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BANK CREDIT TO PRIVATE SECTOR AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

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Abstract

The study is carried out on bank credit to private sector and economic growth in Sub-Saharan Africa on data obtained from World Development Indicator using the period of 1995 to 2021. Anchored on financial intermediation theory, the study adopted system generalised method of moments within dynamic panel data model on a five-year non-overlapping panel data set. The study found that bank credit to private sector exhibits a positive and significant relationship, at one percent level of significance, with economic growth in Sub-Saharan Africa both in the short-run and in the long-run within the study period. Labour force and gross fixed capital formation, as control variables are equally positive and statistically significant though at one percent and ten percent levels of significance respectively in the short run. However, in the long run, labour force and gross fixed capital formation are individually statistically significant at one percent level of significance but with positive and negative impact respectively. Based on the findings, the study recommends that monetary authorities in Sub-Saharan Africa should, through monetary policy, reduce legal reserves requirement for banks to enable the banking sector to create more credit to the private sector of the economy in order to boost economic growth.

Key Words: Bank Credit, Private Sector, Economic Growth, Sub-Saharan Africa, System Generalized Method of Moments.

JEL Classification: G21, O16, O42, P34.

1. Introduction

Economic development is one of the primary goals of any nation in the world, and economic growth is essential to economic development. There have been revivals of interest in the factors of long-term economic growth over the years (Bist, 2018). Financial sector development has been identified as one among the strong factors that influence economic growth. The economic expansion of any country depends upon the existence of a well-ordered financial development. It helps in the creation of wealth by linking savings with investment. Financial development is considered as the efficiency of an organized and regulated structure

where an exchange of funds takes place between the lender and the borrower. It supplies the necessary financial inputs for the production of goods and services, in turn, promotes the well-being and standard of living of people in the country. The financial operations of all economic agents appear to rely on financial institutions (Nguyen, Vu, Vo & Ha, 2022).

Efficiency in the financial system according to Kath (2013) is likened to the blood circulatory system of the human body such that lack of financial development implies that the lifeblood of the economy – financial development – had stopped circulating, starving all the organs of the economy. By raising the savings rate, mobilizing and pooling savings, producing information about investments, facilitating and

encouraging the inflows of foreign capital, as well as optimizing capital allocation, financial development can promote economic growth through capital accumulation and technological advancement.

Financial development as a growth influencing variable has two components: bank-based financial development and market-based financial development (Allen & Gale, 1997). Bank credit to the private sector is an indicator of bank-based financial growth.

Globally, financial development helped many developed economies, especially industrializing England, by facilitating capital mobilization (Udoh & Ogbuag, 2012). In the United State of America, financial development facilitated channelization of savings of the economy to profitable investments, reduce information cost thereby leading to better capital allocation, reduce the cost of corporate governance and boost the technological innovation through rewards to the entrepreneurs thereby promoting economic growth (Guru & Yadav, 2019). In emerging countries, a high rate of capital production is aimed at accomplishing economic growth and development goals. As a result, financial institutions must mobilize local savings and attract foreign investment in order to accelerate long-term economic growth. Financial development is a requirement to motivate and guide capital production.

One of the biggest challenges facing Sub-Saharan Africa is the mobilization of resources internally to fund large projects. The growth of the financial industry, especially the bank credit to private sector is an essential aspect of this domestic resource mobilization. The financial sector can be an important source of resource mobilization for many Sub-Saharan African countries that are financially constrained. Even though the role of the financial sector in fostering growth has been well examined in industrialized nations, there are not enough adequate empirical studies on the subject matter in Sub-Saharan Africa. In order to more easily develop, implement, and execute policies for economic growth, this study is carried out to examine the impact of bank credit to private sector on economic growth of Sub-Saharan Africa.

2. Literature Review

2.1 Conceptual Issues

Financial development denotes advancements in the financial sector's operation. This includes enhanced access to financial intermediation, broader diversification options, higher information quality, and stronger incentives for safe lending and monitoring (Ewetan & Okodua, 2013). Financial development is followed by a reduction of loan access constraints faced by domestic corporations, particularly small and medium-sized businesses. The advantages of nonfinancial changes are supplemented by financial development. Thus, the effectiveness of other policy reforms is dependent on the health of the financial sector. Financial development, according to Hye and Dolgoplova (2011), is the channeling of savings into productive investment sectors. However, the speed and efficiency of savings transfers are more important for financial progress. It helps to promote the growth process through more exports (Ljungwall & Li, 2007). Financial sector development implies efficient and effective financial resource mobilization and allocation to prioritize real sector development.

Palmer (2012), views economic growth as the increase in the productive capacity of an economy as a result of which the economy is capable of producing additional quantities of goods and services. In most circumstances, a country's level of living is defined by the quantity of products and services accessible to its population, with economic growth being equated with a rise in the overall standard of living.

Economic growth, according to Kessier (2012), happens when a community becomes more productive and capable of creating more products and services. The introduction of new goods and services boosts economic growth.

In the words of Amadeo (2016), economic growth is defined as how much more the economy generates than it produced previously. When the economy is producing more, businesses are more profitable, and stock prices rise. This approach frequently leads to an increase in the company's capacity to invest and hire more personnel. More job creation means more money in your pocket. During

periods of higher economic growth, consumers will have more money to spend on new goods and services. As a result, he underlined that all countries seek good economic growth as measured by changes in the GDP. It takes into consideration all final goods and services produced in the country here.

2.2 Theoretical Review

This study has reviewed the financial intermediation theory. This theory was first put forth by Schumpeter (1911) and later supported by the works of Shaw (1973), McKinnon (1973), Gupta (1984), Fry (1988), Greenwood and Jovanovich (1990), Bencivenga and Smith (1996) among others. The conventional view of this theory postulates that financial expansion causes an economy to grow. In a world with frictionless information, transaction, and costs of monitoring, financial intermediaries are not needed. If information, transaction, and monitoring costs are necessarily high, no exchange takes place between agents of economics. The desire to decrease the related costs and enable exchanges led to the financial markets emergence and institutions markets that make up the sector of finance. Current financial intermediation theory builds on the notion that intermediaries serve to reduce transaction costs and informational asymmetries. Fundamentally, financial intermediation is about persuading investors to purchase securities backed by investments whose risks they cannot completely assess. The intermediary, which might be a bank, hedge fund, or regular firm, specializes in risk assessment. The investor who purchases securities from the intermediary considers the intermediary's prior performance as well as brief explanations of the risk of those securities.

2.3 Empirical Review

The effects of financial growth and financial inclusion on economic growth in Nigeria from 1981 to 2019 were examined by Onyineye, Anthony, Jonathan, and Uka (2023). The results of using the traditional linear regression modeling technique demonstrated that financial inclusion and development in Nigeria have a considerable positive impact on economic growth. Accordingly, the study recommended that the

government implement policies to help financial intermediaries mobilize funds more effectively while also making those funds accessible and affordable to people (even those in the lowest socioeconomic strata), businesses, and other economically productive sectors. The study has a narrower scope than the current study, which is country-specific.

Using a vector error correction model, Klejda (2022) conducted empirical study on the effect of bank credit to the public and private sector on economic growth in Albania. The dependent variable was gross domestic product, and the independent variables were bank lending to the private sector, bank credit to the public sector, and non-performing loans. The study discovered a link between public credit, deposits, and non-performing loans and economic growth. On the contrary, the findings showed a bad relationship between private credit and economic development. This research is nation-specific. To acquire the results on a bigger scale, it is necessary to incorporate other nations.

The existence of threshold effects in the connection between economic development and bank loans is examined by Sy-Hoa and Jamel (2022). Over the years 1993 to 2019, the sample of ASEAN nations was investigated. They corroborate the vanishing influence of finance on economic development using a dynamic panel data technique, where a group of explanatory factors can be used to estimate threshold effects. The short-term beneficial impact of bank credit expansion on economic growth is roughly 0.08 for observations below or above the threshold. In contrast, for observations beyond the threshold, the impact of increased bank lending on economic development is approximately 0.01. They advise creating good financial policies to promote economic expansion. The scope of their research is outside the scope of the present research.

Majumdar and Paris (2022) looked at how the United Arab Emirates' urbanization, bank lending, and energy use affected the environment. Using information from 1984 to 2019, they used an Environmental Kuznets Curve model that was induced by tourism. In order to ascertain the marginal effect of tourist arrivals and associated factors, such as bank credits to the

private sector, urbanization, and energy use, on CO₂ emissions, the study utilized an Autoregressive Distributed Lag (ARDL) model. The Pesaran boundaries test revealed that short run estimations are redundant. The long-run coefficients supported the EKC inverted U-shape hypothesis for carbon emissions, per capita income, and environmental damage brought on by tourism and economic growth. Notably, the government's good actions were highlighted by urbanization and energy use. Granger causality analyses revealed a one-way relationship between GDP, bank credits, and energy use and carbon emissions. Importantly, there was a bidirectional causal relationship between urbanization and tourist arrivals and carbon dioxide levels. The findings also point to the potential significance of efforts made by the banking sector to promote green investments and put clean energy-related technology in place.

Nadiya, Olha, Yuliia, Mariia, and Taras (2021) performed an empirical research comparing Ukraine to various EU nations to monitor the development of the banking sector and economic growth. The study used principal component analysis on data from the world development indicator from 2000 to 2019. The variables used in their model are bank credit to the private sector, as a percentage of GDP, the ratio of liquid bank reserves and assets as a percentage of GDP, the ratio of non-performing loans and total gross loans of banks as a percentage of GDP, branches of commercial banks per 1000,000 adults, the interest rate of banks on the loan as a percentage of GDP, credit information depth index and gross domestic product. The study finds a significant relationship between bank credit to private sector and economic growth and recommends sound monetary policies that will expand bank credit to private sector in the study area. The study focused on Ukraine and other European Union (EU) countries which is different from Sub-Saharan Africa in terms of the quality of financial institutions and efficiency of the financial market. Thus, there is a need to consider the link in Sub-Saharan Africa with different financial market structures.

To investigate the impact of financial development on economic growth in Nigeria, Sennuga,

Adenaike, Adedayo, and Sennuga (2021) used time series data on the annual growth rate of gross domestic product, real interest rate, the ratio of gross domestic savings to GDP, and the ratio of bank credit to the private sector to GDP from 1980 to 2019. The results indicated that two of the variables (real interest rate, gross domestic savings) are inversely related to the dependent variable (GDP annual growth rate) when combined while bank credit to the private sector is positively related to the dependent variable with the coefficient of multiple determination showing that the model is of a high good fit with approximately 93% of the gross domestic product being explained by the variables included in the model. The study is not anchored on any economic theory and it is also a single country study. Furthermore, the ordinary least square method used in the study is weak in handling the dynamic nature of time series variables.

Using panel regression technique on data obtained from world development indicators spanning 1989 to 2007, Kouam and Mua (2020) investigated the impact of bank credit to private sector on economic growth in Cameroon. Variables included in their model are gross domestic product, bank credit to private sector, deposit money banks assets and bank credit to public sector. The study revealed that bank credit to private sector is statistically significant at 1% significance level in explaining economic growth in Cameroon. This means that private sector is more adept at allocating and utilizing economic resources and causes the economy to grow at a faster pace. In another dimension, the study adopted a microanalysis of the impact of bank credit to private sector whereas the current study adopts macro analysis.

Akintola, Oji-Okoro and Itodo (2020) carried out an empirical study by investigating the impact of financial sector development. Using the Autoregressive Distributed Lag Approach (ARDL), the results revealed that, while bank credit to the private sector and the all share index has a positive and significant long-run impact on economic growth, the behavior of the exchange rate was consistent with falling levels of economic growth. It's, therefore, proposed that monetary authorities should alter her policy rates and

other tools of monetary policy, such as the cash reserve ratio, to boost the level of banking system liquidity. This would enhance banks' lending capability to the private sector, which will assist Nigeria's economic growth. The study is a single-country study while the current study focuses on Sub-Saharan Africa.

3. Methodology

This model is built principally, from the financial intermediation theory based on the determinants of economic growth as well as the components of financial development as advanced by the theory. Thus, the dependent variable is the Real Gross Domestic Product Per Capita (RGDPP) of Sub-Saharan Africa to represent economic growth. In order to address the objective, Bank Credit to Private Sector (BCP) as an indicator of Bank-Based Financial Development is used. Other control variables include Labour Force (LFT) of Sub-Saharan Africa, Gross Fixed Capital Formation (GRCF) of Sub-Saharan Africa, Industrial Value Added (IVA) of Sub-Saharan Africa and Trade Openness (TOP) of Sub-Saharan Africa. Labour force is widely used as a determinant of economic growth supported by Kalyvitis (2015), Jhingan (2007) based on the augmented Solow-Swan growth model. Theoretically, it is positively related to growth.

Thus the bank credit to private sector (bank-based financial development) - growth model to address objective one of the research is as follows:

$$RGDPP_{it} = f(BCP_{it} + LFT_{it} + GFCF_{it} + IVA_{it} + TOP_{it}) \quad (1)$$

Where:

$RGDPP$ = growth rate of Real Gross Domestic Product Per Capita to represent Economic Growth

BCP = Bank Credit to Private Sector

LFT = Labour Force -Total

$GFCF$ = Gross Fixed Capital Formation

measuring investment ratio

IVA = Industrial Value Added

TOP = Trade Openness

i = Cross-sectional Unit = 1, 2, ..., 10

t = period of time = 1, ..., 5

Taking the logarithm ($\ln$) and considering the relevant econometric model for estimating equation (1) the model becomes:

$$\ln RGDPP_{it} = \beta_0 + \beta_1 \ln BCP_{it} + \beta_2 \ln LFT_{it} + \beta_3 \ln GFCF_{it} + \beta_4 \ln IVA_{it} + \beta_5 \ln TOP_{it} + \varepsilon_{it} \quad (2)$$

Where:

β_0 is the intercept

β_1 to β_5 are the parameter coefficient to be estimated
 $\ln$ is the Natural logarithm

ε_{it} is the error term

And the other variables stand as explained above

A typical linear dynamic panel data model is of the following structure (Blundell, Bond and Windmeijer, 2000):

$$y_{it} = \alpha y_{i,t-1} + X'_{it} \beta + \varepsilon_{it} \quad (3)$$

$$\varepsilon_{it} = u_i + \eta_{it} \quad (4)$$

$$E(u_i) = E(\eta_{it}) = E(u_i \eta_{it}) = 0$$

Where:

y is the dependent variable

X is the list of independent variables possibly including lagged values and deeper lags of y .

β is the coefficient for the independent variable

u_i is the unobservable cross-section specific effect or fixed effect

η_{it} is the idiosyncratic error

i Cross-sectional unit

t time.

The above specification is sufficient to handle most of the standard cases encountered in linear dynamic panel

applications and allows the inclusion of $y_{i,t-1}$ that provides the autoregressive panel data. Combining the decomposed error term of equation (3) and (4) and

Subtracting $y_{i,t-1}$ from both sides of equation (4) gives an equivalent equation for growth:

$$\Delta y_{i,t-1} = (\alpha - 1)y_{i,t-1} + X'_{it} \beta + u_i + \eta_{it}$$

Both estimators fit this model using linear generalized method of moment (GMM).

The application of the typical dynamic panel data model to equation (2) in order to examine the relationship between bank credit to private sector and economic growth in Sub-Saharan Africa, the model is re-stated as:

$$\ln RGDP_{it} = \beta_0 + \delta \ln RGDP_{i,t-1} + \beta_1 \ln BCP_{it} + \beta_2 \ln LFT_{it} + \beta_3 \ln GFCF_{it} + \beta_4 \ln IVA_{it} + \beta_5 \ln TOP_{it} + \mu_i + \eta_{it} \quad (6)$$

Where:

β_0 is time invariant cross-sectional intercept

δ is the coefficient of the lagged value of dependent variable

β_1 to β_5 are parameter coefficients to be estimated

μ_i is Cross-sectional specific Effect or Fixed Effect

η_{it} is an idiosyncratic error/ common cross-section time series effect

Other variables are as defined above.

The *a priori* expectations of the coefficient of the variable of the model in equation (6) are as follows:

$$\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0, \beta_5 > 0$$

4. Results and Discussion

Equation 6 is estimated using system GMM estimation technique. XTABOND2 command was used in STATA 14.0 statistical software in the implementation of the model estimation. XTABOND2 command simultaneously presents the Arellano-Bond test for autocorrelation which is applied to the differenced residuals in order to purge the unobserved and perfectly auto correlated u_i . It also reports tests of over-identifying restrictions – of whether the instruments, as a group, appear exogenous. In each of the estimated equations, four sets of results are presented in line with the Blundell-Bond GMM estimator. These are: (1a) the one-step system GMM estimator without lags in column one; (1b) the one-step system GMM estimator with lags in column two; (2a) the two-step system

GMM estimator without lags in column three; (2b) the two-step system GMM estimator with lags in column four.

In the course of interpretation and discussion of the results, more emphasis is given to the two-step system GMM option because it is more asymptotic efficient estimates than one step, particularly when there is evidence of heteroscedasticity in the remainder disturbances. Even though the two-step estimation typically yields standard errors that are downward biased, its standard covariance matrix is robust in theory. Therefore, the two-step robust requests Windmeijer (2005) finite-sample correction for the two-step covariance matrix to correct the problem of downward biasedness.

Careful attention is given to the various specifications and diagnostic test statistics in the interpretation of each result. This is necessary because only the satisfactory specifications and diagnostic test results will authenticate the coefficient estimates, the t-statistics, the standard errors and the F-statistic that are obtained. The result of dynamic panel data estimation for bank credit to private sector-growth model is presented in table 1a and 1b for short run and long run respectively. Four separate results (columns 1 to 4) are presented in the table in line with the requirements for Blundell and bond estimator. Column 1 reported the one-step system GMM without lags; column 2 reported the one-step system GMM with lags; column 3 shows the two-step system GMM without lags, and column 4 comprises the two-step system GMM with lags. The system GMM has the capacity to implement both the original estimator and the augmented estimator. It makes available a finite-sample correction to the Windmeijer (2000) two-step covariance matrix thereby making two-step robust more efficient than the one-step system GMM. It also addresses the instrument proliferation problem, especially with the collapse option and it is more efficient and robust to heteroscedasticity and autocorrelation. Therefore, this study gives more emphasis on the two-step system GMM for the analysis.

**Table 1a: Dynamic Panel Data Short-run Result for Bank Credit to Private Sector-Economic Growth Model.
Equation 6: System GMM**

Regressand: RGDPP		System GMM		
Specification Options:	One-step without	One-step with lags	Two-step without lags	Two-step with lags
Regressors	1a	1b-collapse	2a	2b-collapse
lnRGDPP _{it-1}	0.9692*** (0.001)	0.957*** (0.000)	0.966*** (0.000)	0.944*** (0.000)
lnBCP	1.00001*** (0.000)	1.000002*** (0.000)	1.00007*** (0.009)	0.0399*** (0.001)
lnLFT	1.00001*** (0.000)	1.000002*** (0.000)	1.00009*** (0.002)	0.0445*** (0.000)
lnGFCF	-1.000001*** (0.000)	-1.000002*** (0.000)	-1.0001** (0.012)	0.0583612* (0.051)
lnIVA	-4.10e-06 (0.661)	0.0002 (0.312)	0.003 (1.000)	0.00008 (0.864)
lnTOP	-1.62e-08 (0.996)	-5.99e-06 (0.243)	-0.00008 (1.000)	-0.00002 (0.884)
Constant	0.00005 (0.688)	-0.0002 (0.367)	-0.004 (1.000)	0.0012 (0.848)
Number of Obs	38	38	38	38
Number of id	10	10	10	10
country effect	YES	YES	YES	YES
year effect	NO	NO	NO	NO
Sargan_test	9.38	1.33	9.38	1.33
Sargan Prob	(0.311)	(0.514)	(0.311)	(0.214)
Hansen_test	8.8e+07	1139.26	8.8e+07	1139.26
Hansen Prob	(0.258)	(0.191)	(0.281)	(0.143)
AR(1)_test	-0.19**	-1.19**	-0.00	-0.28
AR(1)_P-value	(0.043)	(0.035)	(0.039)	(0.027)
AR(2)_test	0.75	0.84	-0.00	0.20
AR(2)_P-value	(0.455)	(0.402)	(0.830)	(0.840)
No. of Instruments	15	8	15	9
F-Stats	1.14e+13	1.37e+1305	52806.20	3.26e+12
F-Stats P-Value	(0.000)	(0.000)	(0.000)	(0.000)

NOTES: The p-values are reported in brackets. ***, **, *, represent 1%, 5% and 10% significances levels respectively.

1a & 1b denote one-step SGMM without and with lags respectively while 2a & 2b; denote Two-Step SGMM without and with lags respectively. Also, the Regressions follow Roodman (2009) by collapsing the instrument matrix.

Source: Author's computation 2023 (Using STATA 14.0)

Table 1a reports the dynamic panel data result of estimation for bank credit to private sector-economic growth model. The examination of the diagnostic

statistics, as a starting point for system GMM, shows that all the test statistics are in line with the expectations. The check on the diagnostic statistics

determined the reliability of the coefficients and by extension, the entire result. The violation of the guiding principles of these diagnostics is enough evidence for specification bias. The number of instruments (9) is less than the number of groups (10). The rule of thumb as suggested by Roodman (2009) is that the number of instruments in any given equation must be less or equal to the groups for the result to be valid. The F-static value of 3.26e+12 with the associated probability value of 0.000 shows that the regressors (bank credit to private sector, labour force, gross fixed capital formation, industrial value added and trade openness) used in the model are jointly significant (at 1% level of significance) in explaining the dependent variable-economic growth proxied as RGDPP.

One of the diagnostic tests required in dynamic panel data model estimation is the autocorrelation test. Arellano and Bond (1991) proposed a test for the null hypothesis that there is no second-order serial correlation for the remainder disturbances of the differenced equation. This becomes inevitable as the consistency of the GMM estimator relies on the assumption that $E(\Delta\eta_{it} \Delta\eta_{i,t-2}) = 0$. The first order autocorrelation is expected (based on theoretical postulation) in the first differenced dynamic panel data model. This is because $\Delta\eta_{it} = \eta_{it} - \eta_{i,t-1}$ will correlate with $\Delta\eta_{i,t-1} = \eta_{i,t-1} - \eta_{i,t-2}$ since they share the $\eta_{i,t-1}$ term and therefore, testing for the existence of a higher autocorrelation problem becomes imperative. For the Arellano-Bond GMM estimator to be valid for estimation, we expect to reject the null hypothesis for $AR(1)$ test while we do not expect to reject the null hypothesis for $AR(2)$. The $AR(1)$ test statistic of -0.28 with the probability value of 0.027 is enough reason to reject the null hypothesis of no first order serial correlation. However, the $AR(2)$ test statistic of 0.2 with the probability value of 0.840 is far from rejecting the null hypothesis of no second order serial correlation. Therefore, the model is not suffering from higher order serial correlation and as such, it is valid.

Another important diagnostic test is the test for moment conditions, instrument proliferation, or over-identifying restrictions in order to check whether the instruments as a group are really valid and strictly exogenous. Therefore, to avoid the simultaneity problem, one must control for the endogeneity of the explanatory variables in the regression model. The test is carried out using Sargan and Hansen test.

The testable hypothesis is that the moment condition or the over-identifying restrictions are valid and for the instruments to be valid, it is expected that the null hypothesis is not rejected. The result in table 5.2a shows that both Sargan and Hansen tests with the probability value of 0.24 and 0.143 respectively is far from rejecting the null hypothesis of validity of instruments and it is concluded that all the instruments used in the process of estimating the model are valid. Table 1a also revealed that the lagged value of the dependent variable, RGDPP, is positive and statistically significant at 1% level of significance. This means that the past realization of real gross domestic product per capita positively impacts on its contemporaneous level. This implies that the dynamics in real gross domestic product per capita is significant at 1% level of significance in explaining the current level of economic growth in Sub-Saharan Africa during the study period. In specific terms, a 1% change in growth dynamics explained about 0.944% of the current growth level in the short run ceteris paribus. Hence, the past realization of economic growth and its present level exhibits an inelastic relationship.

Bank credit to private sector as an indicator of bank-based financial development revealed a positive and significant relationship with economic growth in Sub-Saharan Africa in the short run. Precisely, a 1% increase in banks credit to private sector will stimulate economic growth by about 0.0399% in the short run, at 1% significance level all things being equal. This means that bank credit to private sector and economic growth exhibits an inelastic relationship in Sub-Saharan Africa within the study period. Irrespective of the specification option, this variable is consistently significant. This suggests that economic growth in Sub-Saharan Africa is guaranteed when bank credit to

private sector is to drive financial development. This is in line with theoretical postulations and the findings rest on the fact that growth augmenting the role of bank credit to private sector as an indicator of financial development is found to be much relevant among Sub-Saharan Africa.

The short-run effect of labour force on economic growth is positive with a coefficient value of 0.0445. This means that a 1% change in labour force in Sub-Saharan Africa is associated with a 0.0445% increase in economic growth in the short run, at 1% level of significance, on average *ceteris paribus*. Hence, labour force and economic growth stand inelastic since its total effect on economic growth is less than 1%. Regardless of the specification option, the variable (labour force) is consistently significant in explaining the growth behavior in Sub-Saharan Africa. This is an indication that labour force is an important factor and the region employs labor-intensive techniques of production more than the capital-intensive technique of production.

With respect to gross fixed capital formation, its short-run effect is positive with a coefficient value of 0.0583. It, therefore, means that a 1% increase in gross capital formation will increase economic growth by about 0.0583% in the short run at 1% level of significance among Sub-Saharan Africa holding the other variables constant. The relationship between gross capital formation and economic growth is inelastic during the study period. The findings are in line with the theoretical expectations on the importance of capital formation in economic growth.

Industrial value-added within the study period exhibits a negative and insignificant relationship with economic growth in the first option of the estimation (one-step system GMM without lags). However, a positive but insignificant affiliation with economic growth is recorded in the remaining options of the estimation. The coefficient of industrial value-added based on the Blundell-Bond robust option (two-step system GMM) is 0.00008. A 1% change in industrial value-added will insignificantly change economic growth by about 0.00008% in Sub-Saharan Africa during the study period. This result points to the fact

that industries within the region are not generating enough output that will significantly influence economic growth within the region. With regards to trade openness, the result indicates a negative and insignificant association with economic growth regardless of the specification options adopted. A 1% increase in trade openness, *ceteris paribus*, will decrease economic growth, in the short run by about 0.00002% among Sub-Saharan Africa. The result upholds the reality of the situation regarding trade openness in the region where trade is often one-sided by heavy importation of finished products with relatively few exports and in most cases the raw materials are exported in their raw form.

The result as presented in Table 1a has shown that the coefficient estimate for bank credit to private sector has a positive and significant association with economic growth at 1% level of significance. The result provides enough reasons to reject the null hypothesis that bank credit to private sector has no significant impact on economic growth in Sub-Saharan Africa. Therefore, we conclude that bank credit to private sector has a significant impact on economic growth across Sub-Saharan Africa. This finding is in line with the empirical findings of Nadiya, Olha, Yuliia, Mariia, and Taras (2021), Kouam and Mua (2020), Akintola, Oji-Okoro and Itodo (2020), in which they found a positive relationship between bank credit to private sector and economic growth in their respective study areas.

This is a pointer to those in authority in these countries to consider bank credit to private sector as a policy variable, hence, giving it the desired attention. The provision of bank credit to key private sectors of the economy holds great potential for promoting economic growth within the region. The banking sector, which is the main source of credit to the private sector, is an important channel of financial intermediation through which financial resources can be mobilized for productive investment needed for the realization of the high economic growth path. The finding is consistent with the findings of Nadiya, Olha, Yuliia, Mariia, and Taras (2021), Sennuga, Adenaike, Adedayo and Sennuga (2021), Kouam and Mua (2020) and Akintola,

Oji-Okoro and Itodo (2020) who in their respective studies found a positive relationship between bank credit to private sector and economic growth using different methodologies, study areas and time frame. The result also points to the fact that it is in the interest of commercial banks within the region to prioritize high-growth private sectors and channel financial resources to them in order to reduce uncertainty around earnings and profitability posed by late payments from

the public sector. Not only will a more growth-centric approach to lending boost long-term profits, but they will also equally bolster financial stability risks and allow banks to better prepare for uncertain events. The positive and significant nature of bank credit to private sector indicates that an economy having higher banking penetration will be in a better position to inject more stimuli into the economy.

Table 1b: Dynamic Panel Data Long run Result for Bank Credit to Private Sector-Economic Growth Model. Equation 6: System GMM

Regressand: RGDPP		System GMM		
Specification Options:	One-step without	One-step with lags	Two-step without lags	Two-step with lags
Regressors	1a	1b-collapse	2a	2b-collapse
lnBCP	1.000*** [3.86e-06] (0.000)	1.000*** [4.96e-06] (0.000)	1.000*** [.268] (0.000)	1.000*** [.000] (0.000)
lnLFT	1.000*** [2.92e-06] (0.000)	1.000*** [3.82e-06] (0.000)	1.000*** [.213] (0.000)	1.000*** [.000] (0.000)
lnGFCF	-1.000*** [1.89e-06] (0.000)	-1.000*** [1.96e-06] (0.000)	-1.000*** [.140] (0.000)	-1.000*** [.000] (0.000)

NOTES: Standard errors is reported in brackets [] while p-values are reported in Parentheses (). ***, **, *, represent 1%, 5% and 10% significances levels respectively.

1a & 1b denote one-step SGMM without and with lags respectively while 2a & 2b; denote Two-Step SGMM without and with lags respectively.

Source: Author's computation 2023 (Using STATA 14.0)

Table 1b reports the long-run result from the estimation of bank credit to private sector and economic growth model. The result is presented in four separate columns from column 1 to column 4. Column 1 reports the long-run result of the estimation using a one-step system GMM without lags; column 2 comprises the result of the estimation from a one-step system GMM with lags; column 3 is made up of the result of the estimation using a two-step system GMM without lags; and lastly, column 4 includes the result of the estimation using two-step system GMM with lags. The interpretation is concentrated on the result in column 4 (two-step system GMM with lags) as the estimator yields more asymptotically efficient estimates than the one-step system GMM estimator. A careful look at the

coefficient of the estimates shows that all the variables that were statistically significant in the short-run (bank credit to private sector, labour force and gross fixed capital formation) are equally significant in the long run even at 1% level of significant irrespective of the specification option employed in the estimation. The Blundell-Bond robust option (Two-stem system GMM) of choice reveals that there is equally an improvement in the magnitude of the coefficients. Apart from gross fixed capital formation that is negative, inelastic but statistically significant, bank credit to private sector and labour force are elastic, positive and statistically significant in explaining growth across Sub-Saharan Africa. Specifically, a 1% increase in bank credit to private sector and labour force will significantly

increase economic growth, at 1% level of significance, in the long run, *ceteris paribus*, across Sub-Saharan Africa.

The long-run coefficient estimate with respect to bank credit to private sector is approximately 1.00. This implies that 1% increase in bank credit to private sector is associated with 1.00% increase in economic growth in the long run, *ceteris paribus*, across Sub-Saharan Africa. The relationship between bank credit to private sector and economic growth is elastic in the long run within the region. The magnitude of the long-run coefficient estimate is higher than that of the short run. This implies that bank credit to private sector will exert more impact on the economy in the long run than in the short run.

5. Conclusion and Recommendations

This study examines the impact of bank credit to private sector on economic growth in Sub-Saharan Africa. The study utilized system generalized method of moments which is based on the assumption of no serial correlation in the error term and weak exogeneity of explanatory variables. The validity of the instruments was checked by the Sargan and Hansen tests of over-identifying restrictions which test for correlation between the instruments and the model residuals as well as the AR(1) and AR(2) tests that checks whether the differenced error terms are first and second order serially correlated. All of the applied diagnostic tests confirmed the robustness of the models and hence, the estimates. The coefficient estimates provide evidence for a positive and statistically significant relationship

between bank credits to private sector, on economic growth in Sub-Saharan Africa in the short run. In the long run, all other variables are positive and significant in explaining growth variation in Sub-Saharan Africa. This is consistent with classical economic growth theories, especially the endogenous growth theory. The present study supports the notion of Schumpeter (1934), Nadiya, Olha, Yuliia, Mariia, and Taras (2021), Sennuga, Adenaike, Adedayo and Sennuga (2021), Henri and Mua (2020) and Akintola, Oji-Okoro and Itodo (2020) that financial development is the engine of economic growth.

Based on the findings of this study, the following recommendations are made: More attention should be given to private sector credit by monetary authorities in Sub-Saharan Africa through a reduction in stringent loan conditions such as short-term nature, quality, cost (interest rate) and availability of loanable funds. Monetary authorities in Sub-Saharan Africa should, through monetary policy, reduce legal reserves requirement for banks to enable the banking sector to create more credit to the private sector of the economy. This will enhance investment, job and employment opportunities which on the other hand will boost economic growth in the region. The apex bank of the respective countries within the region should lower their minimum rediscount rate to a moderate level that will enable banks to fix low-interest rates on their loanable funds while adopting direct credit control in favour private sectors.

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