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Impact of Financial Sector Reforms on Domestic Consumption in Sub-Sahara Africa

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Abstract

This study examined the impact of financial sector reforms on domestic consumption in Sub-Sahara Africa. The specific objectives of this study include to: Investigate the impact of financial deepening, financial liberalization and digital financial innovation on domestic consumption in Sub-Sahara Africa for the period 2009 to 2023. The method of data analysis was Fully Modified Least Square method. The empirical results of the study showed that financial deepening has positive and significant impact on domestic consumption in Sub-Sahara Africa because [t-Statistics; 6.1114; P-value (0.0005) < significant value (0.05)]. Digital financial innovation has positive and significant impact on domestic consumption in Sub-Sahara Africa because [t-statistic; 9.1831; P-value (0.0000) > its significant value

(0.05)]. Financial liberalization has positive and significant impact on domestic consumption in Sub-Sahara Africa [t-statistic; 7.4616; P-value (0.0007) < significant value (0.05)]. The empirical result showed that there is no directional causal relationship between financial sector reforms and domestic consumption in Sub-Sahara Africa. The study recommended that monetary authorities of Sub-Sahara African countries should continue pursuing financial sector reforms such as financial liberalization, financial deepening and digital financial innovation that emphasize quality rather than quantity to promote economic growth. Financial sector reforms should be pursued in conjunction with macroeconomic stability policies directly aimed at promoting macroeconomic stability conditions.

Keywords: Financial Sector Reforms, Domestic Consumption, Financial Deepening Financial Liberalization

1. Background to the Study

A healthy and vibrant economy requires a financial system that moves funds from surplus spending unit to deficit spending unit. Financial intermediaries and financial markets play this role by moving huge flows of funds throughout the economy that in turn affect businesses and the production of goods and services. Financial system is therefore the lifeblood of an economy (Folake & Adelokun, 2020)^[8]. The financial system in Africa evolved from pre-colonial indigenous barter trade-like structures. There is a need for a developed and healthy financial system in developing countries, most especially, in regions of Africa (Kamasa, Mochiah, Doku & Forson, 2020)^[12]. Rosalind, (2022)^[19], posits that financial system refers to institutional arrangements that cover credit creation and borrowing of money by non-financial institutions, firms and individuals, and financial intermediation, which eases funds transfer and makes funds available to the deficit units; and establishment of markets in shares and debt securities to allocate money and price efficiently. A developed financial system holds the capability to absorb disturbances and reduce macroeconomic inequality, depending on the level of achievement of some of its functions, such as risk diversification, lowering financial constraints and information asymmetries (Manasseh, *et al*, 2022)^[14]. One of the most important tasks before developing countries is to achieve higher rate of economic growth. Due to the influence of the activities in the financial sector of the economy at large, every nation strives to have a proper and up to date financial sector. The Financial sector is in no doubt a very essential part of the economy of a nation and any reform carried out in the financial sector extends to other parts of the economy representing a transformational moment for the economy and its people. Financial sector reforms however have been a regular feature of the financial system. The reforms have evolved in response to the challenges posed by developments in the system such as systemic crisis, globalization, technological innovation, and financial crisis (Akakabota & Mmadu, 2019)^[2].

In many Sub-Saharan African countries, the reforms also facilitated the growth of non-bank financial institutions (NBFIs), such as leasing companies and building societies. The NBFIs provided some diversification in lending products and competition for deposits (usually wholesale deposits) with the commercial banks. This increased competition through entry of new banks which has stimulated some improvements in financial services. Some of the new entrants introduced longer opening hours, cut queues in banking halls and provided more personalized services. A number of innovations have now occurred. In many SSA countries, new products like credit and debit cards, automated teller machines (ATMs), interest bearing current accounts, and savings accounts with cheque-books are now available (Akinwale, 2018)^[4]. Cheque clearing has been speeded up. Competition for deposits has increased significantly, especially in the urban areas, various forms of competition. There is also increased competition for corporate clients. Prior to reforms, most SSA countries lacked proper regulatory and supervisory frameworks. The reforms facilitated the development of stronger supervisory authorities, most of them being the central banks (Owusu-Antwi, 2019)^[18]. This has strengthened financial systems in the region, while increasing their efficiency. The development of stronger regulatory authorities coupled with the restructuring of the portfolios of the privatised banks led to a rapid decline in the level of non-performing assets of commercial banks.

1.1 Statement of the Problem

Reforms in the financial sector have become perennial actions in developing and emerging economies of the world, in which Sub-Sahara Africa countries are not left out. Banking reform takes place in an economy to ensure stability and viability of the economy. Mainly, financial sector reforms usually set to achieve macroeconomic goals of price stability, full employment, high economic growth and internal and external balances. The financial sector reforms in Sub-Sahara Africa countries have been directed towards financial intermediation, financial stability and confidence in the system (Meshesha & Makoni, 2023)^[15]. Despite the reforms, the resultant financial sector in SSA is one that still does not adequately support growth. Banking services remain costly to users. Africa's banking systems are characterized by high real interest rates and high intermediation spreads. This creates a financial environment with high cost of loans that stifle investment and growth. In 2004, the average real lending rate in SSA was 13%, compared with an average of 8% in other low and middle-income countries and 3.5% in industrial countries. Also the post-reform institutional and legal framework were weak and did not support improved intermediation in SSA (Tieguhong & Mandiefe, 2022)^[20]. As a result, private sector lending has continued to be perceived by banks as risky, given that the means needed to enforce contracts by the institutions are inadequate. For example, enforcing a commercial contract through the courts remains difficult in most SSA countries. On average, creditors must go through 35 steps, and wait 15 months before receiving payments. Since most banks lend against collateral, deficiencies in the property rights' systems in many SSA countries for both land and other forms of property have limited the use of such assets as collateral,

thus impeding financial intermediation (Folorunsho, 2023)^[9]. Besides, empirical evidence explaining the effects of financial reforms on financial development and economic performance appear mixed. Against this problem, this study investigates the impact of financial sector reforms on domestic consumption in Sub-Sahara Africa.

1.2 Objectives of the Study

The broad objective of this study is to examine the impact of financial sector reforms on domestic consumption in Sub-Sahara Africa. The specific objectives of this study include to:

1. Investigate the impact of financial deepening on domestic consumption in Sub-Sahara Africa.
2. Determine the impact of digital financial innovation on domestic consumption in Sub-Sahara Africa.
3. Evaluate the impact of financial liberalization on domestic consumption in Sub-Sahara Africa.

1.3 Research Questions

The research questions of this study are posed in line with the statement of the research problem

1. What is the impact of financial deepening on domestic consumption in Sub-Sahara Africa?
2. What is the impact of digital financial innovation on domestic consumption in Sub-Sahara Africa?
3. What is the impact of financial liberalization on domestic consumption in Sub-Sahara Africa?

1.4 Research Hypotheses

Based on the objectives of this study, the hypotheses of this study will be formulated as follows:

- H₀:** Financial deepening has no significant impact on domestic consumption in Sub-Sahara Africa.
H₀: Digital financial innovation has no significant impact on domestic consumption in Sub-Sahara Africa.
H₀: Financial liberalization has no significant impact on domestic consumption in Sub-Sahara Africa.

1.5 Significance of the Study

The study would be of immense value to policy makers, government, financiers and researchers. The outcome of the findings of this research may inform the decisions of managers of the economy and policy makers to propose policies or strategies and advice on ways to make the financial sector reforms impact positively on economic growth in Sub-Sahara Africa.

The findings of this research may have the wider benefits for advancing economic growth and development of Sub-Sahara Africa. The findings of the study may be of great importance to international community and the development partners to support Sub-Sahara Africa countries. The World Bank, the International Monetary Fund (IMF) and other development finance institutions (DFIs) may use the findings of the study to determine whether to disburse loans and aids to Sub-Sahara Africa countries government towards future financial sector reforms.

The findings of this research will pave the way for future scholars and researcher to build on this study. The findings of the study may be of great importance to scholars and researchers on the current economic growth trends for Sub-Sahara Africa.

1.6 Scope of the Study

This study focuses on the impact of financial sector reforms on domestic consumption in Sub-Saharan Africa. It covers the period 2009 to 2023 making cross section of 90 number of observations. The study focuses on six SSA countries which are listed in the International Monetary Fund, IMF's index of financial sector reform. The study sampled countries under study with simple sample method with slip of paper. These countries include Nigeria, Ethiopia, Ghana, Kenya, Senegal and South Africa. The study is strictly focused on recent third-generation financial sector reforms in banking industry and specifically design to address financial sector recapitalization and digital transformation of Sub-Saharan Africa.

2. Literature Review

2.1 Conceptual Literature

2.1.1 Financial Sector Reforms

Financial reforms refer to the process or change in the components of the financial sector (i.e. deposit money banks, stock markets other financial intermediaries and a central bank becoming more efficient in providing financial services (such as the pooling of savings from the ultimate lending or surplus units to the deficit units and information management) (Adeoye & Usman, 2021)^[1].

Financial reform is an integral part of economic adjustment and stabilisation programme. It refers to two different, but complementary types of changes in the financial system geared towards improving how the sector allocates resources. First, financial sector reform is abolishing directed credit programmes, removal of interest rate ceilings and reduction in reserve requirements to let the free market determine the allocation of credit, rather than the government. Todaro and Smith, (2011) cited in Gidigbi, (2017)^[10] opined that financial liberalisation involves eliminating various forms of government intervention in the financial markets, thus allowing the effective use of the market (supply and demand) to determine the equilibrium level of interest rates.

2.1.2 Domestic Consumption

Domestic Consumption refers to as gross national product (GNP) of a country. Domestic consumption measures the sum of market value of all final goods and services produced in a country during a specific period of time usually a year. GNP is market value of domestically produced goods and services plus income earned by the residents of a country in foreign countries minus incomes earned in the country by the foreigners. Real gross domestic product is an inflation-adjusted measure which reflects the value of all goods and services produced by an economy in a given year, usually expressed in base-year prices, and is often graded as constant-price or inflation-corrected GDP. Unlike nominal GDP, real GDP can account for changes in price level and provide a more accurate figure of economic growth (Omanlhanlen, 2019)^[16]. The goal of macroeconomic policy is the achievement of output stabilisation in the short run and a diversified self-sustaining economic growth and development in the long run (Iyoha, 2004 cited in Kasekende, 2018). The other goals include attainment of price stability, equitable distribution of income, full-employment and equilibrium in balance of payment. Economic activity is often geared to enhance human welfare, and therefore, any meaningful indicator of performance must consciously acknowledge these goals. For

this study, economic performance indicators considered include real per capita GDP, gross capital formation as a percentage of GDP, human development and macroeconomic (misery) instability.

2.2 Theoretical Review

2.2.1 McKinnon and Shaw Liberalization Theory

This study is anchored on the liberalization theory which is summarized in the studies carried out by Goldsmith (1969), McKinnon (1973) and Shaw (1973). These scholars argued that, financial development has a strong correlation with growth. The classical school argues that under the assumption of a well-functioning market, financial liberalization enhances efficiency in resource allocation, promotes competition which results in competitive prices for goods. They argued further that, government restrictions on the banking system restrain the quantity and quality of investment. The financial liberalization theory ascribes the poor performance of investment and growth in developing countries to interest rate ceiling, high reserve requirements and quantitative restrictions in credit allocation. According to the theory, the restrictions are sources of financial repression, and the main symptoms are low savings, credit rationing and low investment in that economy. Thus the need for financial liberalization which frees financial market from any intervention and allows the market forces of demand and supply determined the allocation of credit in an efficient manner. The theory discourages active involvement of government in economic activities and argues that the role of government, if any, should be limited to the maintenance of law and order and the creation of relevant institutions for the efficient functioning of the free market system. This confirms the views of Ogun and Akinlo (2011) that, the adoption of economies of laissez-fair means, placing a strong faith in Adam Smith's 'invisible hand' and the market mechanism to efficiently allocate resources and fix prices. The postulation of Ogun and Akinlo is in consonance with the views of McKinnon (1973) and Shaw (1973), which attribute the slow growth of developing countries to financial repression. They argued that, liberalizing the markets results in tremendous benefits, which include increased savings and investment, increased efficiency of investment and long term economic growth. To this extent, economic growth is then expected to drive the growth of the financial sector, which in turn further stimulates and enhances the process of savings mobilization and the allocation of financial resources to productive investments.

Relevance of McKinnon-Shaw hypothesis to the Study:

In their analysis (also referred to as complimentary hypothesis), they concluded that alleviating financial restrictions by allowing market forces to determine the real interest rates rise toward their competitive market equilibrium. This means that artificial ceilings on interest rates reduce savings, capital accumulation and discourage the efficient allocation of resources. In the views of the duo, market forces and financial liberalization could bring an optimum financial structure and development as well as efficient mobilization of savings and credit allocation. The analyses also concluded that greater ease of entry into the banking sector encourages competition. This promotes the prospects for higher savings, investment supply of real credit and thus the potential for financial deepening.

2.3 Empirical Literature Review

Meshesha and Makoni (2023) ^[15] conducted a study to examine the financial inclusion on economic growth in Sub-Saharan Africa. The specific objectives of the study were to examine the relationship between financial inclusion and economic growth while further identifying the direction of causality between the two variables in twenty-six (26) Sub-Saharan African (SSA) economies using annual secondary data over the 2000–2019 period. The data analytical techniques were principal component analysis (PCA) technique, panel unit root, system generalised method of moment (GMM), and ARDL cointegration tests. The study revealed that financial inclusion and economic growth share a strong long-run relationship and that there is bi-directional causality, indicating synergy between these two variables. The study recommended that developing countries should develop macroeconomic policies that will promote financial inclusion while enhancing the functioning and regulation of the domestic financial markets to ensure that all citizens are catered for in the available instruments, products, and service offerings. Within the same policy framework, efforts must be made to further support productive sectors of the economy to ensure economic growth.

Folorunsho (2023) ^[9] conducted a study to evaluate the relationship between financial innovation and sustainable development in selected countries in West Africa. The specific objectives of the study were to examine the effect of financial innovation augmented with bank competition on sustainable development in eight West African countries. Data were sourced from World Bank development indicators from years 2000-2013. The methods of data analysis were Granger causality test and Auto Regressive Distributive Lag (ARDL) technique. While the two proxies of competition were significant, the financial innovations were not significant; one displayed a negative, while the other exhibited a positive relationship with development. These results revealed the differential effects of different financial innovations adopted in the financial system. That is, the growth effect of financial innovation is sensitive to the choice of proxy. A reduction in demand for money caused by financial innovations could deter economic growth and development. This is because individuals would move away from more liquid assets to less liquid assets. On the other hand, financial innovations could potentially lead to an increase in money demand if payment systems improve and individual's demand for more liquid assets is channeled to productive sectors. The study recommended that policies which would drive competition and efficiency in the banking industry as well as financial innovation should be introduced to ensure effective functioning of the financial system.

Ekwevugbe and Brotoboh (2022) ^[6] conducted a study to examine the influence of banking sector reforms on the capital market. The specific objectives were to determine the relationship between interest rate spread and economic growth in Nigeria; analyze the effect of exchange rate on economic growth in Nigeria; assess the effect of banks' capital base or size on the growth of the Nigerian economy; and determine the relationship between corporate governance disclosure index and gross domestic product growth rate in Nigeria spans the years 1980 to 2008. The data analytical technique was ordinary least square approach. The empirical result shows that financial sector advancements that occurred in Nigeria's economy at one

point or another had an impact on the economy's activities. This does not, however, imply that financial sector changes are primarily to blame for the sector's improved performance. Improvements in financial intermediation were deemed a crucial condition for promoting investment, increasing productive capacity, and fostering economic growth in this research study. As a result, macroeconomic stability is suggested, as all other activities affect or are affected by it. Political stability is also important since it influences the financial sector's effectiveness.

Antwi-Bosiako (2022) ^[5] conducted a study to examine the effects of financial sector reforms on Economic Growth in Ghana. Specifically, the study sought to investigate to the relationship between financial sector reforms and economic growth and analyse the effects of third generation financial sector reforms in the banking industry. The study adopted quasi-experimental design, a scientific and quantitative methods. Data analysis techniques are multiple linear regression, Pearson correlation analysis, descriptive statistics, and trend analysis. The study also finds that bank credit to private sector has a positive and significant effect on economic growth with a p-value of 0.002 at 0.05 significance level; savings mobilization has a positive and significant effect on economic growth with a p-value of 0.001 at 0.05 significance level; financial inclusion has a positive and significant effect on economic growth with a p-value of 0.002 at 0.05 significance level. This implies that they impede the full potential of the financial sector reforms' contribution to economic growth. The study concludes that financial sector reforms have growth-stimulating effect on Ghana. The study recommends the importance of pursuing financial sector reforms that emphasise quality rather than quantity to promote economic growth of Ghana.

Tieguhong and Mandiefe (2022) ^[20] conducted a study to investigate the impact of financial development on Economic growth using time series data in Cameroon. Specially, the study sought to examine to three common indicators of financial development (broad money, deposit/GDP and domestic credit to private sector) on economic growth. The method of data analysis was Auto Regressive Distributive Lag (ARDL) technique. The empirical result discovered that there exist a short-run positive relationship between monetary mass (M2), government expenditure and economic growth, a short run negative relationship between bank deposits, private investment and economic growth equally exists. However in the long run, all indicators of financial development show a positive and significant impact on economic growth. This paper thus confirms the existence of a positive and long-term impact of all the indicators of financial development on economic growth through bound test. It is therefore proposed that the financial reforms in Cameroon should be pushed forward in order to boost the development of the financial sector thus an increase in its role on economic growth.

Krokeme and Ayunku (2020) ^[13] examined the relationship subsisting between banking sector reforms and money market. Specifically, the study sought to examine impact of banking sector reforms proxied by credit to the private sector (CPS), broad money supply (M2) and total bank deposit (TD) on volume of commercial paper (CP) traded on the Nigerian Stock Exchange spanning the period 2004–2018. Annual data collected from the Central Bank of

Nigeria (CBN) statistical bulletin. The method of data analysis was Ordinary least Square method. Our findings revealed that an increase in the credit to the private sector (CPS) and total deposits (TD) will lead to a significant rise in the volume of commercial paper (CP) traded on the Nigerian Stock Exchange. While an increase in a rise in the total money supply in the economy will lead to a significant fall in the volume of commercial paper (CP) traded on the Nigerian Stock Exchange. To this tune, we recommend amongst others that the government continue to consolidate on existing reforms to improve deepening of the money market.

Iheonu, Asongu, Odo, and Ojiem (2022)^[11] investigated the impact of financial sector development on domestic investment in selected countries of the Economic Community of West African States (ECOWAS). Specifically, the study sought to investigate three common indicators of financial sector development (broad money, deposit/GDP and domestic credit to private sector) on domestic investment for the years 1985–2017. The method of data analysis was Granger non-causality test to test for causality in the presence of cross-sectional dependence. The results show that (1) The impact of financial sector development on domestic investment depends on the measure of financial sector development utilised; (2) Domestic credit to the private sector has a positive but insignificant impact on domestic investment in ECOWAS, whereas banking intermediation efficiency (i.e., ability of the banks to transform deposits into credit) and broad money supply negatively and significant influence domestic investment; (3) Cross-country differences exist in the impact of financial sector development on domestic investment in the selected ECOWAS countries; and (4) Domestic credit to the private sector Granger causes domestic investment in ECOWAS. The study recommends careful consideration in the measure of financial development that is utilised as a policy instrument to foster domestic investment.

2.4 Research Gap

Following the recent authors that stopped at 2019, the work of Antwi-Bosiako, (2022)^[5] conducted a study to examine the effects of financial sector reforms on Economic Growth in Ghana using annual secondary data over the 2000–2019 period. My study covered 2009 and 2023 thus added that financial deepening has positive and significant impact on domestic consumption in Sub-Sahara Africa.

Owing to the available literature reviewed in relation to impact of financial sector reforms on domestic consumption in Sub-Sahara Africa, most research work failed to anchor their studies with current theoretical literature that link financial sector liberalization with domestic consumption. The study covered the gap by using current theoretical literature of Mundell-Fleming model that modifies the Keynesian model of an open economy. The theoretical framework portrays that financial sector liberalization especially interest rate has indirect influence on domestic consumption through investment.

Owing to the available literature reviewed in relation to impact of financial sector reforms on domestic consumption in Sub-Sahara Africa, most research work failed to use appropriate data analytical technique except in this research

work. This study covered the gap by using Fully Modified Ordinary Least Square method that is consistent, unbiased and efficiency in parameter estimates.

3. Methodology

The study adopted Ex Post-Facto research design. The research design of this study is the cause and effect design. The data analysis techniques were divided into three sections namely: Pre-estimation, estimation and post-estimation. Under pre-estimation techniques, the study employed Augmented Dickey-Fuller Unit Root test to identify stationary position of the variables to avoid spurious regression. The serial Correlation LM test was used to identify whether the model suffer from autocorrelation problem. While Johansen cointegration technique was used to check for the long run association among the variables under study. Under estimation techniques, the study employed the fully modified ordinary least squares (FM-OLS) regression to measuring the impact of short run relationship between the dependent and independent variables in this study. Again, Granger causality test was to ascertain whether a causal relationship exists between variables. Under post-estimation techniques, the study carried out Normality to ascertain the distribution of the data set in the model.

3.1 Model Specification for the Study

$$\text{GNP} = f(\text{FINDEEP}, \text{DIGITAL}, \text{FINLIB}, \text{INTR}, \text{INFLA}) \quad (3.2)$$

Where, Domestic consumption is proxied GNP (gross national product), FINDEEP is financial deepening (proxied by Ratio of broad Money Supply (M_2) to GDP), DIGITAL is digital financial innovation (proxied by ATMs per 100,000 adults), FINLIB is financial liberalization (proxied by Ratio of Credit to Private Sector to GDP), INTR is interest rate and INFLA is inflation rate, In a linear function, it is represented as follows:

$$\text{GNP} = \beta_0 - \beta_1 \text{FINDEEP}_t - \beta_2 \text{DIGITAL}_t + \beta_3 \text{FINLIB}_t + \beta_4 \text{INTR}_t + \beta_5 \text{INFLA}_t + \mu^t \quad (3.3)$$

Where: β_0 = Constant term, β_1 to β_5 = Regression coefficients, μ^t = Error Term and t is the period. To reduce the outliers among the variables, all variables will be expressed in logarithmic form.

$$\text{LogGNP} = \beta_0 - \beta_1 \text{LogFINDEEP}_t - \beta_2 \text{DIGITAL}_t + \beta_3 \text{LogFINLIB}_t - \beta_4 \text{INTR}_t - \beta_7 \text{INFLA}_t + \mu^t \quad (3.4)$$

Where: β_0 = Constant term, β_1 to β_6 = Regression coefficient, U_t = Error Term and t is the period.

3.2 Data and Sources

To investigate the impact of financial sector reform on domestic consumption in Sub-Sahara Africa, a number of variables have been taken into consideration in this study. These variables consist of Gross national product (GNP), financial deepening (FINDEEP), digital financial innovation (DIGITAL), financial liberalization (FINLIB), interest rate

(INTR) and inflation (INFLA) and were sourced from World Bank database (World development indicators). The study covered a period of 2009 to 2023 as defined in our model specification.

3.3 Econometric Software for the Work

The study will employ e-view version (9) statistical application software to analysis the data because it is user-friendly software.

4. Results and Discussion

This chapter was concerned with the analysis and presentation of data from the study based on the research questions and the hypotheses that guided the study. The discussion of the findings is obtained through the analysis of data.

4.1 Pre-Estimation

Table 4.1: Descriptive Statistics of the Variables

	RGNP	FINDEEP	DIGITAL	FINLIB	INTR	INFLA
Mean	1.49E+11	9.55E+08	7.269108	18.30657	21.06822	8.475723
Median	3.50E+10	16.87263	3.916123	16.19982	19.65862	3.656115
Maximum	5.47E+11	2.27E+10	35.20476	52.84006	47.83073	80.75458
Minimum	2.35E+09	0.000000	0.395081	0.000000	3.752334	-0.764231
Std. Dev.	1.84E+11	3.58E+09	8.748301	11.08463	9.323061	13.49595
Skewness	0.893500	4.591950	1.659739	1.274285	0.677411	3.592735
Kurtosis	2.074495	24.56728	4.861757	4.626576	3.363136	17.86258
Jarque-Bera	15.18725	2060.594	54.31901	34.27858	7.377786	1021.977
Probability	0.000504	0.000000	0.000000	0.000000	0.025000	0.000000
Sum	1.34E+13	8.60E+10	654.2197	1647.591	1896.140	762.8151
Sum Sq. Dev.	3.03E+24	1.14E+21	6811.417	10935.34	7735.833	16210.53
Observations	90	90	90	90	90	90

Source: Author’s computation from E-view

The table showed descriptive statistics of the variables. In the model estimated in the study, there was one dependent variable and six independent variables. These variables consisted of Gross national product (GNP), financial deepening (FINDEEP), digital financial innovation (DIGITAL), financial liberalization (FINLIB), interest rate (INTR) and inflation (INFLA) were independent variable respectively.

4.2 Correlation Matrix of the Variables

Table 4.2: Result of Correlation Matrix

	RGNP	FINDEEP	DIGITAL	FINLIB	INTR	INFLA
RGNP	1	0.194509	0.49944	0.054804	0.13274	0.056309
FINDEEP	0.19450	1	0.09993	0.034875	0.20390	0.108732
DIGITAL	0.49944	0.09993	1	0.162892	0.51634	0.128085
FINLIB	0.05480	0.03487	0.162892	1	0.44388	0.296734
INTR	0.13274	0.20390	0.516349	0.44388	1	0.190499
INFLA	0.05630	0.10873	0.128085	0.29673	0.19049	1

Source: Author’s computation from E-view

This correlation matrix presented a table showing correlation coefficients between sets of variables. Each random variable (X_i) in the table is correlated with each of the other values in the table (X_j). This result of correlation matrix helped to identify which pairs of variables have the highest correlation. This test is to detect whether exact or perfect relationship exist among explanatory variables (multicollinearity). This test presented clear understanding on the assumption of ordinary least square that there is no perfect or exact linear relationship among explanatory variables. The result of correlation matrix showed that every explanatory variable in the study is linearly independent of each other.

4.3 Unit Root Test using Augmented Dickey-Fuller Fisher Test

Table 4.3: Results of Stationarity (Unit root) test

Variables	Variables Names	ADF-Fisher Chi-Square Statistics	P-Value	Lag Number	Order of integration
RGNP	Real Gross National Product	3.5810	0.0045	1	I (1)
FINDEEP	Financial Deepening	11.1132	0.0076	1	I (1)
DIGITAL	Digital Financial Innovation	9.9981	0.0084	1	I (1)
FINLIB	Financial Liberalization	3.5837	0.0061	1	I (1)
INTR	Interest Rate	15.6416	0.0073	1	I (1)
INFLA	Inflation Rate	5.4609	0.0052	1	I (1)

Source: Author’s computation from E-view

In the Table 4.1.1, the variables that were tested with unit root are shown, the values for Fisher Augmented Dickey-Fuller (ADF) Fisher statistics are presented, the lag level of each variable was identified, and the P-values at 5% level of significant were pointed out. The order of integration of each variable was enumerated, and finally the stationarity position of each variable was also stated. The research work based the level of augment whether the variable was stationary or not stationary on P-value at 5 percent. When Augmented Dickey-Fuller statistic is greater than P-value 5 percent critical value in absolute term, it is concluded that the variable is stationary. The variable Real GDP (RGNP) passed through Unit Root analysis at first differentiation and lag 0, augmented Dickey-Fuller statistic was 3.5810 while the P-value was 0.045 hence it was stationary at level. The variable financial deepening (FINDEEP) was stationary at first level and lag 0; its augmented dickey-Fuller statistic was 11.1132 while the P-value was 0.076. The variable

digital financial innovation (DIGITAL) was stationary at level and lag 0; its augmented Dickey-Fuller statistic was 9.9981 while the P-value was 0.0084. The variable financial liberalization (FINLIB) was stationary at level and lag 0; its augmented Dickey-Fuller statistic was 3.5837 while the P-value was 0.0061. The variable interest rate (INTR) was stationary at level and lag 0; its augmented Dickey-Fuller statistic was 15.6416 while the P-value was 0.0073. The variable inflation (INFLA) was stationary at first difference and lag 0; its augmented Dickey-Fuller statistic was 5.4609 while the P-value was 0.0052. It is now referable to use full modified ordinary Least Square to identify best panel model specification to estimate the parameters.

4.4 Co-integration Test Results

Ho = There is no co-integration (no long run relationship among Variable)

Table 4.4: Co-integration Test Results

Pedroni Residual Cointegration Test				
Series: RGNP FINDEEP DIGITAL FINLIB INTR INFLA				
Date: 06/19/24 Time: 15:45				
Sample: 2009 2023				
Included observations: 90				
Cross-sections included: 6				
Null Hypothesis: No cointegration				
Trend assumption: No deterministic trend				
User-specified lag length: 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Alternative hypothesis: common AR coefs. (within-dimension)				
	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.649721	0.7421	-1.577879	0.9427
Panel rho-Statistic	1.639261	0.9494	2.371051	0.9911
Panel PP-Statistic	-0.667508	0.2522	0.872137	0.8084
Panel ADF-Statistic	2.973532	0.9985	3.757814	0.9999
Alternative hypothesis: Individual AR coefs. (between-dimension)				

Source: E-view Results

The co-integration results in Table 4.2.1 for the model (RGNP FINDEEP DIGITAL FINLIB INTR INFLA) reveals that both trace test and the Max-eigenvalue test indicate 2 co-integrating equation(s) at the 5 percent level of significance. Thus there is a long-run relationship among the variables (RGNP FINDEEP DIGITAL FINLIB INTR INFLA). We therefore reject the null hypothesis of no co-integration amongst the variables and accept the alternative hypothesis.

4.5 Panel Fully Modified Least Squares (FMOLS)

Table 4: Results of Fully Modified Least Squares (FMOLS) Estimation

Dependent Variable: LogRGNP	
Method: Panel Fully Modified Least Squares (FMOLS)	
Date: 06/19/24 Time: 15:57	
Sample (adjusted): 2010 2023	
Periods included: 15	
Cross-sections included: 6	
Total panel (balanced) observations: 90	
Panel method: Pooled estimation	
Cointegrating equation deterministic: C	
Coefficient covariance computed using default method	
Long-run covariance estimates (Bartlett kernel, Newey-West fixed bandwidth)	

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FINDEEP	0.524303	0.085790	6.111473	0.0005
DIGITAL	0.640792	0.069779	9.183174	0.0000
FINLIB	0.290839	0.038978	7.461621	0.0007
INTR	0.744904	0.655422	-1.136527	0.2595
INFLA	0.287016	0.244589	-1.173465	0.2444
R-squared	0.945605	Mean dependent var		1.5390
Adjusted R-squared	0.938153	S.D. dependent var		0.8889
S.E. of regression	4.688665	Sum squared resid		0.6076
Long-run variance	3.725645			

Source: E-view Results

The Panel Fully Modified Least Squares (FMOLS) model specification was carried out to examine parameters estimates. In testing this hypothesis, financial deepening (FINDEEP), digital financial innovation (DIGITAL), financial liberalization (FINLIB), interest rate (INTR) and inflation (INFLA) were regressed against Real GDP (RGNP). The result of the regression analysis represents the model for investigating impact of financial sector reforms on domestic consumption in Sub-Sahara Africa. The empirical result showed that the coefficient of financial deepening (FINDEEP) has positive and significant impact on Real GNP (RGDP) (t-statistics; 6.1114; P-value (0.0005) was less than its significant value (0.05]. The empirical result showed that the coefficient of digital financial innovation (DIGITAL) has positive and significant impact on Real GDP (RGNP) (t-statistics; 9.1831; P-value (0.0000) was less than its significant value (0.05]. The empirical result showed that the coefficient of financial liberalization (FINLIB) has positive and significant impact on Real GNP (RGNP) (t-statistics; 7.4616; P-value (0.0007) was greater than its significant value (0.05]. The residential interest rate (INTR) has negative and insignificant impact on Real GDP (RGNP) (t-statistics; -1.1365; P-value (0.2595) was greater than its significant value (0.05]. The inflation (INFLA) has negative and insignificant impact on Real GNP (RGNP) (t-statistics; -1.1734; P-value (0.2444) was greater than its significant value (0.05]. Again, our empirical result showed that the R-squared (R²) is 0.945.

4.6 Granger Causality Test Result

Pairwise Granger Causality Tests			
Date: 06/20/24 Time: 15:32			
Sample: 2009 2023			
Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
FINDEEP does not Granger Cause RGNP	84	0.11469	0.7357
RGNP does not Granger Cause FINDEEP		0.23084	0.6322
FINLIB does not Granger Cause RGNP	84	0.02334	0.8789
RGNP does not Granger Cause FINLIB		0.01556	0.9010
DIGITAL does not Granger Cause RGNP	84	0.85629	0.3575
RGNP does not Granger Cause DIGITAL		0.63445	0.4281
INFLA does not Granger Cause RGNP	84	0.55788	0.4573
RGNP does not Granger Cause INFLA		0.49110	0.4854
INTR does not Granger Cause RGNP	84	0.08013	0.7778
RGNP does not Granger Cause INTR		0.00050	0.9822

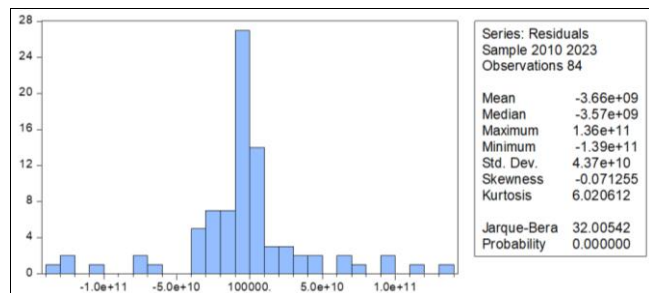
Source: Author's Computation using E-View 9

Evaluating the results in Table 4.6, based on the decision rule, the result of pairwise granger causality test showed that financial deepening (FINDEEP) does not granger cause gross national product (GNP) because its Prob. value (0.7357) was greater than it Prob. Value (0.05) while real GNP does not granger cause financial deepening

(FINDEEP) because its Prob. value (0.6322) was greater than it Prob. Value (0.05). The result of pairwise granger causality test showed that digital financial innovation (DIGITAL) does not granger cause gross national product (GNP) because its Prob. value (0.3575) was greater than it Prob. Value (0.05) while real GNP granger does not cause digital financial innovation (DIGITAL) because its Prob. value (0.4281) was greater than it Prob. Value (0.05). The result of pairwise granger causality test showed that financial liberalization (FINLIB) does not granger cause gross national product (GNP) because its Prob. value (0.8789) was greater than it Prob. value (0.05) while financial liberalization (FINLIB) does not granger cause gross national product (GNP) because its Prob. value (0.9010) was greater than it Prob. Value (0.05). The result of pairwise granger causality test showed that interest rate (INTR) granger cause gross national product (GNP) because its Prob. value (0.7778) was greater than it Prob. Value (0.05) while interest rate (INTR) does not granger cause gross national product (GNP) because its Prob-value (0.9822) was greater than it Prob. Value (0.05). The result of pairwise granger causality test showed that inflation (INFLA) does not granger cause gross national product (GNP) because its Prob-value (0.4573) was greater than it Prob. Value (0.05) while inflation (INFLA) does not granger cause gross national product (GNP) because its Prob. value (0.4854) was less than it Prob-value (0.05). In summary, the result showed that there is no directional relationship among financial deepening (FINDEEP), digital financial innovation (DIGITAL), financial liberalization (FINLIB), interest rate (INTR) and inflation (INFLA) and Real GDP (RGNP).

4.8 Econometric /Second Order Test

4.8.1 Histogram Normality Test



Sources: E-view 9.0 Version

Fig 1: Presents Normality test for each of the Distribution

Jarque-Bera (JB) test is statistics that compute both skewness and Kurtosis. Skewness shows the degree symmetry (normal distribution). The normal measurement is zero/0. Kurtosis is a statistics that compute degree of peakedness. The normal measurement is three/3. A distribution is skewed if one of its tails is longer than the other. A skewed distribution can be positive or negative. Positive skewed distribution means that it has a long tail in the positive direction. Negative skewed distribution means that it has a long tail in the negative direction. The null hypothesis is that there is no skewness and Kurtosis in the model. We reject the null hypothesis because the Jarqua-Bera statistics (32.005) is greater than probability value (0.000). We reject null hypothesis and accept the alternative that there is no skewness and Kurtosis in the model. The skewness is normal because the value was 0.9914. The

model of the study produced negative skewed distribution meaning that it has a long tail in the negative direction. The kurtosis was 6.0206 meaning that the degree of peakedness was high that normal value of three (3). This implies that the standardized residuals from the estimated model in the regression framework is normally distributed, which is consistent with the OLS assumption.

4.9 Test of Hypotheses

The results for the various hypotheses testing are presented in the chapter.

4.9.1 Test of Hypothesis one

H₀₁ Financial deepening has no significant impact on domestic consumption in Sub-Sahara Africa.

In testing this hypothesis, Financial deepening (FINDEEP) was regressed against real GNP. The empirical result showed that the coefficient of Financial deepening (FINDEEP) has positive and significant impact on domestic consumption in Sub-Sahara Africa because [t-Statistics; 6.1114; P-value (0.0005) < significant value (0.05)]. The null hypothesis was rejected and alternative hypothesis was accepted.

4.9.2 Test of Hypothesis two

H₀₂ Digital financial innovation has no significant impact on domestic consumption in Sub-Sahara Africa.

In testing this hypothesis, digital financial innovation (DIGITAL) was regressed against real GNP. The empirical result showed that the coefficient of digital financial innovation (DIGITAL) has positive and significant impact on domestic consumption in Sub-Sahara Africa because [t-Statistic; 9.1831; P-value (0.0000) > its significant value (0.05)]. The null hypothesis was accepted and alternative hypothesis was rejected.

4.9.3 Test of Hypothesis Three

H₀₃ Financial liberalization has no significant impact on domestic consumption in Sub-Sahara Africa.

In testing this hypothesis, financial liberalization (FINLIB) was regressed against real GNP. The empirical result showed that the coefficient of financial liberalization (FINLIB) has positive and significant impact on domestic consumption in Sub-Sahara Africa [t-Statistic; 7.4616; P-value (0.0007) < significant value (0.05)]. The null hypothesis was rejected and alternative hypothesis was accepted.

4.10 Discussion of the Results

4.10.1 Impact of financial deepening on domestic consumption in Sub-Sahara Africa

It was observed from the hypothesis tested that the coefficient of financial deepening (FINDEEP) has positive and significant impact on domestic consumption in Sub-Sahara Africa because [t-Statistics; 6.1114; P-value (0.0005) < significant value (0.05)]. The finding of this study was in line with the study of Meshesha and Makoni, (2023) [15] that

conducted a study to examine the financial inclusion on economic growth in Sub-Saharan Africa. The specific objective of the study were to examine the relationship between financial inclusion and economic growth while further identifying the direction of causality between the two variables in twenty-six (26) Sub-Saharan African (SSA) economies using annual secondary data over the 2000–2019 period. The data analytical techniques were principal component analysis (PCA) technique, panel unit root, system generalised method of moment (GMM), and ARDL cointegration tests. The study revealed that financial inclusion and economic growth share a strong long-run relationship and that there is bi-directional causality, indicating synergy between these two variables. In order to ensure sustainable economic growth.

4.10.2 Impact of digital financial innovation on domestic consumption in Sub-Sahara Africa.

It was observed from the hypothesis tested that the coefficient of digital financial innovation (DIGITAL) has positive and significant impact on domestic consumption in Sub-Sahara Africa because [t-Statistic; 9.1831; P-value (0.0000) > its significant value (0.05)]. Kırkkaleli, Adebayo and Kondo, (2022) were not full support of the finding who examined the relationship subsisting between banking sector reforms and money market. Specifically, the study sought to examine impact of banking sector reforms proxied by credit to the private sector (CPS), broad money supply (M2) and total bank deposit (TD) on volume of commercial paper (CP) traded on the Nigerian Stock Exchange spanning the period 2004–2018. Annual data collected from the Central Bank of Nigeria (CBN) statistical bulletin. The method of data analysis was Ordinary least Square method. Our findings revealed that an increase in the credit to the private sector (CPS) and total deposits (TD) will lead to a significant rise in the volume of commercial paper (CP) traded on the Nigerian Stock Exchange. While an increase in a rise in the total money supply in the economy will lead to a significant fall in the volume of commercial paper (CP) traded on the Nigerian Stock Exchange. To this tune, we recommend amongst others that the government continue to consolidate on existing reforms to improve deepening of the money market.

4.10.3 Impact of financial liberalization on domestic consumption in Sub-Sahara Africa.

It was observed from the hypothesis tested that the coefficient of financial liberalization (FINLIB) has positive and significant impact on domestic consumption in Sub-Sahara Africa [t-Statistic; 7.4616; P-value (0.0007) < significant value (0.05)]. The finding was not in line with the study of Manasseh, *et al* (2022)^[14] that examined the impact of digital financial innovation on financial system development in Common Market for Eastern and Southern Africa (COMESA) countries. The study sought to evaluate the dynamic relationship between digital financial innovation measures and financial system development using time series data from COMESA countries for the period 1997–2019. The data analytical technique was dynamic autoregressive distributed lag model (ARDL) In addition, the dynamic generalized method of moments (DGMM) was adopted for a robustness check. The result shows that digital financial innovation significantly impacts financial system development in the long run. As such, the evidence revealed that automated teller machines (ATMs), point of sale (POS), mobile payments (MP) and mobile

banking are significant and contribute positively to financial system development in the long run, while mobile money (MM) and Internet banking (INB) are insignificant but exhibit positive and inverse relationship with financial development respectively. Further investigation revealed that institutional quality and a stable macroeconomic environment including their interactive term are significantly imperative in predicting financial system development in the COMESA region.

5. Findings, Conclusion and Recommendations

5.1 Summary of Findings

The following are the major findings of the study:

1. Financial deepening has positive and significant impact on domestic consumption in Sub-Sahara Africa because [t-Statistics; 6.1114; P-value (0.0005) < significant value (0.05)]. Financial deepening has 52 percent positive and significant impact on domestic consumption in Sub-Sahara Africa. A percent change in financial deepening result to 52 percent increase in domestic consumption in Sub-Sahara Africa.
2. Digital financial innovation has positive and significant impact on domestic consumption in Sub-Sahara Africa because [t-statistic; 9.1831; P-value (0.0000) > its significant value (0.05)]. Digital financial innovation has 64 percent positive and significant impact on domestic consumption in Sub-Sahara Africa. A percent change in digital financial innovation result to 64 percent increase in domestic consumption in Sub-Sahara Africa.
3. Financial liberalization has positive and significant impact on domestic consumption in Sub-Sahara Africa [t-statistic; 7.4616; P-value (0.0007) < significant value (0.05)]. Financial liberalization has 29 percent positive and significant impact on domestic consumption in Sub-Sahara Africa. A percent change in financial liberalization result to 29 percent increase in domestic consumption in Sub-Sahara Africa.

5.2 Conclusion

The study aimed at examining the impact of financial sector reforms on domestic consumption in Sub-Sahara Africa from the periods 2009 to 2023. Descriptive statistics, correlation matrix and unit root tests were pre-estimation tests that were carried out in the study. The descriptive statistics provide nature and characteristic of the variable, the correlation matrix ensures that variables of the study does not have perfect linear correlation among explanatory variables and unit root test check the stationarity of the variables. However, having established this, the study went ahead to conduct estimation tests such as Johansen fisher panel cointegration test and panel fully modified Least Square method to confirm the viability of the model and histogram normality test was the post-estimation test to check normal distribution of the model.

This study concludes that financial sector reforms have positive and significant impact on domestic consumption in Sub-Sahara Africa. Financial deepening (FINDEEP), digital financial innovation (DIGITAL), financial liberalization (FINLIB) have positive and significant impact on domestic consumption in Sub-Sahara Africa while interest rate (INTR) and inflation (INFLA) have negative and insignificant impact on domestic consumption in Sub-Sahara Africa.

The study conforms to Mundell-Fleming model of growth that financial sectors reforms in the factors of interest rates and credit to private sector determine investment in the economy. The model states that aggregate income Y is the sum of consumption from disposable income, investment which is a function of interest rate and the relationship is negatively sloped, government expenditure and net exports which also depends negatively on exchange rate due to capital account liberation. In the model, price level and money supply are assumed to be fixed. Under a fluctuating exchange rate system, a small open economy with perfect capital mobility, expansionary fiscal policies will crowd out net exports causing exchange rate to rise.

5.3 Recommendations of the Study

Based on the findings of this study, the following recommendations were made.

1. Monetary authorities of Sub-Sahara Africa countries should continue pursuing financial deepening reforms that emphasize quality rather than quantity to promote economic growth. Financial deepening reforms should be pursued in conjunction with macroeconomic stability policies directly aimed at promoting macroeconomic stability conditions. The banking sector must be able to retain earnings and invest them in business ventures that, in turn, can generate more earnings, once more earnings are generated it will have positive effect on the economy in respect to paying actual tax which government can use for infrastructural development.
2. Monetary authorities of Sub-Sahara Africa countries should continue adopting financial sector reforms policies that are instrumental in fostering the development of digitized financial services in the banking industry to accelerate economic growth but government should make adequate arrangement in monetary policy such emerge and acquisition to prevent unemployment that accompanied re-capitalization of banking industry. It is expedient that the regulatory authority should maintain and review the capitalization upward from time to time in order to sustain the state of revival and stability in the banking sector. In other words, the banking sector together with its complementary institutions should be strengthened and bank failures should be adequately tackled in order to improve shareholders equity.
3. Monetary authorities of Sub-Sahara Africa countries should formulate and implement financial liberalization policies that will improve access to finance; credit allocation to the private sector; and credit allocation to agricultural, industry and services sectors to reap the full potential of the financial sector reforms' contribution to economic growth.

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