring the relationship between financial inclusion and macroeconomic indicators

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