

## DYNAMICS OF FINANCIAL SECTOR DEVELOPMENT TRANSMISSION MECHANISM AND HOUSEHOLD WELFARE IN NIGERIA: HOW CLOSE ARE THE LINKS?

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### Abstract

*The approach adopted in this study is to look at a performance indicator of the major components of the financial sector and how they influenced households' welfare in Nigeria from 1986 to 2020. It brings together five key transmission channels of financial sector development. Annual time series data on Per Capita Consumption (PCC) - a measure of household welfare, and Broad Money Supply/GDP, Credit to Private Sector/GDP, Market Capitalization/GDP, Total Insurance Premium Income/GDP, and Total Pension Fund Assets/GDP - measures for transmission channels of financial sector development were used. Johansen cointegration test and vector error correction modelling (VECM) techniques were employed to estimate the model based on the STATA 13 software package. Causal linkages were determined based on Granger causality Wald test analyses. Results of the study revealed that the transmission channels through Broad money supply/GDP, market capitalization/GDP, and total insurance premium income/GDP were the conduits through which households' benefit from financial sector development. Total pension fund assets/GDP negatively influenced households' welfare, while domestic credit to the private sector/GDP did not influence households' welfare in Nigeria. The study recommended that the Central Bank of Nigeria should review its policy on credit extension to the private sector by making it mandatory for commercial banks. Commercial banks should be monitored to ensure compliance. Regular payment of pension to retirees is imperative in improving standard of living and household welfare in Nigeria.*

**Keywords:** *Financial sector development, transmission channels, households, welfare,*

**Jel Classification:** G21, G51, G52, I31, E21

### 1.1 Introduction

The financial sector provides funds that accelerate economic activities which increase national productivity. Increase in national productivity ensures that households are provided with goods and services needed for improved standard of living. Financial Sector Development therefore impacts on household welfare directly through the provision of financial products and services, and through its indirect influence on a nation's economic prosperity. An economy with developed financial mechanisms provides households with the ability to feed and take care of their children's education, provide good healthcare services, insure against income shocks, start a company, diversify, expand production, enjoy pension when they retire, and acquire essential assets like owning a house. According to Akintola, Oji-Okoro and Itodo (2020); Sovia, Majid and Kassim (2018), increased income through access to financial services enhances people's living standards and ensures they escape from extreme poverty. In the opinion of Claessen and Feijen (2006), private investments and direct foreign investments will not be attracted to

countries with low levels of financial sector development, and this will lead to low economic output as measured by GDP.

The financial sector in Nigeria is made up of informal and formal channels. The informal channels include money lenders, *esusu* or thrifts societies and the different types of savings channels and associations. These channels are not developed and regulated. The banks and non-bank financial institutions, the capital market, the money market, and other financial institutions that undertake financial services and intermediation such as lease financing, factoring, and credit ratings make up the formal sector.

A major sub-sector of the formal channel is the banking sector. The banking system carries out financial intermediation by mobilising and channeling savings into productive funds (Onwuka & Nwadiubu, 2019). In a developed banking system, household savings are transformed into productive investment at a fast rate and lending interest rates are usually lower than deposit interest rates. According to Ardic and Damar (2016), this is due to the fact that as the economy grows, it creates the need for financial products, instruments and services and hence expansion in the finance sector.

Another sub-sector of the formal channel is the capital market. The capital market provides long-term, non-debt funds for investors thereby reducing the use of debt to finance businesses. This improves the debt-equity ratio of most business organisations (Akintola, Oji-Okoro & Itodo, 2020). Amalu, Agbasi, Olife and Okechukwu (2021) and Ndako (2010), explained the capital market as a network of complex institutional channels with an imbedded mechanism that provide opportunities through which surplus capital from households, firms, and government are mobilised and allocated to deficit units of the economy. The capital market therefore promotes high national productivity by ensuring efficiency in capital formation and allocation. This provides income, goods and services for households.

The insurance industry is another sub-sector of the financial system. A major function of an insurance company is to protect the insurer by providing insurance cover and to transfer risk. Insurance companies pool financial resources of many policyholders to indemnify the few that may incur losses at the occurrence of the insured event. This is possible through regular and affordable premium payments by insurance policyholders.

The pension fund scheme is another development in the formal channel of the financial services sector. Over the years, the pension scheme has undergone changes making it relevant and prominent in the financial management process in Nigeria and therefore a channel of transmission of financial sector development. Elechi, Ezu and Ananwude (2017) stated that the legal framework of Nigeria's pension management has undergone several amendments, improvement and changes after the first legislative act on pension reforms in 1951 (the Pension Ordinance). The National Pension Commission was established by the Pension Reform Act of

2004 to ensure that pension matters in Nigeria are properly regulated, supervised and effectively administered. The Nigerian Social Insurance Trust Fund (NSITF) was then licensed by the National Pension Commission as a Pension Fund Administrator charged with the responsibility of managing the funds contributed by the current NSITF contributors. These contributions are invested in securities and other income yielding projects on behalf of the contributors by the Pension Fund Administrators and therefore constitute an income to the retiree. According to PenCom (2020), as at 30 September 2020 the value of pension fund assets amounted to about ₦11.56 trillion.

One of the many reasons for developing the financial sector is to make financial services accessible and at a reduced cost. This will ensure that households (especially working class) can obtain credit without too much emphasis on presentation of collateral. Easy access to credit will assist households' own properties and make regular instalment payments which do not require lifetime savings. Several studies such as Abramova, Artemenko and Krinichansky (2022), Amalu, Agbasi, Olife and Okechukwu (2021), Ozigbu and Ezekwe (2020), Odhiambo (2009), Fowowe and Abidoye (2011), Takeshi and Shigeyuki (2012), and Levine (1997), have stated that the development of the finance sector will increase economic activities and output, and lead to growth of the economy which will have positive effect on household welfare. Contrary to their opinion, Mendoza, Quadrini, and Rios-Rull (2007) argued that the development of financial mechanisms of a country will produce adverse consequences on the wealth and welfare of households especially if financial reform policies that produce such financial development lack adequate regulatory framework and environment. In their opinion, developing countries financial regulators have not been able to strike a balance between effective regulations for the determinants of financial systems deepening and provision of a good environment for financial sector performance (Levine, 1997; and DFID, 2004). Mendoza, Quadrini and Rios-Rull (2007) however, opined that, though financial development may in most cases result in welfare improvement and significant increase in wealth differentials or inequality in the case of a developed economy, the total welfare implications will continue to be positive for the developed countries. Other studies followed a similar reasoning and explained that though there exist sufficient benefits from developed financial systems, there are risks associated with such development which may have adverse effects on the low-income group (Banerjee, 2009; Zingales, 2009).

Most studies such as the works of Abramova, Artemenko and Krinichansky (2022), Amalu, Agbasi, Olife and Okechukwu (2021), Akintola, Oji-Okoro and Itodo (2020), Ozigbu and Ezekwe (2020), Onwuka and Nwadiubu (2019), Sovia, Majid and Kassim (2018), Werigbelegha and Ogiriki (2018), Elechi, Ezu and Ananwude, (2017), Nwanna and Chinwudu (2016) focused on either the effect of developing the financial sector on the economy or the impact financial system development has on aggregate poverty level and in most cases these studies used conflicting variables. None of these studies used the “ratio of total insurance premium to GDP (TINP/GDP), and ratio of total pension fund assets to GDP (TPFA/GDP)” as measures for of

financial sector development and therefore did not capture the various sub-sectors of the financial system through which the development of the finance sector is transmitted to the households. The studies reviewed did not evaluate the impact of financial system development on households' welfare, rather they looked at its effect on poverty reduction which should have been better proxied by the misery index that measures the poverty rate in a given economy.

There are scanty studies on channels of financial system development mechanism and households' welfare linkages. Arguments in literature are centered on either the effect of financial system development on the growth of an economy or the effect of financial system development on poverty determinants with varying results. Akintola, Oji-Okoro, and Itodo (2020) appraised the development of the financial sector and its effect on the economy of Nigeria and found that development of the finance sector in Nigeria has a positive and significant impact on real output growth. In a similar study Nwanna and Chinwudu (2016) analysed the effect a developed financial system has on growth processes of the Nigerian economy from 1985 to 2014. Their result showed that finance sector development significantly and positively influenced the economy of Nigeria. On the other hand, Emeka and Aham (2013) studied finance sector development and growth of the economic nexus in Nigeria. The study found that the deepened finance sector and credit to the private sector were not effective in influencing and improving economic fundamentals of growth in Nigeria. In line with studies of Emeka and Aham (2013), Maduka and Onwuka (2013) researched both the long-run and short-run effects of financial structure on the economy of Nigeria with similar results revealing that financial structure negatively and significantly influenced growth processes in the economy of Nigeria. Similarly, Ozigbu and Ezekwe (2020) followed the supply-leading hypothesis and empirically assessed how the financial system deepening in Nigeria influences the poverty level between 1981 and 2018. The research result showed that deepening the finance system has significant and negative effects on poverty headcount and income inequality in Nigeria. Sovia, Majid and Kassim (2018) empirically examined the finance sector development and poverty alleviation inter-linkages in Indonesia. The Results of their study recorded the existence of a long-run positive linkage between finance sector development and poverty alleviation in Indonesia.

The inconclusive nature of research findings and the absence of empirical studies on dynamics of financial sector development mechanism and its effect on household welfare in Nigeria provided a basis for this study which seeks to ascertain how finance sector development transmission channels influences household welfare in Nigeria. The study evaluated the impact of broad money supply/GDP, credit to private sector/GDP, market capitalization/GDP, total insurance premium/GDP, and total pension fund assets'/GDP, on per capita consumption in Nigeria.

## 2. Review of Literature

### 2.1 Conceptual Framework

This study reviewed two channels through which the development of the financial sector may impact on households' welfare.

### 2.1.1 Direct Access to Financial Services

Financial products are numerous but the most important financial product to households is credit. A well-developed financial system makes access to credit easy. Fields (2001) opined that there are benefits gained when credit markets are developed because credit markets that are not developed hinders access to funds and this will lead to low economic activity, poor output, increase poverty, and create income inequality. Access to credit will assist households participate in more productive investments and increase their income. Having greater access to credit by households will improve national productivity, increase savings and investment, reduce poverty and ensure better welfare for households. Access to credit enables households to respond positively to financial shocks which may include sudden family financial needs, children education and health related financial challenges.

### 2.1.2 Economic Growth Process

An indirect channel through which the development of the finance sector transmits to household welfare is through the process of growth of the economy. Economic prosperity impacts on household welfare through different possible channels. Improvement in the economy leads to expansion in output as a result of increase in economic activities. This creates jobs for the household. Tax net will multiply, thereby increasing tax revenue. When tax revenue increases, the government will have more funds at their disposal to spend on social and public infrastructure such as education, healthcare, security, and other social net programmes that benefit the households. Over time, there will be capital accumulation as a result of government expenditure on infrastructure. This will increase economic prosperity. Capital accumulation will make funds available to households who may decide to invest the funds thereby increasing their income (Aghion & Bolton 1997).

This study therefore conceptualised five key performance indicators as conduits through which the development of the finance sector is transmitted to households. These conduits include the channels of Broad money supply/GDP, domestic credit to private sector/GDP, market capitalization/GDP, insurance premium income/GDP, and pension funds' assets/GDP.

## 2.2 Review of Theory and Assumptions

This study is anchored on theoretical assumptions followed by Clarke, Xu and Zou (2002). The assumption underlying Clarke *et al.*, (2002) is that a financial sector that is developed provides easy access to financial services including credit facilities. This will provide the needed fund for investment by households, thereby increasing their income. With increased income, households can take care of their children's education, family health, accommodation and acquire properties. Kuznets (1955) inverted U-hypothesis, however criticised Clarke *et al.*, (2002) and brought out the nature of influence that a developed financial sector may have on households with low income. Kuznets suggested that financial sector development facilitates speedy movement from low income and more underdeveloped industrial and services sectors to the extent that it may increase inequality. In their opinion, growth in an economy may increase income inequality at

the initial stage of the development process. This may be reduced at the maturity stage because the asset rich investors who can fund investments and have collateral to obtain credit will gain the benefits of industrialization and reap higher share of economic return from their investments, while the low-income class will be disadvantaged.

Similarly, some researchers opined that the development of the finance sector will lead to unequal benefit to different households depending on their economic class. Galor and Zeira (1973), and Aghion and Bolton (1997) argued that, information asymmetry will produce hindrances and credit barriers that will have adverse effect on low-income earners that cannot fund their projects and do not have adequate collateral to obtain bank credit. Clarke *et al.*, (2002) however, put up a counter argument stating that the development of the financial sector will overcome these imperfections, reduce income inequality and improve welfare of households.

### 2.3 Review of Related Empirical Literature

Scanty empirical studies exist on how financial sector development transmits to household welfare. Available studies on financial sector development centered on the effect of a developed finance sector on either poverty reduction or economic growth processes. However, empirical evidence from these studies remains controversial, ambiguous and unresolved. Some of these studies were reviewed and hereby presented.

Abramova, Artemenko and Krinichansky (2022) contributed to the argument on the ‘finance-growth’ nexus by studying the channels of transmission from the financial system to the economy. The study covered a time period from 1995 to 2019 using a sample of 168 countries. The research findings revealed that the output channel is the most effective channel through which financial sector development is transmitted to the economy. The study further indicates that the reliability of this channel was not in any way influenced by the level of inflation in the countries. In terms of statistical reliability of estimates obtained, capital accumulation was expected to be unreliable but it proved otherwise and was the most significant channel through which financial system development transmitted to the economy.

Amalu, Agbasi, Olife, and Okechukwu (2021) explored the effectiveness of financial sector development in influencing productivity of the service industries in Nigeria from 1981 to 2019. Market capitalization/GDP, monetization/GDP, and credit to the private sector/GDP were the indicators of financial system development. The study adopted the ARDL model to estimate the variables. Results of the study showed that market capitalization/GDP and monetization/GDP significantly and positively influenced the output of the service industries, while the effect of credit to the private sector/GDP on service industries productivity was however insignificant and negative.

Studying money, capital and foreign exchange markets as sub-sectors of the financial system and based on quarterly data from 2000Q1 to 2019Q4, Akintola, Oji-Okoro, and Itodo (2020) analysed the effect of financial sector development on the economy of Nigeria. Results of the study indicated that financial depth, all share index, and liquidity of the banking system had

positive and significant influence on real output growth, while the effect of exchange rate spread was negative but significant in influencing real output in Nigeria.

In a similar study, Ozigbu and Ezekwe (2020) followed the supply-leading hypothesis and empirically assessed how the financial system deepening in Nigeria shaped the economic development process from 1981 and 2018. The study focused on poverty reduction and income inequality. Annual time series data were collected from the National Bureau of Statistics, Central Bank of Nigeria Statistical Bulletin. The variables were analysed based on Kwiatkowski Phillips-Schmidt-Shin (KPSS) unit root test, ARDL model, and cointegration analysis. Findings from the study showed that broad money supply/GDP has significant and negative effect on poverty headcount and income inequality, while private sector credit had insignificant effect on poverty and income gap in Nigeria. It further indicated that the effect of real interest rate on poverty level in Nigeria was significant and positive.

Onwuka and Nwadiubu (2019) carried out a study on the effect of a developed financial system on government treasury bills in Nigeria. The indicators for financial system development were broad money supply/GDP, private sector credit/GDP, and lending interest rate, while outstanding treasury bills measured government investment in treasury bills in Nigeria. Multiple regression models were employed in estimating the variables. Findings of the study indicated that outstanding treasury bills in Nigeria were influenced by financial development and the rate of interest.

Using annual data from 1980 to 2015, Sovia, Majid and Kassim (2018) empirically examined the relationship between a developed financial sector, economic growth, and poverty rate in Indonesia. The study employed the ARDL model to appraise the long run effect between the variables. Findings of the study revealed that a long run relationship exists between a developed financial sector, economic growth, and poverty rate in Indonesia. The findings further revealed that unidirectional causality runs from a developed financial sector to poverty rate, while bidirectional causality exists between economic growth and poverty rate in Indonesia.

Using secondary data from 1990-2017 which was sourced from the Statistical Bulletin of the Central Bank of Nigeria, Werigbelegha and Ogiriki (2018) investigated the effect of financial sector development on the growth of the Nigerian economy. The dependent variable was gross domestic product, while the independent variables are market capitalization, total bank deposits, and credit to the private sector. Research findings showed that a unidirectional causality runs from financial sector development to growth processes of the Nigerian economy.

In a study conducted by Elechi, Ezu and Ananwude, (2017), the effect of employees' contributions to pension scheme retirement saving accounts on rural, urban, and national poverty rate was examined. Ordinary Least Squares (OLS) regression model was used to estimate variations in rural, urban, and national poverty rate. Employees' pension contributions into the retirement savings benefits account was the dependent variable, while, unemployment rate, gross national income, and population growth rate were the independent variables. It was discovered

that pension fund contributions were not able to significantly influence rural, urban, and national poverty rate in Nigeria.

The effect of financial sector development on the growth of the Nigerian economy was appraised by Nwanna and Chinwudu (2016) using data series from 1985 to 2014 obtained from a statistical bulletin of the Central Bank of Nigeria. Ordinary least squares (OLS) model was the econometric techniques used in estimating the variables. Gross domestic product (GDP) was the measure for the Nigerian economy, while, private sector credit/GDP, broad money supply/GDP, financial saving/GDP, and market capitalization/GDP were the independent variables. It was revealed that all the financial indicators significantly and positively influenced the Nigerian economy. This implies that the financial system in Nigeria is imperative in the process of economic growth and prosperity in Nigeria.

## 2.4 Gap in Review of Empirical Literature

Research on a developed financial system effect on household welfare generally is still a grey area in the body of empirical literature. Comprehensive review and empirical research that address issues on nexus between financial sector growth and household welfare is scanty. Most studies such as the works of Abramova, Artemenko and Krinichansky (2022), Amalu, Agbasi, Olife and Okechukwu (2021), Akintola, Oji-Okoro and Itodo (2020), Ozigbu and Ezekwe (2020), Onwuka and Nwadiubu (2019), Sovia, Majid and Kassim (2018), Werigbelegha and Ogiriki (2018), Elechi, Ezu and Ananwude, (2017), Nwanna and Chinwudu (2016) focused on either the effect of a developed financial system on an economy or the effect of a developed financial system on poverty rate and in most cases used conflicting variables and yielded ambiguous results. The studies reviewed did not consider the effect of a developed financial system on household welfare in Nigeria; rather they looked at its effect on poverty reduction. Per capita consumption represents a welfare indicator for households because it reflects what a household is able to command based on its current income. It is a direct measure of a person's economic well-being.

Per capita consumption is not a good measure for poverty reduction. Poverty reduction should have been proxied by income per capita that is a reliable measure that takes into consideration the income per person in a country or region, poverty index or misery index that measures the poverty rate in a given economy. Again, none of these studies used the “ratio of total insurance premium to GDP (TINP/GDP), and ratio of total pension fund assets to GDP (TPFA/GDP)” as measures for of financial sector development and therefore did not capture the various finance system sub-sectors or channels through which a developed financial sector transmit to the households. Furthermore, it covered the period of financial system liberalisation (1986) and the period of COVID-19 which was not covered by the previous studies. These created a gap in literature.

## 3. Methodology



In this study, the basic approach to examining how a developed financial sector growth influences household welfare in Nigeria is based on an ordinary least squares regression model. This research covered a period spanning from 1986 – 2020. Data were collected from the Statistical Bulletin of the Central Bank of Nigeria, NSE Fact book, and National Bureau of Statistics.

### 3.1 Specification of Research Model

This study adopted the Onwuka and Nwadiubu (2019) model to investigate how a developed financial sector transmission mechanism influenced household welfare in Nigeria from 1986 to 2020. They analysed the effect of a developed financial sector on outstanding government treasury bills in Nigeria. Functional form of the Onwuka and Nwadiubu (2019) model is stated in equation 3.1.

$$OTB = f(M2/GDP, CPS/GDP, IRS) \dots\dots\dots (3.1)$$

Where: OTB = Outstanding treasury bills; M2/GDP = Financial development indicator; CPS/GDP = Financial intermediation indicator; IRS = Financial efficiency indicator.

The econometric equation from functional model was generated thus:

$$OTB_t = \beta_0 + \beta_1 M2/GDP_t + \beta_2 CPS/GDP_t + \beta_3 IRS_t + \epsilon_t \dots\dots\dots (3.2)$$

This research formulated a model based on equations 3.2 and it is presented in equation 3.3 as modified with the introduction of additional variables, market capitalization/GDP (MCAP/GDP), total insurance premium/GDP (TINP/GDP), and total pension fund assets/GDP (TPFA/GDP) as measures for financial sector development and Per capita consumption (PCC) a measure of household welfare. The additional variables capture the various sub-sectors of the financial system.

$$PCC_t = \beta_0 + \beta_1 M2/GDP_t + \beta_2 CRPS/GDP_t + \beta_3 MCAP/GDP_t + \beta_4 TINP/GDP_t + \beta_5 TPFA/GDP_t + \mu_t \dots\dots (3.3)$$

Where; PCC = Per Capita Consumption (proxy for household welfare); M2/GDP = Broad Money Supply/GDP; CRPS/GDP = Credit to Private Sector/GDP; MCAP/GDP = Market Capitalization/GDP; TINP/GDP = Total Insurance Premium/GDP; TPFA/GDP = Total Pension Fund Assets/GDP;  $\beta_0$  = intercept / constant;  $\beta_1, \beta_2, \beta_3, \beta_4$ , and  $\beta_5$  = Parameters to be estimated;  $\mu$  = Stochastic variable and t= time period.

The *a priori* expectations of the coefficient of the model:  $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0$  and  $\beta_5 > 0$

### 3.2 Description of Research Model Variables

**Per Capita Consumption:** Per capita consumption is the quantity of goods and services used in a year by one person in an economy and it is calculated by finding the quotient of goods and services used in a year by the total population of the country. Per capita consumption indicates a person’s economic welfare or well-being.

**Broad Money Supply/GDP:** Broad money supply is the total volume of money in an economy and it includes narrow money + savings and time deposits with banks + foreign denominated deposits. In 2020, broad money supply/GDP (%) for Nigeria was 25 %. Though Nigeria's broad money supply substantially fluctuates on annual bases, it increased through the 1971 - 2020 financial year to 25 % in 2020 (World Bank, 2021).

**Credit to Private Sector/GDP:** Credit to the private sector is funds provided by financial institutions to the private sector which are repaid with interest. According to the World Bank, (2021), in 2020 credit to the private sector in Nigeria was 12.1 %.

**Market Capitalization/GDP:** Market capitalization is the total value of shares or stock of companies in a country. It is calculated by multiplying the price per share by the total number of outstanding shares. Market capitalization/GDP is a ratio used to ascertain if the overall market is undervalued or overvalued in contrast to historical average. If Market capitalization/GDP falls between 50% and 75%, the market is modestly undervalued. Market capitalization/GDP (%) in Nigeria was 13.09 % in 2020 (World Bank, 2022).

**Total Insurance Premium/GDP:** Total insurance premium income is cash inflows from selling insurance policies. Insurance companies sell risk protection to the insured and in return receive premium income for guaranteeing to indemnify the insured on occurrence of the event.

**Total Pension Fund Assets'/GDP:** Total pension fund assets are assets acquired by financing pension plans through contributory pension schemes for the sole purpose of benefiting from the pension scheme on retirement (Elechi, Ezu & Ananwude, 2017). Pension fund assets'/GDP (%) in Nigeria was 7.016 % in 2019 (World Bank, 2022).

## 4. Results and Discussion of Findings

### 4.1 Augmented Dickey-Fuller (ADF) Unit Root Test

**Table 1 Result of Unit Root Test Based on Augmented Dickey-Fuller (ADF)**

Variables	ADF Value Level	Critical Value at 5% Level	ADF Value 1 <sup>st</sup> Difference	Critical Value at 5% 1 <sup>st</sup> Diff.	Order of Integration
PCC	-0.319	-2.986	-3.150	-2.989	I(1)
M <sub>2</sub> /GDP	0.295	-2.986	-3.518	-2.989	I(1)
CRPS/GDP	-1.923	-2.986	-2.995	-2.989	I(1)
MCAP/GDP	-0.718	-2.986	-2.996	-2.989	I(1)
TINP/GDP	-1.762	-2.986	-2.990	-2.989	I(1)
TPFA/GDP	-0.066	-2.986	-3.061	-2.989	I(1)

**Source: Authors computation (2022) from STATA 13 software package**

ADF unit root test result presented in table 1 revealed that none of the variables was stationary at level because the ADF values recorded were less than 5 percent, but they became stationary at first difference.

### 4.2 VAR Lag Order Selection Criteria

The study compared three different criteria to select the lag order. They include Hannan and Quinn's Information Criterion (HQIC), Akaike Information Criterion (AIC), and Schwartz Information Criterion (SBIC).

**Table 2 Optimal Length Selection Criteria**

Lag	AIC	HQIC	SBIC
0	59.3576	59.4481	59.6352
1	50.0978	50.7311	52.0406
2	47.9832	49.1593	51.5913
3	40.7799	42.4989	46.0532
4	21.7733*	24.0351*	28.7120*

Source: Authors computation (2022) from STATA 13 software package

The optimal lag was achieved where the three different information criteria had their lowest values. Thus, the optimal lag length was four (4).

### 4.3 Johansen Cointegration Test

Cointegration test based on Johansen model was conducted to ascertain if there is any long run relationship at equilibrium amongst research variables.

**Table 3 Cointegration Test Result based on Johansen Model**

Maximum Rank	Trace Statistics	0.05 Critical Value
r = 0	186.4989	94.15
r = 1	122.1930	68.52
r = 2	77.1454	47.21
r = 3	38.6953	29.68
r = 4	20.2775	15.41
r = 5	3.2276*	3.76

Source: Authors computation (2022) from STATA 13 software package

Co-integration test result based on Johansen model presented in table 3, indicated existence of five (5) co-integrating equations at five percent significance level which implies that there is a long run relationship amongst research variables.

### 4.4 Analysis of Vector Error Correction Modelling (VECM)

Analysis of vector error correction modelling (VECM) was conducted and results are presented in table 4.

**Table 4 VECM Result (Short Run)**

Variables	Coefficients	Std. Error	Z	p/z/
ECM(-1)	-0.7196201	0.1618283	-4.45	0.000
D[PCC(-1)]	0.0338152	0.1632502	0.21	0.836
D[M <sub>2</sub> /GDP(-1)]	0.2392128	0.1453621	1.65	0.100
D[CRPS/GDP(-1)]	-0.2409904	0.1100483	-2.19	0.029
D[MCAP/GDP(-1)]	0.1041331	0.0596801	1.74	0.081
D[TINP/GDP(-1)]	0.0224855	0.0863078	0.26	0.794

D[TPFA/GDP(-1)]	-0.0410891	0.013237	-3.10	0.002
C	0.2590043	0.0561616	4.61	0.000

R-squared = 0.9398; Adj. R-squared= 0.9105; Chi<sup>2</sup> = 249.9633; P > Chi<sup>2</sup> = 0.0001

**Source: Authors computation (2022) from STATA 13 software package**

The regression equation for the short run estimation result is stated in equation 4.1.

$$DPCC_t = 0.2590043 + 0.0338152DPCC_{t-1} + 0.2392128DM_2/GDP_{t-1} - 0.2409904DCRPS/GDP_{t-1} + 0.1041331DMCAP/GDP_{t-1} + 0.0224855DTINP/GDP_{t-1} - 0.0410891DTPFA/GDP_{t-1} - 0.7196201ECM_{t-1} \dots \dots \dots (4.1)$$

Results of the short run analysis presented in table 4 revealed an error correction mechanism of - 0.7196201 which was significant at 5 percent levels. This indicated that previous year’s disequilibrium was corrected and adjusted for within the current year at a speed of 72 percent. It revealed that per capita consumption in the previous year has a positive relationship with current year’s per capita consumption in Nigeria.

The adjusted R-squared (0.9105) implied that 91% variability in per capita consumption in Nigeria was as a result of changes in broad money supply/GDP, credit to private sector/GDP, market capitalization/GDP, total insurance premium/GDP, and total pension fund assets’/GDP. The remaining 9 percent of variations in per capita consumption may be due to economic situations not captured in the research model. With a probability Chi2 value (0.0001) being less than 0.05, it suggests that the research model adopted was a good fit, and it is reliable and appropriate for policymaking.

**Table 5 Results of Long Run Estimation**

Variables	Coefficients	Std. Error	Z	p/z/
M <sub>2</sub> /GDP	0.2970879	0.0893300	3.33	0.021
CRPS/GDP	0.0699554	0.0821712	0.85	0.375
MCAP/GDP	0.1234443	0.0249934	4.94	0.006
TINP/GDP	0.2844241	0.0172837	16.46	0.000
TPFA/GDP	-0.0254371	0.0049757	-5.11	0.004

R-squared = 0.8673; Adj. R-squared= 0.8358; Chi<sup>2</sup> = 210.6531; P > Chi<sup>2</sup> = 0.0001

**Source: Authors computation (2022) from STATA 13 software package**

The long run result showed that M<sub>2</sub>/GDP had a positive effect on per capita consumption in Nigeria. A percent increase in M<sub>2</sub>/GDP led to 3.0% increase in per capita consumption. M<sub>2</sub>/GDP probability value of 0.021 was less than 0.05 test statistics level which suggested that broad money supply/GDP significantly influenced per capita consumption in Nigeria.

CRPS/GDP positively influenced per capita consumption. One percent increase in CRPS/GDP led to 0.70% increase in per capita consumption. CRPS/GDP probability value of 0.375 was

greater than 0.05 test statistics. This implied that credit to the private sector though positive had no significant effect on per capita consumption in Nigeria.

MCAP/GDP exerted a positive effect on per capita consumption. One percent increase in MCAP/GDP led to 1.2% increase in per capita consumption. MCAP/GDP probability value of 0.006 was less than 0.05 test statistics level. This indicated that the effect of market capitalization on per capita consumption in Nigeria was positive and significant.

Similarly, TINP/GDP had a positive effect on per capita consumption. One percent increase in TINP/GDP led to 2.8% increase in per capita consumption. TINP/GDP probability value of 0.000 was less than 0.05 test statistics level. This suggested that total insurance premium income influenced significantly per capita consumption in Nigeria.

On the other hand, TPFA/GDP had a negative impact on per capita consumption. A percent increase in TPFA/GDP led to a 0.3% decrease in per capita consumption. TPFA/GDP probability value of 0.004 was less than 0.05 test statistics in absolute terms. This implied that pension fund assets inversely influenced per capita consumption in Nigeria.

#### 4.5 Granger Causality Wald Test

Granger causality test was used to determine the short run direction or causal flow from one variable to another and the result is presented in Table 6.

**Table 6 Result of Granger Causality Wald Test**

Null hypotheses	Chi2	Def.	Prob.
PCC does not Granger-cause M <sub>2</sub> /GDP	11.748	2	0.015
M <sub>2</sub> /GDP does not Granger-cause PCC	14.326	2	0.002
PCC does not Granger-cause CRPS/GDP	9.9067	2	0.013
CRPS/GDP does not Granger-cause PCC	6.5381	2	0.038
PCC does not Granger-cause MCAP/GDP	32.434	2	0.000
MCAP/GDP does not Granger-cause PCC	43.565	2	0.000
PCC does not Granger-cause TINP/GDP	16.078	2	0.001
TINP/GDP does not Granger-cause PCC	6.3265	2	0.070
PCC does not Granger-cause TPFA/GDP	16.376	2	0.001
TPFA/GDP does not Granger-cause PCC	3.5834	2	0.101

**Source: Authors computation (2022) from STATA 13 software package**

The Granger causality test (see table 4.6) revealed the existence of a bidirectional causal flow between per capita consumption (PCC) and (M<sub>2</sub>/GDP; CRPS/GDP; and MCAP/GDP) with probability values less than 0.05 level of significance. On the other hand, a unidirectional causal link runs from per capita consumption to TINP/GDP and TPFA/GDP respectively.

#### 4.6 Discussion of Findings

The study revealed that the effect of broad money supply/GDP on per capita consumption in Nigeria was positive and significant. The research result corroborates Azran, Dilawar, Ejaz and Waheed (2012); Nwanna and Chinwudu (2016) whose research findings indicated that financial deepening positively and significantly influenced per capita consumption. On the other hand, the findings of Ozigbu and Ezekwe (2020) are in contrast to this result as they recorded negative and significant effects.

The study showed that the impact of credit to the private sector/GDP on per capita consumption was positive and insignificant. This is similar to empirical research result recorded by Thorsten, Berrak, Felix and Neven (2008); Amalu, Agbasi, Olife, and Okechukwu (2021); Nwanna and Chinwudu (2016) who found that private sector credit was positively related to per capita consumption across countries. This could be attributed to the subsisting segregation practice of the commercial banks when it comes to granting of credits. Again, the study showed that market capitalization-GDP ratio influenced positively and significantly per capita consumption. This outcome conformed with economic theoretical expectation because the deeper the stock market, the more vibrant the economy and the higher the per capita income (or per capita consumption). This finding corroborates Aali-Bujari, Venegas-Martinez and Perez-Lechuga (2017); Amalu, Agbasi, Olife and Okechukwu (2021); Akintola, Oji-Okoro and Itodo (2020) which found that market capitalization/GDP influenced positively and significantly GDP per capita in Latin America.

The result of this study also showed that the total insurance premium-GDP ratio was able to improve significantly per capita consumption. This research result might be attributed to the effectiveness of the insurance industry in mitigating business risks and shocks in Nigeria thereby increasing business income and household welfare. Surprisingly, the study showed that the total pension fund assets-GDP ratio inversely but significantly influenced per capita consumption. This is in contrast with the works of Elechi, Ezu and Ananwude, (2017) whose research result recorded that rural, urban and national poverty levels were not significantly influenced by pension contributions. This finding is not in conformity with economic theoretical expectation because pension fund assets are expected to be invested to generate returns to the retirees. The conflicting research results may be attributed to lack of synchronisation in policies and the fact that many states of the federation are yet to effectively key into fulfilling pension payment obligations to their retirees over the years. With the weak political will to implement the compulsory contributory pension scheme, the standards of living of the workers and retirees have continued to fall thereby undermining household welfare in Nigeria.

## 5. Summary and Conclusion

This empirical investigation centred on the dynamics of financial sector development transmission channels and they influenced household welfare in Nigeria from 1986 to 2020. The study revealed that the transmission channels through Broad money supply/GDP, market capitalization/GDP, and total insurance premium income/GDP were the main conduits through

which households were influenced by the financial sector development. Total pension fund assets-GDP ratio had a negative effect, while the transmission channel through credit to the private sector/GDP was ineffective in influencing household welfare in Nigeria.

Causal flow from one variable to another was ascertained using Granger causality Wald test. It was found that a bidirectional causal link between per capita consumption and broad money supply/GDP, credit to private sector/GDP and market capitalization/GDP respectively. On the other hand, a unidirectional causal link from per capita consumption to the ratio of total insurance premium-GDP and ratio of total pension fund asset-GDP exists.

This research recommends:

- 1 The private sector should be promoted and encouraged to expand production. This can be achieved if CBN strengthens its policy on credit extension to the private sector by making it mandatory for commercial banks to extend credit facilities to private businesses especially the micro and small-scale businesses. This would put more funds in the hands of households; increase economic activities and expand output.
- 2 The Nigeria Stock Exchange (NSE) should be further strengthened, and it has to make innovations capable of attracting more private and foreign direct investments into the Nigerian capital market. This will invariably have a positive effect on market capitalization-GDP ratio.
- 3 Ministries, departments and agencies (MDAs) across different levels of government (Federal, States, and Local) in Nigeria should be mandated to enforce the different insurance policies by aligning with the NAICOM and other regulators.
- 4 Regular payment of pensions to retirees is imperative and should be adopted by all strata of government to improve standard of living and household welfare in Nigeria.

## References

- Aali-Bujari, A., Venegas-Martinez, F., & Perez-Lechuga, G. (2017). Impact of Stock Market Capitalization and the Banking Spread in Growth and Development in Latin American: A panel data estimation with system GMM. *Contaduria y Administracion*, 62(5), 1427-1441.
- Abramova, M., Artemenko, D., & Krinichansky, K. (2022). Transmission Channels between Financial Deepening and Economic growth: econometric analysis comprising monetary factors. *Mathematics*, 10, 242. <https://doi.org/10.3390/math10020242>
- Aghion, P. & Bolton, P. (1997). A theory of trickle-down growth and development, *Review of Economic Studies*, 64,151–72.
- Akintola, A. A., Oji-Okoro, I. & Itodo, I. A. (2020). Financial sector development and economic growth in Nigeria: An empirical re-examination, *Central Bank of Nigeria Economic and Financial Review*, 58(3), 59-84.

- Amalu, H., Agbasi, L., Olife, L. & Okechukwu, A. (2021). Responsiveness of service sector growth to financial development in Nigeria: Evidence from 1981-2019. *Journal of Advanced Research in Economics and Administrative Sciences*, 2(3), 1-12.
- Ardic, O. P. & Damar, H. E. (2016), Financial Sector Deepening and Economic Growth: Evidence from Turkey. *Journal of Money, Credit & Banking*, 33: 16-41.
- Azran, K., Dilawar, K., Ejaz, A., & Waheed, U. (2012). Financial development and poverty alleviation: time series evidence from Pakistan. *World Applied Sciences Journal*, 18(11), 1576-1581.
- Banerjee, A. (2009). Lin roundtable: difficult trade-offs. free exchange, *Economist.com blogs*. Available: [www.economist.com/blogs/freeexchange/lin\\_roundtable](http://www.economist.com/blogs/freeexchange/lin_roundtable).
- Beck, T. A., Demirguc-Kunt, M. & Martinez-Peria, M. S. (2007). Reaching out: Access to and use of banking Services across Countries. *Journal of Financial Economics*, 85(1): 234-66.
- Claessens, S., & Feijen, E. (2006). Financial sector development and the Millennium Development Goals. *World Bank Working Paper*, No. 89, World Bank, Washington, DC.
- Clarke, G., Xu, L. & Zou, H. (2002). Finance and income inequality: Test of alternative theories. *World Bank Policy Research Working Paper*, No. 2984, World Bank, Washington, DC.
- DFID (2004). *What is Pro-poor Growth and Why do we Need to Know? Pro-poor Growth Briefing Note 1*, London: DFID.
- Emeka, A. U. & Aham, E. C. (2013). Financial sector development and economic growth in Nigeria. *Journal of Economic Development and Culture Change*, 14(2): 174 -189.
- Elechi, J., Ezu, G. & Ananwude, A. (2017). Nigerian pension scheme and poverty reduction in Nigeria: An empirical assessment (2004-2015), *Asian Research Journal of Arts & Social Sciences*, 2(2): 1-25.
- Fields, G. (2001). *Distribution and Development: A New Look at the Developing World*. NY: Russell Sage Foundation and Cambridge; MA: MIT Press, in ADB (2004).
- Fowowe, B. & Abidoye, B. (2011). A Quantitative Assessment of the Effect of Financial Development on Poverty in African Countries, 1-20.
- Galor, O & Zeira (1993). Income Distribution and Macroeconomics. *Review of Economic Studies*, 60(1): 35-52.
- Granger, C. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica*, 37(3): 424-438.
- Honohan, P. (2004). *Financial Development, Growth and Poverty: How Close are the links, in Financial Development and Economic Growth: Expanding the Links*, Ed. Charles Goodhart. London: Palgrave, Forthcoming.



- Jalilian, H. & Kirkpatrick, C. (2001). Financial development and poverty reduction in developing countries, *Working Paper No. 30*, IDPM, Manchester University.
- Kaidi, N. & Mensi, S. (2018). Financial development and poverty reduction: A Study of Middle-Income Countries. *Economic research forum dokki, Giza Egypt: Working Paper No. 1216: 1-24.*
- Kuznets (1955). Economic growth and income inequality. *American Economic Review* 45(1) 1-28.
- Levine, R. (1997). Financial development and economic growth: views and agenda. *Journal of Economic Literature*, 35: 688-726.
- Maduka, A.C. & Onwuka, K.O. (2013). Financial market structure and economic growth: evidence from nigeria data. *Asian Economic and Financial Review*, 3(1): 75-98.
- Mendoza, E., Quadrini, V & Rios-Rull, J. V (2007), On the welfare implications of financial globalisation without financial development. *NBER International Seminar on Macroeconomics*. <http://www.nber.org/books/clar07-1>.
- Ndako, U. (2010). Financial development and economic growth: Evidence from Nigeria. *The IUP Journal of Financial Economics*, 8(4), 37-58.
- Nwanna, I. O, & Chinwudu, C.F. (2016). The effect of financial deepening on economic growth in Nigeria (1985 -2014). *Journal of Economics and Finance*, 7(4): 11-28
- Odhiambo, N. M. (2009), —Financial Deepening and Poverty reduction in Zambia. An Empirical Investigation. *International Journal of Social Economics*, 37.
- Onwuka, I. O. & Nwadiubu, A. (2019). Effect of financial sector development on poverty alleviation: The Nigerian Experience (1986 – 2018). *Advances in Social Sciences Research Journal*, 6(6), 39-51. DoI:10.14738/assrj.66.6469.
- Ozigbu, J. & Ezekwe, C. (2020). Financial deepening process and dynamics of economic development in Nigeria, *American Journal of Humanities and Social Sciences Research (AJHSSR)*, 4(12), 105-112.
- PenCom, (2020). National Pension Commission Annual Report, Website: [www.pencom.gov.ng](http://www.pencom.gov.ng)
- Sovia, D., Majid, M., Aliasuddin, A. & Kassim, S. (2018). Dynamics of financial development, economic growth, and poverty alleviation: The Indonesian Experience, *South East European Journal of Economics and Business*, 13 (1) 17-30.
- Takeshi, I & Shigeyuki, H. (2012). How has financial deepening affected poverty reduction in india? empirical analysis using state-level panel data. *Institute of Developing Economies Discussion Paper*, no, 249.

- Thorsten, B, Berrak, B, Felix, R. & Neven, V. (2008). Who gets the Credit? and does it Matter? Household vs. Firm Lending across Countries. *The World Bank, Policy Research Working Paper*, No. 4661
- Werigbelegha, A.P. & Ogiriki, T. (2018). A causality investigation of financial deepening and the growth of the Nigerian Economy (1990-2017). *International Journal of Economics, Commerce and Management*, 6(6). 423-432.
- World Bank Data (2021). <https://knoema.com/atlas/Nigeria/topics/Economy/Financial-Sector-Monetary-holdings-liabilities/Broad-money-percent-of-GDP>.
- World Bank Data (2021). <https://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS>.
- World Bank Data (2022). <https://tradingeconomics.com/nigeria/pension-fund-assets-to-gdp-percent-wb-data.html>.
- World Bank Data (2022). <https://tradingeconomics.com/nigeria/stock-market-capitalization-to-gdp-percent-wb-data.html>.
- Zingales, L (2009), Lin Rountable. Leave Room for Growth. *Free exchange*. Economist.com blogs. [www.economist.com/blogs/freexchnange/lin\\_Rountable](http://www.economist.com/blogs/freexchnange/lin_Rountable).