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Financial Sector Development, Economic Growth and Poverty Reduction: New Evidence from Nigeria

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Abstract
There is a common view that a well developed financial system will usher economic growth and further reduce the level of poverty. In late years the automaticity of this relationship in poor states such as Nigeria has been an area of considerable argument. This study attempts to examine this presuppose causal relationship between financial sector development, economic growth and poverty reduction in Nigeria. The study uses Autoregressive Distributed Lag model (ARDL) and Toda and Yamamoto No causality test, using a time series data covering the period of 1970-2011. The study includes poverty into the ongoing competing finance growth nexus hypothesis, in order to ascertain whether the poor segment of the Nigerian society have access to financial resources and also fully participate in the economic growth process in the country. Empirical results of the study reveal that financial sector development does not cause poverty reduction. This implies, increased in the supply of loan able funds due to financial sector development is not enough to ensure poverty reduction. Certain measures are important. Therefore, the results reveal, that economic growth causes financial sector growth. Implies that economic growth lead and financial sector follow. This implies that for financial sector development, economic growth is necessary, even though not sufficient for poverty reduction.
Keywords: Causality, Financial Depth, Growth, Co-Integration.
JEL Classification Codes: F21, F43.

Finansal Sektörde Gelişim, Ekonomik Büyüme, Yoksulluk Oranın Düşürülmesi: Nijerya Örneği*

Öz
Büyüyen finansal sistem ve yoksulluğun azaltılması gelişmiş ekonomilerin en önemli özellikleri olarak karşımıza çıkmaktadır. Son yıllarda fakir ülkelerde, bu iki dinamik arasındaki ilişki tartışma konusu olmaya başlamıştır. Bu çalışma Nijerya'da finansal büyüme ve yoksulluk oranının düşürülmesi arasındaki ilişkiyi ARDL ve Toda, Yamamoto Modelleri'ni kullanarak ortaya koymayı amaçlamaktadır. 1970-2011 yılları arasındaki sürece ilişkin neden-sonuç ilişkisini ortaya koyacak datalar mevcut değildir. Aynı zamanda çalışmada Nijerya toplumunun fakir kesiminin de finansal kaynaklara ulaşabildiği ve ülkenin ekonomik büyüme sürecine tamamıyla dahil olduğu analiz edilmektedir. Çalışmanın ampirik sonuçlarına göre finansal sektörün gelişmesi yoksulluk seviyesini düşürmemektedir. Finansal sektörün gelişimi yoksulluk seviyesinin düşürülmesine yönelik krediler alımını arttırmaktadır. Öte yandan, ekonomik büyüme beraberinde finansal büyümeyi de getirmektedir. Sonuç olarak, tek başına yoksulluk oranını azaltamasa da finansal sektörün gelişimi için ekonomik büyüme şarttır.

Anahtar Kelimeler: Neden-Sonuç İlişkisi, Finansal Derinlik, Büyüme, Eşbütünleşme.
JEL Sınıflandırma Kodları: F21, F43.

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1. Introduction

Studies on the contribution of the financial sector to economic development focus much attention on the competing finance growth nexus. This is traced back to the seminal work of Schumpeter in (1911) who argued that a creation of credit through banking was a crucial factor of entrepreneur capabilities to drive growth. This idea sat well with many governments of Poor countries and sparked a mass of reforms in their financial sector Maduka & Onwuka, 2013). This also led to a spread of a substantial volume of studies (Otto Godly, 2012), but with much less emphasis on gaining and understanding of weather really, financial sector causes poverty reduction and whether finance growth nexus hypothesis can explain poverty reduction. Few questions appear to be resolved or largely undisputed (Odhiambo, 2010). In Nigeria, one of the salient properties of the recent economic growth performance is the reform exercise of the financial sectors. For example, the consolidation exercise in the banking sector plays a major role in the recent increase in the economic growth to the average of 7% since 2006. This apparent increase indicates that Nigerian economic growth is moving faster than the 6.5% Millennium development target goal for poverty reduction in sub-Saharan Africa (MDG, 2010). Surprisingly, despite this increased in economic growth, yet 51.6% of Nigerians were living below US$1 per day in 2004, and sharply increased to 61.2% in 2010. More so, inequality of income distribution rose from 0.429 in 2004 to 0.447 in 2010 (NBS, 2011). While the proportion of the extremely poor increased from 6.2 percent in 1980 to 29.3 percent in 1996 and then came down to 22.0 percent in 2004 before reaching 38.7% in 2010. In fact, the poor continue to be marginalized and deprived access to financial market (Yusuf, Malarvizhi & Khin, 2013). Nigeria is a veritable case for investigating to what extend does the financial sector contribute to economic growth and transforms economic growth into reduction of poverty. In fact, neglecting poverty in the studies of Nnanna (2004), Nzotta & Okerette (2009) constitute a serious measurement error of omission variable. This study contributes by adding poverty reduction in the ongoing debate on the finance-growth relationship.

This main focus of this study is to integrate poverty reduction into the ongoing debate on the direction of the relationship between the financial sector and economic growth in Nigeria by using time series data from 1970 to 2011. The study of Nnanna (2004) and Nzotta & Okerette (2009) applied ordinary least squares to show a correlation, but correlation does not mean causality. This study contributes in various ways, 1) utilizing both conventional and structural break unit root test. (2) Employing the ARDL bound testing approach to co integration for a long run relationship between the variables in the presence of structural breaks (3) Utilizing Vector autoregressive (VAR) model with augmented lag order for the estimation of the Toda & Yamomoto no causality. (4) Studying both short run and long run inputs. (5) Using VECM Granger causality approach for a causal relationship. (6) Using comprehensive measures of financial deepening.

1.1 The Financial Sector Development in Nigeria

The linkage between financial sector development, economic growth and poverty reduction can theoretically be established based on the two strands school of thought who emerged to explain the competing finance-growth and poverty reduction relationship. These are the financial regulation based versus financial deregulation based theoretical paradigm. According to the financial repression based theory, banking sector provide capital for economic growth and access to information to take up (Levine, 2002). On the other hand, the letter approach, pointed out that the market provides the efficient mediating role between financial sector development in one and economic growth in the other. Indeed, the unregulated financial sector was seen as the locomotive of economic development. This theory went further to explain that a sound and liquid financial market serves as engine economic growth and enable growth to transmit into poverty reduction (Levine, 2002). On the Nigeria scene the sector has passed through a various transformation from Independence to date. The era of 1950 to 1970 was the establishment era, when major commercial banks, including Central bank were established in the country. The structural Adjustment period, which was established in 1986, set the beginning of real financial sector transformational agenda. Before this time financial sector was highly repressed characterized by interest rate ceilings, selective credit expansion, control reserve requirement and various forms of direct monetary policy controls. Government owned, monopolized the banking industry with strict entrance regulation to the private sectors and regulated foreign exchange regime. However, with the implementation of Structural Adjustment Program there was a policy reversal toward the deregulation of the economy, by establishing the Nigerian deposit insurance corporation, putting in place corporate governance policies through tight supervisory institutions. Capital market was deregulated, and the indirect monetary policy instrument was introduced. The central bank took over the control of the distress banks in the country. Exchange rate reforms were put in place and this was achieved by establishing market based autonomous foreign exchange market. Reintroduction of exchange control in the 1994 but immediately after one year of its maturity, it was replaced back to the deregulated exchange regime. Similar goes to the interest rate regime which was capped in for a year and then reverses to the deregulated interest rate regime. Another major change was the deregulation of the banking sector; this was followed by the liberalization of the interest rate regime and the free entry of the banking business by the private individuals. This also led to the raised in the nominal interest rate in the country.

However, it is worth nothing that despite all these lofty efforts of the transformation process of reforming the financial sector in Nigeria. The sector remains disconnected with the real sector of the economy. However, in order to address the major problems of poor capitalization of banks in Nigeria the banking consolidation program was established in the country in the mid-2004. Under the

banking consolidation program banks are mandated by the Central Bank of Nigeria, to increase their capital based from the N2 billion amount to N250 billion. This was the aim of enhancing the availability of the loan able funds in the economy. Banking sector consolidation was to be supported with improvement in cooperating governance in terms of banking supervisory functions. The consolidation created a shift in the banking sector performance from efficient supervision to a risk based system strategy, based on the Based-11 Accord.

Referable to the overheating crisis on the financial sector emanating from the global melt down. Certain important reform measures were introduced, which includes, improving the quality of banks in role and contribution towards a sound financial sector and transforming the sector to play role toward the real sector performance. Despite all these measures put in placed the financial sector reforms and development do not translate into meaningful economic growth and poverty reduction (Yusuf et al., 2013). Instead the poverty rate in the nation continues to soar and the percent of the entire population in poverty continues to rise (NBS 2010). The relative poverty also continues to increase moving from 54.4 percent in 2004 to 69 percent in 2010 (NBS, 2010).

2. Literature Review

Theoretically, there are two strands school of thought which emerged to explain the competing finance-growth nexus. These are the banks based versus market based theoretical paradigm and the second was based on the law and finance based. According to the bank based theory, banking sector provide capital for economic growth and access to information to take up (Levine, 2002). On the other hand, the market friendly approach, pointed out that the market provides the efficient mediating role to the economic growth, in fact, the market was examined as the locomotive of economic development. This theory gave way further to demonstrate that a sound and liquid market provide higher economic growth and enable risk management and general diversification (Levine, 2002). So the finance friendly paradigm which was brought forth from the bank based approach stressed the importance of financial service provided by the financial organization. In the end, the last paradigm emphasized on the law based approach which stressed the important role of the sound system in creating growth (Upchurch, 2012).

On the empirical ground, studies in these perspectives, is divided into two dichotomies,

Some take the view that finances follow where enterprises lead. This was set up in the work of McKinnon (1973) and Shaw (1973) in their surveys; they find out that the development of intermediaries causes economic growth. In addition, they study the negative effect of government participation in the activities of the financial sector and economic growth. They indicated that government barriers in the banking system decrease the process of financial growth and economic

development. The argument that finance follows where enterprise leads are often followed in the work of Robin & Salina Martin (1992), these studies applied cross-sectional data, their studies provide pooled effects outcomes without providing details on country specific issues. Likewise, it neglected to get the dynamic effects between the two variables under investigation.

One of the outstanding studies on financial sector development and economic growth emerged from the works of Mehran (1998) who examine the progress recorded on the transformation of the financial sector of sub-saharan African countries. The findings suggest that financial sector development in Sub-Saharan African requires reforms in the area of financial supervision, financial development of the monetary operations and financial market. Marry, Chibuzo & Okelue (2012) investigate the effects as well as the relationship between financial sector development and economic development in Nigeria. The findings suggest a significant positive linkage between government consumption and trade openness. However, on the contrary the measures of financial development suggest a negative linkage with economic growth. In a related development Saibu, Nwosa & Agbeluyi (2011) investigate the effects of financial development and foreign direct investment on economic growth in Nigeria. The results indicate that there is a bidirectional causality relationship between some of the proxies of financial development and economic growth. Odeniran & Udeaja (2010) examine the relationship between financial sector development and economic growth in Nigeria, using Granger causality tests. The findings suggest bidirectional causality between financial sector development and economic growth in Nigeria.

However, despite a wide number of studies, few have focused on identifying the extent to which poverty reduction can be included into the competing debate on the financial sector, economic growth relationships. The hypothetical argument why poverty need to be included in the growth, financial sector hypothesis is based on the argument which can be demonstrated through a transmission mechanism which shows that financial sector affects poverty reduction in two channels of influence. The first is by encouraging the less privilege people in the society to have access to funds for productive investment. Financial sector development is assumed will enables the poor access to micro credit, which leads to income generation and employment opportunity for the poor (Department for International Development (FDID), 2004). The second channels of influence are through economic growth, whereby economic growth is expected to trickle down to the poor and translate it into sustainable development (World Bank, 1995; Mellor, 1999; Ravallion & Datt, 2002; Dollar & Kraay, 2002). Though, the automatic role of economic growth in poverty reduction remains contested due to the inequality of income which affects income distribution in the economy and worsens distribution.

Adam (2011) examines the impact of Ghana financial openness induced growth on poverty between 1970 and 2007. The finding suggests a positive relationship between growth and financial liberalization. On whether financial liberalization benefits the poor the findings suggest a positive relationship, but in a disproportionate manner. Therefore, on the basis of the findings they argued that credit channels are more efficient ways of addressing poverty if supported by a good policy intervention. Among the few studies supporting this argument is the study of Pradham (2010) who draw data from India and investigates the direction of the relationship between the financial sector, economic growth and poverty reduction for the period 1951-2008, through the technique of co -integration and causality test. The study finds a long run relationship running from finance to growth and poverty reduction. Odhihiambo (2009) using data from South Africa, established that economic growth granger causes financial development and, therefore, lead in the process of poverty reduction in South- Africa. Even though, the study suffers from measurement error by using granger frame work in the presence of small sample size, which consumes a lot degree of freedom, yet the study has been one of the few breakthrough studies in Africa. Ndebbio (2004) used ordinary least square regression techniques and the findings of the study provide an interesting revelation of a very weak relationship from finance to growth. This, according to him was attributed to poor and weak financial sector development in Nigeria. Alayande (2003) analyzed the patterns of inequality in Nigeria, using the regression-based approach to decompose inequality of income from sources using the Gini index. The findings of the studies suggest that geography contribute significantly in explaining poverty. The results of Alayande (2003) also show that the sector of residence alone accounted for the largest source of inequality in Nigeria. Therefore, went further to reveal that the level of education contributes significantly in explaining inequality of income. Alayande (2003) discovered that certain variables provide a little contribution such as the age and the sex of the respondents. Therefore, suggests that any policy on poverty reduction in Nigeria should give more emphasis to geographic distribution of the population. Obayelu & Awoyemi, (2012) applied regression decomposition techniques using National living standard survey data. The findings of the study attributes that household size contributes significantly to poverty.

3. Data and Methodology

3.1. Sources of Data

The data for poverty were source from the Nigeria National bureau of statistics Abuja Nigeria for various years based on the national living standard surveys. Data for the ratio of banks deposits liabilities to GDP were source from the World Bank global financial development data set for various issues. The data on the credit to private sector to nominal GDP were source from the World Bank global financial development data set for various years. The data on Real interest rate

were source from the World development indicators. The data on Trade ration were obtains from the World Bank Development Indicator**s.**

Table 1: Variables and Their Source of Data

Symbol	Variables	Source
GDP	Economic growth	World Bank Development Indicators
FD	Financial dept	World Bank Development Indicators
RI	Real interest rate	World Development Indicators
TR	Total value of export and import	World Development Indicators
PO	Poverty	National bureau of statistics of Nigeria

Two approaches were used to ascertain the direction of influence between finance, growth and poverty nexus. The first approach involves the newly introduced ARDL approach to co- integration and causality. The second approach applied the Vector autoregressive (VAR) model with augmented lag order for the estimation of no causality Toda and Yamamoto test. The hypothesis of interest is that poverty reduction can be predicted by finance and growth interaction with the aid of certain control variables which includes interest rate, international trade and Real interest rate. However, based on the theoretical postulates a positive and significant coefficient estimate is expected. Therefore, following the work of Odhiambo (2009) and Pradhan (2010) the model is specified as follows:

$$GDPt = \alpha 0 + \alpha 1FD + \alpha 3RIt + \alpha 4TRt + \alpha 5POt + Kt ----- (1)$$

Where GDP is the proxy of economic growth, FD is the financial depth; RI is the real interest rate which is the deposits rate minus the inflation rate. TR= is the total value of export and import as share of nominal GDP. PO is proxy of poverty reduction. α 0 to α 5 is the slopes coefficient and K_t is the error terms

Following the work of (e.g. King & Levin, 1993; Odhiambo, 2009; Pradham, 2010). This study takes the log of GDP per capita as a proxy of economic growth. However, the work of Gelb (1989), World Bank (1989) and King & Levine (1993) applied broad money (M2) ratio to nominal GDP for financial depth, improvement in this ration will mean improvement in financial depth. Thus in Nigeria this ratio involves huge amount of currency increased, as such it may not be appropriate because it is measuring monetization instead of financial sector development. To address this mistake, this study identified two important variables to measure financial development which includes the ratio of bank deposits liabilities to GDP proxy as LQL. This ratio measure the extent to which the banking sector discharged it primary functions of allocating funds from mobilized saving to productive investment. This study equally considered the credit to private sector to nominal GDP, proxy as CPS in order to measure the capacity of the financial sector ability to sourced productive investment and

ensure that risk is properly managed. The choice of this variable is due to the fact that there is the possibilities that credit to private sector my likely continue to be fixed even in situation where the deposits are rising. However, this study equally, considers certain control variables to growth and financial development which includes the real interest rate RI, which constitutes the deposits rate minus inflation rate and the trade ratio TR which measure the total volume of export and import as share of nominal GDP. However in order to integrate poverty reduction into the equation the PO which is proxy as poverty reduction is also considered. However data are obtained from the World development Indicators and Global Financial Data base for all variables.

Thus, in order to avoid the common mistake where series are often specified at level and non-stationary, there was a suggestion that the set of series need to be stationary or differenced. But the problem with differencing of a series it takes away long run information from the time series. To address these obvious problems quite a number of techniques have been employed which includes Eangle (1987) test, Maximum likelihood of Johensen (1988) and Jehensen & Juselius (1990) tests. Thus, it should be noted that despite, their common application they are not far free from certain weakness, in fact, these techniques are found not reliable in a situation where the sample size is very small.

This study employed the newly introduced techniques by Pesaran & Pesaran (2001) the autoregressive distributed lag model (ARDL) because it can be applied irrespective whether the variables are 1(0), 1(1) or fractionally co- integrated. Similarly, it easy for the error correction model (ECM) to be established from the ARDL. The model is specified as follow:

$$\Delta GDPt-1=\beta 0+\sum_{i=1}^{n}\alpha_i GDPt-1+\sum_{i=1}^{n}\partial_i CPSt-1+\sum_{i=1}^{n}\phi_i LQLt-1+\sum_{i=1}^{n}\gamma_i TRt-1+\sum_{i=1}^{n}\eta_i RIt-1+\sum_{i=1}^{n}\sigma_i POt-1+$$
$$\ell 1GDPt-1+\ell 2CPSt-1+\ell 3LQLt-1+\ell 4TRt-1+\ell 5RIt-1+\kappa t--(2)$$

Where β0 is the constant and Kt is the disturbance term. However, the first part of the equation with the summation sign stands for the error correction. While the other part of the equation with ℓ 1 to ℓ 5 represent long run relationship.

GDP is the proxy of economic growth, CPS represent credit to the private sector to nominal GDP, while LQL represent the ratio of bank deposit liabilities to GDP; RI is the real interest rate which is the deposit rate minus the inflation rate. TR= is the total value of export and import as share of nominal GDP. PO is proxy of poverty reduction. The next step in ARDL approach is the estimation of the Bound test through the (OLS) approach and the F- test which are used to examine whether the series have long run relationship. The null hypothesis of the equation (2) is H0: ℓ 1=0, ℓ 2=0, ℓ 3=0, ℓ 4=0, ℓ 5=0, which implies lack of the presence

of long run co-integration and the alternative hypothesis is H1: $\ell 1 \neq 0, \ell 2 \neq 0, \ell 3 \neq 0, \ell 4 \neq 0, \ell 5 \neq 0$

The results of the computed F- test is normally, used to determine whether there is long run co-integration by comparing the two sets of critical values extracted from the Pesaran critical tables which are based on 1(0) and 1(1). According to the decision rules if the estimated value of F- test is higher in values when compared with the upper critical values it implies co -integration. But if the F-test values fall below the lower critical values the null hypothesis of no co -integration cannot be rejected. But if it falls in between the upper and lower critical values the results is inconclusive.

Thus ARDL model is sensitive to the lag length which is selected on the basis of Scharwrtz Bayesian criteria (SBC) and Akaike information criteria (AIC). The SBC is known as parsimonious model, as based on the smallest possible lag length.

The last stage in ARDL model is the establishment of the error correction model through a simple linear transformation. This can be presented below:

$$\Delta GDPt-1=\beta 0+\sum_{i=1}^{n}\alpha_i GDPt-1+\sum_{i=1}^{n}\partial_i CPSt-1+\sum_{i=1}^{n}\phi_i LQLt-1+\sum_{i=1}^{n}\gamma_i TRt-1+\sum_{i=1}^{n}\eta_i RIt-1+\sum_{i=1}^{n}\sigma_i POt-1+Kt---(3)$$

Where GDP is the proxy of economic growth, CPS represent credit to private sector to nominal GDP, while LQL represent the ratio of bank deposits liabilities to GDP; RI is the real interest rate which is the deposits rate minus the inflation rate. TR= is the total value of export and import as share of nominal GDP. PO is proxy of poverty reduction. The error correction show the level of adjustment to the long run steady equilibrium after experiencing shocks in the short run.

The stability of the model is tested through the cumulative (CUSUM) and cumulative sum of squares (CUSUMSQ) if the plots of the CUSUM and CUSUMSQ statistics remain within critical bonds of 5 percent level of sign of significance the null hypothesis of stability is achieved.

3.2. Toda and Yamamoto Approach

The rationale behind this approach is based on the common understanding that in testing for causality, the usual F- test for linear restriction become in valid if the lags of the dependent variables enter the model as repressors. The point here is that, if the data are non-stationary, the Wald tests statistics does not follow its usual asymptotic chi-square distribution under null hypothesis (Toda & Yamamoto, 1995). Therefore, the way to address this problem is to estimate VAR with its true order K, but with lag order of (K+d), where d is treated as the maximum potential order of integration of the variables. But it should be noted

that the estimation of the granger causality is conducted without the additional K+1---K+d.

$$\Delta GDPt-1=\alpha 0+\sum_{i=1}^{K+d\max}\theta_i GDPt-1+\sum_{i=1}^{K+d\max}\psi_i CPSt-1+\sum_{i=1}^{K+d\max}\upsilon_i LQLt-1+\sum_{i=1}^{K+d\max}\varepsilon_i TRt-1+\sum_{i=1}^{K+d\max}\xi_i RIt-1+\sum_{i=1}^{K+d\max}\sigma_i POt-1+Kt1--(4)$$

$$\Delta CPSt-1=\alpha 0+\sum_{i=1}^{K+d\max}\theta_i CPSt-1+\sum_{i=1}^{K+d\max}\psi_i GDPt-1+\sum_{i=1}^{K+d\max}\upsilon_i LQLt-1+\sum_{i=1}^{K+d\max}\varepsilon_i TRt-1+\sum_{i=1}^{K+d\max}\xi_i RIt-1+\sum_{i=1}^{K+d\max}\sigma_i Pot-1+Kt2--(5)$$

$$\Delta LQLt-1=\alpha 0+\sum_{i=1}^{K+d\max}\upsilon_i LQLt-1+\sum_{i=1}^{K+d\max}\psi_i GDPt-1+\sum_{i=1}^{K+d\max}\varphi_i CPSt-1+\sum_{i=1}^{K+d\max}\varepsilon_i TRt-1+\sum_{i=1}^{K+d\max}\xi_i RIt-1+\sum_{i=1}^{K+d\max}\sigma_i Pot-1+Kt2--(6)$$

$$\Delta POt-1=\alpha 0+\sum_{i=1}^{K+d\max}\theta_i POt-1+\sum_{i=1}^{K+d\max}\psi_i GDPt-1+\sum_{i=1}^{K+d\max}\upsilon_i LQLt-1+\sum_{i=1}^{K+d\max}\varepsilon_i RTt-1+\sum_{i=1}^{K+d\max}\xi_i RIt-1+\sum_{i=1}^{K+d\max}\sigma_i CPSt-1+Kt2--(7)$$

Where K is the optimal lag order d is the maximum lag order of integration of the variables in the system and Kt1 and Kt2 are the error term. The remaining series are as defined earlier in equation (2).

4. Estimation of the Results

In this section the study starts with the presentation of the results and followed by the analysis of the results. The first table provides the descriptive statistics of the sample data.

Table 2: Descriptive Statistics of the Sample Data

	CPS	GDP	LPO	LQL	RI	TR
Mean	13.62293	7316044	43.84286	22.99911	-2.34184	58.36589
Median	12.70096	5282712	46.3	22.32234	-3.43364	65.01609
Maximum	38.59012	51310010	69	37.6967	25.13001	97.32115
Minimum	4.699551	1064975	16.2	10.15575	-32.0573	19.6206
Std. Dev.	7.063296	10094527	16.90854	7.975687	13.37939	21.12774
Skewness	1.67857	3.876001	-0.17787	0.21803	-0.1776	-0.19541
Kurtosis	6.307768	17.10966	1.854462	1.970667	2.814356	1.805794
Jarque-Bera	38.87051	453.5578	2.517911	2.186928	0.281104	2.76301
Probability	0	0	0.28395	0.335054	0.868878	0.2512
Sum	572.1629	3.07E+08	1841.4	965.9625	-98.3571	2451.368
Sum Sq. Dev.	2045.496	4.18E+15	11721.84	2608.075	7339.331	18301.63
Observations	42	42	42	42	42	42

The results in table 2 provide the descriptive of the sample data, which shows that the skewness is not near zero on CPS and GDP. And the kurtosis is not near three in the case of Po, LQL, RI and TR. This implies that the data is not normally distributed. Similarly, the probability of 5% is not achieved in all the series, with these we move to the Unit root test in order to ensure the series are integrates before any economic estimation can be conducted.

Table 3: Augmented Dickey- Fuller (ADF) Test and Phillips Perron Test for a Unit Root Tests

Series	ADF test At level	First Difference	Phillip Perron At level	First Difference
CPS	1.91972(0)	-5.929831(1)*	-1.920942(4)	-5.951634(5)*
GDP	1.789547(4)	-2.578563(4)*	0.813877(5)	-5.989714(4)*
PO	1.678079(0)	-6.593416(1)*	-1.672906(5)	-6.621889(3)*
LQL	-1.886665(0)	-5.05153(1)*	-1.88665(0)	-5.058509(3)*
TR	-2.42861(0)	-6.234625(3)*	-2.420558(3)	-6.234754(4)*
RI	-5.930808(0)*	-7.280181(4)*	-5.936787(1)	-25.53783(5)*

Note * * * indicates the significance level at the 5%, 1% and 10% respectively. Numbers in bracket are the lag length

The estimated results of the Unit root test in table 3 above based on the ADF test, indicates that the null hypothesis of no unit root cannot be rejected at 5% level of significant with the exception of RI, but after taking first differencing all variable are found stationary at 5% level of significant. Thus the confirmatory Philips Perron test also suggests that all series become stationary after taking the first differencing at 5% level of significant.

Bound Test for the long Run Co-integration

Table 4: Critical Values of the Bound Test with Intercept and no Trend

10% level		5% level		1% level	
1(0)	1(1)	1(0)	1(1)	1(0)	1(1)
3.247	3.773	3.993	4.533	5.754	6.483

Note ** * indicates statistically significant at the 10% 5% and 1% level critical value

The critical values are extracted from Narayan table which comprised both the upper critical values and the lower critical values represented as 1(0) and 1(1) respectively.

Table 5: Estimated F- Test statistics of Joint Significant

GDP= 0.46865

The results of a bound tests for long run relationship is reported in table 4 and 5 which includes critical values and computed F- test values of joint significant. The result shows the critical values of the bound testing of rejecting or otherwise of the null hypothesis. As such the results in table 5 above of the bound test for the long run relationship indicate that the null hypothesis of no co -integration can be rejected since the estimate of the coefficient of the lag GDP is having a value greater than the upper critical values at 5% level of significant. This implies that there is a long run association between financial development, economic growth

and poverty reduction. However, having long run relationship does not mean causality therefore, to determine whether financial sector development causes economic growth and poverty reduction Unrestricted error correction models were estimated together with Toda and Yamamoto no causality tests. But before estimating the causality relationship the long run coefficient of poverty as a dependent variable is estimated which is presented in table 6 below.

Table 6: Long Run Coefficient Poverty as a Dependent Variable

Regression	Coefficient	Standard Error	Prob.
GDP	-0.26758	15738	0.099
CPS	0.69833	1.4796	0.64
LQL	-0.85808	0.9752	0.386
RI	-0.58742	0.64276	0.368
TR	-0.58187	0.46282	0.218

Notes * ** * indicates the significance level at the 1%, 5% and 10% respectively. ARDL(1,0,0,0,0,0,1) selected based on Schwarz Bayesian Criterion

Table 6 above presents the results of the Long run relationship between poverty and Economic growth, financial development, and the instrumental variables of Interest rate and trade percentage of GDP. However, the result indicates that all the explanatory variables are not significantly impacting poverty.

Diagnostic Tests

Test Statistics *	LM Version	*	F Version
A: Serial Correlation	CHSQ (1) = 18.5265[.056]		F (1, 34) = 26.8344[.056]
B: Functional Form	CHSQ (1) = 0.057956[.810]		F (1, 34) = 0.046982[.830]
C: Normality	CHSQ (2) = 1.0613[.588]		Not applicable
D: Heteroscadasticity	CHSQ (1) = 8.0812[.054]		F (1, 40) = 9.5300[.054]

A: Lagrange multiplier test of residual serial correlation
B: Ramsey's RESET test using the square of the fitted values
C: Based on a test of skewness and kurtosis of residuals
D: Based on the regression of squared residuals on squared fitted values

The results of the diagnostic tests indicate that the null hypothesis that there is stability of the coefficient estimated cannot be rejection, since the serial correlation results, functional form, Normality and Heteroscadasticity are having the probability values above 0.05% respectively.

Table 7: Short Run Dynamic Vector Error Correction Model

DPOt-**1** **Dynamic model**		**DGDPt-1 Dynamic model**	**DCPSt-1 Dynamic model**	**DLQLt-1 Model**
Variables	Coefficient	Coefficient	Coefficient	Coefficient
DGDPt-1	0.34049	0.056878	7.23E-108*	8.25E-10*
	(-2.049)	(0.25746)	(2.3632)	(2.4447)
DPOt-1	0.03456	6.3503403	-0.137726	-0.131949
	(0.7834)	(0.63649)	(1.0717)	(1.07609)
DLQLt-1	-0.16854	-8.31404348		0.597764
	(0.2710)	(1.01907)		(2.71643)
DCPSt-1	-0.24468	3.845678	0.7113716*	
	(0.36)	(1.345)	(3.37778)	
DTRt-1	-0.18138	9.9914797	0.296444*	0.251389
	(0.137)	(1.16402)	(2.55193)	(2.18389)
DRIt-1	-0.7625	9.361441*	0.12236*	-0.026292
	(0.402)	(1.7911)	(1.6182)	(0.36604)
ECMt-1	0.058224*	0.18721*	0.570495*	0.208994*
	(-0.587)	(-2.51151)	(-2.4182)	(-2.0157)

Note * ** *** indicates the significance level at the 1%, 5% and 10% respectively. ARDL(1,0,0,0,0,0,1) selected based on Schwarz Bayesian Criterion. Numbers in bracket are the t-ratio suggesting the significant of the parameters. Coefficients with ** indicates significant at 5% level.

To ascertain whether financial development causes economic growth and poverty reduction a vector error correction model is estimated which were presented in table 7 above. However, the results from table 7 above in the poverty model with DPOt-1 as a dependent variable suggest that the coefficient of DGDPt-1, DCPSt-1 and DLQLt are not statistically significant implying that economic growth, credit to private sector and the ratio of bank deposits liabilities to GDP does not impact on poverty reduction. Thus in the credit to private sector model with DCPSt-1 as a dependent variable the results suggest that the coefficient of DGDPt-1 is statistically significant with a positive sign this implies that economic growth impacts on credit to private sector. However, in the ration of bank deposits liabilities to GDP model with DLQLt-1 as a dependent variable the results suggest that the coefficient of the DGDPt-1 is statistically significant and positive indicating that economic growth impact on the ratio of bank deposit liability to GDP. This also suggests that economic growth lead and financial sector follow in Nigeria. However, the coefficients of DTRt-1 and DRIt-1 in the credit to private sector are statistically significant implies that trade percentage of GDP and the real interest rate impacts on credit to private sector development. Similarly, the coefficient of the DRIt-1 is statistical significant in the Economic growth model indicating that real interest rate impact on economic growth in Nigeria. The policy implication is that the increase in the supply of the loan able funds through the

financial sector development is not enough to trickles down financial resources to the poor other intervening policies accompanied by good governance and equitable income distribution are important.

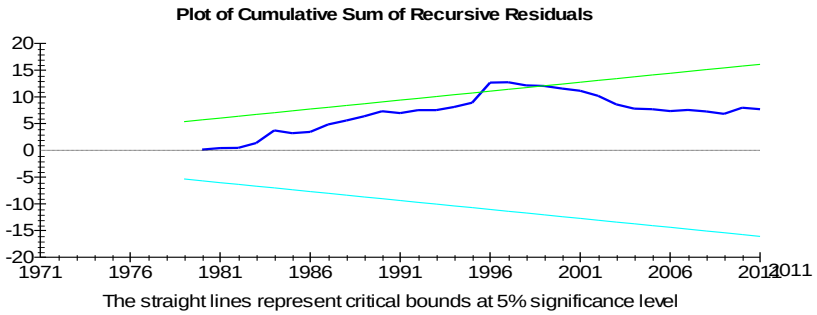


Figure 1: Stability Test of the Parameters

The diagram above in figure 1 above represents the stability test. Thus the straight lines represents the critical bounds at 5% level of significant the vertical line represents the values of the critical values. However, the figure test the stability of the parameters in the model and based on the results in the figure in table 1 the stability of the model is achieved, since the parallel line do not crossed and is within the 5% level of significant.

Toda-Yamamoto Granger Non- Causality Test Results

Table 8: VAR Granger Causality/Block Exogeneity Wald Test, PO as Dependent Variable

Excluded	Chi-sq	Prob.
GDP	13.99561	0.2029
CPS	0.683408	0.8771
LQL	1.509796	0.6800
TR	7.048445	0.0704
RI	1.970955	0.5785
All	14.54219	0.4849

Notes * ** *** indicates the significance level at the 1%, 5% and 10% respectively.

Thus, the findings of table 8 to table 13 represents the Toda & Yamamoto no causality tests results. In facts, the result table 8 of the poverty equation with dependent variable PO, the estimated coefficients of GDP, CPS, LQL, TR, RI are not significant indicating that the null hypothesis of no causality cannot be rejected. This indicates that financial sector development and economic growth

have not significantly impact on poverty reduction. The findings of this study do not support the findings of the work of Odhihiambo (2009).

Table 9: VAR Granger Causality/Block Exogeneity Wald Test GDP as a Dependent Variable

Excluded	Chi-sq	Prob.
PO	2.492726	0.4766
CPS	0.883118	0.8295
LQL	2.363688	0.5004
TR	5.388433	0.1455
RI	1.400474*	0.0054
All	12.41527	0.6474

Note * ** *** indicates the significance level at the 1%, 5% and 10% respectively.

The results of table 9 of the economic growth equation with dependent variable GDP, the estimated coefficients of PO, CPS, LQL, TR, and are not significant. This suggests that poverty reduction, the ratio of bank deposit liabilities to GDP, trade percentage of GDP, do not significantly impact on economic growth. But the coefficient of the RI is statistically significant implies that real interest impact on economic growth.

Table 10: VAR Granger Causality/Block Exogeneity Wald Test CPS as a Dependent Variable

Excluded	Chi-sq	Prob
PO	0.369909	0.9464
GDP	13.63246*	0.0035
LQL	1.094464	0.7784
TR	3.071064*	0.0058
RI	0.270316*	0.0065
All	14.72064	0.4717

Note* * * indicates the significance level at the 1%, 5% and 10% respectively.

In the credit to private sector equation with dependent variable CPS, in table 10 the estimated coefficient of GDP is significantly positive. This indicates that economic growth is significant with positive value. This implies that economic growth impact on credit to private sector. The coefficients of TR and RI is statistically significant implies that trade percentage of GDP and the real interest rate impact on credit to private sector.

In the ratio of bank deposits liabilities to GDP equation in table 11, with dependent variable LQL, the estimated coefficient of GDP is significantly positive. This suggests that economic growth has a significantly positively impact on the ratio of bank deposits liabilities to GDP.

Table 11: VAR Granger Causality/Block Exogeneity Wald Test LQL as a Dependent Variable

Excluded	Chi-sq	Prob.
PO	4.118325	0.2490
GDP	10.23180*	0.0167
CPS	0.188340	0.9794
TR	9.670154*	0.0216
RI	0.526657	0.9130
All	14.21971	0.4089

Note * ** *** indicates the significance level at the 1%, 5% and 10% respectively.

Table 12: VAR Granger Causality/Block Exogeneity Wald Test TR as a Dependent Variable

Excluded	Chi-sq	Prob.
PO	1.643073	0.6497
GDP	11.61878*	0.0088
CPS	5.218340	0.1565
LQL	1.177704	0.7584
RI	3.228509	0.3577
All	14.83084	0.4637

Note* * * indicates the significance level at the 1%, 5% and 10% respectively.

In the trade percentage of GDP equation as provided in table 12, with dependent variable TR, the estimated coefficient of economic growth is significantly positive. This suggests that economic growth significantly positive impact on trade as a percentage of GDP. While in the same estimated equation the coefficients of PO, CPS, LQL, RI, are not significant. Indicating that poverty, credit to private sector, the ratio of banks deposits liabilities to GDP, real interest have not significantly impact on trade percentage of GDP.

Table 13: VAR Granger Causality/Block Exogeneity Wald Test RI as a Dependent Variable

Excluded	Chi-sq	Prob.
LPO	6.767211	0.0797
LGDP	2.382484	0.4969
LCPS	5.846998	0.1193
LLQL	6.913989	0.0747
LTR	12.42697*	0.0061
All	14.21872	0.5089

Note* ** *** indicates the significance level at the 1%, 5% and 10% respectively.

In the real interest rate equation with dependent variable RI as presented in table 13 the estimated coefficient of TR is significantly positive. This indicates that trade as a percentage of GDP in Nigeria has a significantly positive impact on real interest rate. The general testing of Toda Yamamoto results support the findings of the studies of Odhianibo (2009), Coccorese (2008), and Odhiambo (2011) which suggest growth led financial sector follow. But do not support the study of Odhihiambo (2009) that financial development and economic growth causes poverty reduction.

5. Conclusion

This study introduces poverty reduction in the competing financial sector economic growth hypothesis in order to investigate whether financial sector development and economic growth contribute towards the eradication of poverty in Nigeria. This study contributes by employing two method of analysis, which includes, the Autoregressive distributed lag model and Toda and Yamamoto approach to no causality. The results suggest that financial sector development and economic growth do not causes poverty reduction in Nigeria. This study provide important understanding that that despite increased in the availability of loan able funds through the financial sector development the poor segment of the Nigerian population does not have access to financial resources. In the case of Nigeria this indicates that financial development alone without equitable income distribution and good governance may not be enough to address the menace of poverty. The finding of this study does not support the work of Odhianibo (2009), who purported to show that financial sector development is positively correlated with poverty reduction. The policy implication here is that financial sector development requires a backup of supporting policies of resources distribution and good governance before, it can pools the mobilized capital into productive investment and equally, channels economic growth to the poor.

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