

Domestic Credit to the Private Sector and Economic Growth in Cameroon

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Abstract

The indispensability of a strong private sector to economic growth and development has been proven severally in empirical research. Nevertheless, different finance theories have assigned varied degrees of importance to private sector performance measures like credit provision and capital accumulation among on economic growth and development. This paper examines the relationship between domestic credit to the private sector by commercial banks, and economic growth in Cameroon, using data extracted from the World Development Indicators over the period 1961 to 2019 inclusive. Three time series models are used in the empirical analysis. Findings from our empirical analysis indicate that the high Gross Domestic Product (GDP) will positively influence domestic credit to private sector by commercial banks and economic growth in Cameroon.

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Inflation and Capital have an insignificant negative impact on domestic credit to private sector by commercial banks and economic growth in Cameroon. This work therefore recommends guided increase of credit to private sector in Cameroon by Commercial banks like an instrument for growth and development in Cameroon in particular and the CEMAC zone in general.

Keywords: Bank Capital; Domestic Credit; Economic Growth; Inflation; GDP.

1. Introduction

Globally, commercial banks provide a broad range of financial services to the private sector. These services cut across saving, credit, insurance, payment, advisory and related fee-generating services. Credit provision however remains one of the most important of these services. As Zingales & Rajan [1] posit, the strength and resilience of a country's banking sector reduces the cost of external finance for firms. Nevertheless, funding the private sector in the developing world, and particularly in some of the poorest regions like the Central African Economic and Monetary Community (CEMAC) through the provision of these services has historically been a burden on commercial banks [2]. Over 50% of commercial bank shares in the region are held by governments of the respective countries [3]. Being the biggest economy in the CEMAC region, Cameroon occupies a strategic position and should in principle take advantage of this to further increase its output. A more resilient private sector will be necessary for this, and the funding of this private sector is crucial to the attainment of this goal [4].

Growth in credit volumes was a common feature in underdeveloped countries, particularly after the 2000s. This trend however overturned after occurrence of the global financial crisis in 2008[5]. Despite the apparent end of the crisis about a decade ago, much of the developing world still struggles today to reach pre-crisis credit levels [6]. One of the countries that has struggled in this domain is Cameroon. Banks in the country have since the crisis made lending conditions more stringent, and this has had a crucial effect on money supply and more importantly on investment, job creation, productivity, and growth in output. This tightening has been a direct result of the apparent uncertainty looming over the country's economy relating to macroeconomic conditions, rising public debt, and issues patterning to business sector conditions like fiscal policy.

Ideally, the level of bank credit should be determined by the forces of demand and supply. Irini and Gerti [7] assert that in the long run, bank credit would be affected positively by better economic growth, and higher confidence among different economic agents. They further argue that bank credit rises as government domestic borrowing shrinks, and lending costs diminish.

In this paper, we model the relationship between domestic credit to the private sector by commercial banks in Cameroon by comparing the forecasting efficiency of different time series models such as the Vector autoregressive (VAR) model and autoregressive integrated moving average (ARIMA) models. This paper will use the autoregressive conditional heteroskedasticity (ARCH) models and the generalised autoregressive conditional heteroskedasticity (ARCH) models and the generalised autoregressive conditional heteroskedasticity of credits in commercial banks in Cameroon. A limitation of this paper is that the impact of the shocks in the economy is determined by the stability condition of the GARCH model. The ARIMA model is a linear model from conception and this is a

limitation in case exponential changes were to be modelled.

Data used is extracted from the world bank database, covering 61 years, from 1960 to 2019 inclusive. Our empirical analysis shows that banks' domestic credit to the private sector has significantly influenced economic growth. Our results remain robust upon considering other variables, such as inflation which influences the amount of credit banks can give out. The interest rate at which they are given out is another crucial variable, particularly the lending interest rates.

2. Literature Review

Domestic credit refers to credit a national or regional central bank provides to borrowers within the same territory. This could include commercial banks and governments themselves. Whether local or national, governments often require borrowing to fund projects and provide services to their constituents. As such, government debt arises. This could be external debt to external financial institutions or internal debt to lenders in the same country. Domestic credit, of course, falls into the second category [8].

A country's central bank, which can lend money to the government, may also lend to commercial banks. However, these banks usually turn to central banks as a last resort. Both the government and banks are charged a fixed interest rate. This is called the discount rate and serves as a basis for other financial institutions' interest rates and is usually considered very competitive. Nonetheless, banks may be reluctant to borrow from central banks, resulting in tighter transparency measures and tighter controls. At the same time, banks typically only borrow from central banks during economic crises, which can give the impression that banks are financially weak. In the case of Cameroon, the Bank of Central African States provides domestic credit to the Cameroon government through Treasury bonds. Short-term loans to commercial banks are also available if needed . This will inevitable lead to the growth of private sector as they obtain loans too from the central bank for developmental projects [9].

In 1960 and 1985, Cameroon's economy was governed by a regulatory system, and from 1986 to the present, it was governed by a regime including the private sector. In the neoclassical context, the economy operated in the spirit of autopilot work [10]. The plan of the neoclassical ideology of the private economy addresses many issues, including domestic ones [11]. The development of Gross Domestic Product (GDP) proves that the private sector's contribution to the economy is significant. For example, the resource gap between savings and domestic investment is widening. Private investment fell from 12.3% of GDP in 1991 to 8.3% in 1992. In 1993 it rose to 12.3%. It then dropped to 8.9% in 1996 [12]. Harrod-Domar model theory: The Harrod-Domar model theory is used to measure the economic growth of a country as a whole. Under this model, the economy's growth is calculated as a factor of capital production and the individual savings rate. Economists rely on the Harrod-Domar theory to estimate long-term economic growth rates. Combined with other models and theories, this calculation can provide valuable insight into the state of the economy and may help politicians develop new policies to encourage growth. Based on the Harrod-Domar model and exogenous growth theory, the most effective way to grow the economy is to increase the savings rate [13]. Politicians need to adopt policies that stimulate savings to ensure economic growth. Some argue that savings depend highly on income level and

income distribution. With significant economic changes, raising the saving rate or redistributing income will be easy. Therefore, credits should be made readily available to the private sector, especially those involved in savings [14].

Endogenous Growth Theory: The Endogenous Growth Theory states that economic growth is generated internally in the economy, through endogenous forces and not through exogenous ones. The theory contrasts with the neoclassical growth model, which claims that external factors, such as technological progress, are the primary sources of economic growth. Consequently a good domestic credit system will lead to growth in a countries private sector [15].

Classical Growth Theory: Classical growth theory assumes that a growing population and limited resources will slow a country's economic growth. Such assumptions allude to economists' belief in classical growth theory, which assumes that a temporary increase in real GDP per capita will inevitably lead to a population explosion, limiting a country's resources and lowering real GDP. As a result, the country's economic growth will slow down [16]. The private sector will equally be affected significantly. Hence credit should be made available to reduce the effects of a growing population through private-sector investments [17]. Schumpeter [18], opines that a developed financial sector will enhance productivity and growth. Many authors have carried out studies in this direction. They are found out that financial intermediaries have an indispensable rule promoting economic growth and diverse innovations. These financial intermediaries provided strategic services such as evaluating investment projects, facilitating transactions and access to credit [19]. Levine and King conducted a study [20] and they discovered that the banking sector development can spur economic growth in the long run. Flaherty and Dey [21] did not succeed to establish a positive relationship between economic growth and private sector credit. They inspected the impact of bank credit and stock market liquidity on gross domestic product (GDP) growth. They discovered that bank credit is an inconsistent determinants of GDP growth using two-stage least squares regression. Emmanuel and his colleagues [22], studied the effects of private sector credit on economic growth in Nigeria. They used the Gregory & Hansen [23] cointegration test. They found that the error correction model established a statistically significant and positive effect of private sector credit on output and increased prime lending rate was hindering economic growth. It was found out in China that financial development comes as the second force in leading economic growth using the VAR model [24]. Coupled to their findings a twoway causality between financial development and economic growth for Greece was established [25]. A common problem faced by researchers is the accuracy of the predictions of models. The variance and largeness in the error terms is a call for concern. This indicates that researchers have to solve a potential problem of heteroskedasticity. The ARCH and GARCH model help one to model these irregularities in the variations of the error terms and the largeness [26]. Njimanted [27] carried out a study on the Time series analysis on economic growth in Cameroon. He found out that money supply by the central Bank and interest rates enhanced economic growth. He also found out that the efficiency of monetary policy reduces with expansionary monetary policy in Cameroon.

Time series data was used over a period of 80 years. The impact of changes in money supply on the value of Gross National Product (GDP) in the United Kingdom were investigated. It was found out that with money supply treated as independent bank rate was a principal weapon of monetary policy. Consequently, it was

discovered that 1% increase in independent money supply could cause less than 1 % increase in GDP [28]. Inaya and his colleagues [29] used the ordinary least square technique and discovered that there was a positive association between agricultural productivity and commercial banks' credit in Nigeria. The outcome of commercial banks' loan on agricultural GDP in Nigeria from 1981 to 2007 was examined and found that commercial banks' loan had a meaningfully positive impact on agricultural GDP applying simple regression [30]. China's health expenditure was modelled with ARIMA models, and in particular, hospital costs for respiratory sicknesses in Shanghai, China. The monthly data from January-December 2012 used in the study showed that ARIMA (0, 1, 1) demonstrated to be the best for this projection [31]. Based lag selection criterion forecasting ability of numerous ARIMA models with a view to determine the best ARIMA model for forecasting stock market prices it was found that ARIMA (3, 1, 1) and ARIMA (1, 1, 4) models were the outstanding forecast models for Botswana and Nigeria stock markets, respectively [32].

3. Methodology

Ababio [33] opines that there are two techniques in modelling. These techniques are the technical analysis and intrinsic value analysis. Technical analysis is based on three assumptions, that the price moves in trends, market discounts everything and history tends to repeat itself. Hence recurrent event is vital in modelling calculations or complex financial models determine this key figure. Intrinsic value is different from the current market price of an asset. However, comparing current prices can tell investors whether the asset is undervalued or overvalued. The financial analysis uses cash flows to determine a company or stock's intrinsic or underlying value. In option pricing, intrinsic value is the difference between the option's strike price and the current market price of the underlying asset [34]. This paper adopts the technical analysis approach because of the nature of the data used. This paper used secondary data gleaned from the world development indicators. This study covers a period of 59 years that is, from 1960 to 2019 inclusive. The necessary pre- and post-diagnostic checks like descriptive statistics, unit root and Variance Inflation factor test are performed to validate the reliability of the data used. The following lag selection test were applied to get the number of lags required for model selection. The root mean square (RMSE), Schwarz Bayesian Criterion (SBC), Akaike information criterion (AIC), Bayesian information criterion (BIC) and Hanna Quin Criterion (HQIC) test.

3.1. Model Specification

The models below are used to capture the residuals, volatilities and future values of domestic credit to private sector by commercial banks and economic growth in Cameroon.

The process in (1) below is an ARCH process of order m.

$$\sigma_t^2 = \varphi_0 + \varphi_1 \mu_{t-1}^2 + \varphi_2 \mu_{t-2}^2 + \varphi_3 \mu_{t-3}^2 + \dots + \varphi_m \mu_{t-m}^2 + \xi_t \tag{1}$$

 φ_m are the model parameters, μ_{t-m}^2 the squares of residuals at different time lags, φ_0 is the model

intercept and σ_t^2 is the volatilities indicating the riskiness of the variables under study. The process i(2) below is a GARCH process of order *m*, *n*.

$$\sigma_t^2 = \psi_0 + \psi_1 \mu_{t-1}^2 + \psi_2 \mu_{t-2}^2 + \dots + \psi_m \mu_{t-m}^2 + \xi_1 \sigma_{t-1}^2 + \xi_2 \sigma_{t-2}^2 + \dots + \xi_n \sigma_{t-n}^2 + \varsigma_t$$
(2) ψ_m

and ξ_n are the model parameters

The process in (3) below is an AR process of order m.

$$x_t = \phi_0 + \phi_1 x_1 + \phi_2 x_2 + \phi_3 x_3 + \dots + \phi_m x_m + \xi_t,$$
(3)

The process in (4) below is a moving average process of order n.

$$x_t = \lambda_0 + \lambda_1 \mu_1 + \lambda_2 \mu_2 + \lambda_3 \mu_3 + \dots + \lambda_m \mu_m + \varsigma_t, \tag{4}$$

 λ 's and ϕ 's are constants and μ_{t-1} are past shocks.

The process in (5) below is an autoregressive moving average series of order (m,n).

$$x_{t} = \phi_{0} + \phi_{1}x_{1} + \phi_{2}x_{2} + \phi_{3}x_{3} + \dots + \phi_{m}x_{m} + \lambda_{1}\mu_{1} + \lambda_{2}\mu_{2} + \lambda_{3}\mu_{3} + \dots + \lambda_{m}\mu_{m} + \xi_{t}$$
(5)

The process in (6) below is an autoregressive integrated moving average series of order (m, I, n),

$$x_t (1 - \sum_{i=1}^m \phi_i L^i) = \mu_t (1 - \sum_{j=1}^n \lambda_j L^j)$$
(6)

Where L^i is called the lag operator $(L^m X_m = X_{m-k})$.

A VAR (1) process can be written as:
$$\begin{bmatrix} y_t \\ x_t \end{bmatrix} = \begin{bmatrix} \eta_1 \\ \eta_2 \end{bmatrix} + \begin{bmatrix} \delta_{1,1} & \delta_{1,2} \\ \delta_{2,1} & \delta_{2,2} \end{bmatrix} \begin{bmatrix} y_{t-1} \\ x_{t-1} \end{bmatrix}$$
(7)

Haven stated the models to be used in modelling the data under study, it is important to check for the stationarity. In order to test for stationarity to avoid spurious regression the Augmented Dickey Fuller (ADF) Test is used. The model specification for ADF is given by equation (7 with drift, 8 with trend and 9 with drift and trend).

$$\Delta x_{t} = \alpha_{0} + \alpha_{1} x_{t-1} + \sum_{i=1}^{m} \beta_{i} \, \Delta x_{t-1} + \xi_{t} \tag{8}$$

$$\Delta x_{t} = \alpha_{0}T + \alpha_{1}x_{t-1} + \sum_{i=1}^{m}\beta_{i}\,\Delta x_{t-1} + \xi_{t}$$
(9)

$$\Delta x_{t} = \alpha_{0} + \alpha_{1}T + \alpha_{2}x_{t-1} + \sum_{i=1}^{m} \beta_{i} \,\Delta x_{t-1} + \xi_{t}$$
(10)

To investigate impact of domestic credit to private sector by commercial banks and economic growth in Cameroon, we specify a model with four variables. The model has three independent variables. These variables are GDP per Capita, Inflation rate (INFR) and Capital (K). The dependent variable is Domestic Credit to Private Sector by Banks (DCPB).

$$DCPB_{t} = \phi_{0} + \phi_{1} log GDP_{t-i} + \phi_{2} INFLR_{t-i} + \phi_{3} K_{t-i} + \xi_{t-i}$$
(11)

Where i = 1 to 61.

The credit provided to private sectors by banks depends on the capital of the bank (K), the inflation rate in the country (INFLR) and the GDP. Inflation denotes to the incessant rise in the general price level in an economy indicating macroeconomic stability. When inflation rises the cost of production also rises as such productivity in the private sector is affected. Hence a need for more funding through credits to maintain stability in the private sector. In addition, GDP has a positive association with growth of bank credit to the private sector. This is because GDP boosts economic activity, which leads to higher consumption and domestic investment that requires credit financing [35].

4. Data Analysis and Discussion

This section concentrates on the analysis of domestic credit to private sector by commercial banks and discussion of results obtained from analysing the data. It surveys descriptive statistics summary, basic correlation analysis among the variables under study.

4.1. Analysing The Impact of DCPB

Table 1 shows the summary of descriptive statistics. DCPB has a mean of 15.32474 meaning that half of the private sector had their credit improved by commercial Banks in Cameroon with a standard deviation of 7.380669, a minimum of 5.528167 and a maximum of 31.242. This indicates that the average private sectors credit varied from 7.380669 to 31.242 in commercial banks. The average GDP is 359016.42 and varied from 29090.719 and to 898257.63. This shows that GDP has little deviation from mean. Inflation has a minimum of - 2.392 and a maximum of 55.755. This shows that on average inflation varied from a minimum of -2.392 to a maximum of 55.755. The average capital was at 19.923 which varied from 14.305 to 45.115. Capital had the lowest standard deviation. It shows that it deviated least from the mean while GDP deviated furthest from the mean. From the Skewness/Kurtosis tests for Normality, the P-value is 0.000 which is less than the standard significant stretched whole 0.05. So, the null hypothesis of normality is not rejected and conclude that there is enough evidence that the variables under study are normally distributed.

| Table 1: | Summary | of Descriptive | Analysis. |
|----------|---------|----------------|-----------|
|----------|---------|----------------|-----------|

| Variable | Obs | Mean | Std. Dev. | Min | Max | |
|---|-------------|------------|-----------|-----------|-----------|--|
| DCPB | 60 | 15.325 | 7.381 | 5.528 | 31.242 | |
| GDP | 60 | 359016.42 | 272318.29 | 29090.719 | 898257.63 | |
| INFLR | 60 | 5.393 | 8.364 | -2.392 | 55.755 | |
| Κ | 60 | 19.923 | 5.401 | 14.305 | 45.115 | |
| Skewness (0.000), Kurtosis (0.000), adj_chi2(2) (61.560), Prob>chi2 (0.000) | | | | | | |
| Source: Authors, | using STATA | Version 15 | | | | |

In Figure 1, it is observed that under INLFR some predicted values go below 0 between 1960 to1966 and 1984 to 1990. Deflation occurs when the INFLR falls below 0%. INFLR reduces the value of currency overtime, but

sudden deflation increases it. This shows that between 1960 to 1966 and 1984 to 1990 Cameroon saw reduction in the value of their currency. Between 1990 and 1996 there was a spike in the INFLR showing an increase in the value of the domestic currency. This remained constant up to 2019. Now an increase in INFLR has a significant effect on the economic growth of any country. In the context of Figure, producers in Cameroon experienced better profit between 1990 and 1996 since they could sell their products at high prices. Most investors and entrepreneurs received added incentives for investing in productive activities. Since the producers received the right investment, they created more goods and services within areas of increased inflation. Thus, an increase in INFLR will increase the DCPB in Cameroon hence a growth in the economy. On the other hand, fixed income groups will encounter a fall in income. The true income of an individual is the purchasing power of his money income. Salary earners experience a fall in real income leading to a fall in their purchasing power. During the periods of high INFR, bank profitability and real return on assets experience a negative effect in Cameroon between the aforementioned periods. Real share prices of commercial banks are inversely related to inflation. Bank shareholders will benefit from low INFLR and high INFR will be very harmful to them [36]. In addition, Figure 1 shows that GDP demonstrated an upward moving trend from 1961 to 2019. This shows that the Cameroon economy was doing well until 2007 to 2008 that it experiences a minor decrease in the GDP but after it has always increased. This shows that the Cameroon economy has been healthy since 2009. The drop in GDP between 2007 and 2008 can be attributed to the global economic crisis experienced in 2008. Capital increased between 1960 to 1980 and since then has had a constant growth. This shows that DCPB has greatly impacted the economic growth of Cameroon from 1961 to 2019 [37]. Hence commercial should increase credit to private sectors in Cameroon.

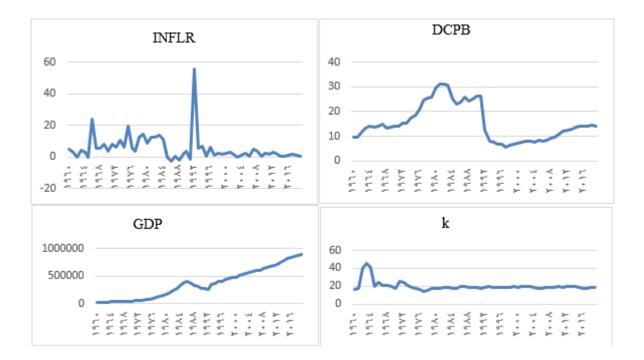


Figure 1: Time series Plots For DCPB, GDP, INFLR and K in Cameroon from 1961 to 2019.

Source: Authors, using Excel Version 2019

4.2. Comparing the Forecasting Efficiency of Time Series Models

In this subsection the paper examines the forecasting efficiency of the different models. It begins by observing the different pretest. It is clear from the Time series graph that INFLR, DCPB and GDP are not stationary. Only K is stationary. Implying differencing will be carried out in order to stationarise the variables. Table 3 shows the different AIC and BIC values from the different models. This paper uses the model with the smallest AIC and BIC value following the model selection criterion for predictions. From the table it can be observed that after using the different models at the same lag levels the ARIMA (1,2,1) model is the best for predictions because it has the smallest AIC and BIC values. This supported by the notion of parsimony which states the model with the smallest number of parameters should be selected. Obviously, the GARCH and the VAR model have more parameters than the ARIMA model and so will be rejected. The ARIMA (1,2,1) outperformed the ARIMA (1,0,1) and the ARIMA (1,1,1) who all had bigger AIC and BIC Values. The P-values are all significant and are less than 0.005 the standard value. Obtained after second and sixth lags for DCPB, GDP and K respectively.

| 4 400 | | | GARCH (1,1) | |
|------------|---|---|--|---|
| 4.489 | 248.81 | 64 | 408.3364 | |
| 4.595 | 674 261.17 | 91 | 408.3364 | |
| DCPB | GDP | INFLR | К | |
| 4.4891 | 22.64686 | 7.183266 | 5.646043 | |
| 4.530613 | 22.68838 | 7.224779 | 5.687556 | |
| 4.595674 | 22.75344 | 7.289841 | 5.752617 | |
| -0.3619097 | -0.3790558 | 0.1261742 | -0.2913828 | |
| 0.1217987 | 0.1248718 | 0.130814 | .1252065 | |
| 2 | 2 | 0 | 2 | |
| 5 | 23 | 8 | 6 | |
| 0.003 | 0.002 | 0.000 | 0.020 | |
| 0.9134 | 0.9949 | 0.0215 | 0.4900 | |
| 2.22652 | 19522.5 | 8.56364 | 3.97059 | |
| 0.4461 | 0.9982 | 0.5758 | 0.0005 | |
| I (2) | I (2) | I (0) | I (6) | |
| DCPB | GDP | INFLR | K | |
| | | | | |
| | -0.0000531 | -0.1196352 | 0.0839236 | |
| | 0.0000146 | 0.0139944 | 0.0799908 | |
| 248.8164 | | | | |
| 261.1791 | | | | |
| | | | | |
| | | | | |
| 9999998 | | | | |
| | 0.004 | 0.000 | 0.296 | |
| | | | | |
| | 0.361 | | | |
| DCPB | GDP | INFLR | K | |
| | -0.0000103 | | -0.3522895 | |
| 44.74876 | | | | |
| 408.3364 | | | | |
| | | | | |
| | 3.58e-06 | 0.1117507 | 0.1705651 | |
| | | | | |
| | DCPB 4.4891 4.530613 4.595674 -0.3619097 0.1217987 2 5 0.003 0.9134 2.22652 0.4461 I (2) DCPB 248.8164 261.1791 -118.4082 0.5025488 9999998 DCPB 44.74876 | DCPB GDP 4.4891 22.64686 4.530613 22.68838 4.595674 22.75344 -0.3619097 -0.3790558 0.1217987 0.1248718 2 2 5 23 0.003 0.002 0.9134 0.9949 2.22652 19522.5 0.4461 0.9982 I (2) I (2) DCPB GDP -0.0000531 0.0000146 248.8164 261.1791 -118.4082 0.5025488 9999998 0.004 0.001 0.361 DCPB GDP -0.0000103 44.74876 408.3364 418.8082 | DCPB GDP INFLR 4.4891 22.64686 7.183266 4.530613 22.68838 7.224779 4.595674 22.75344 7.289841 -0.3619097 -0.3790558 0.1261742 0.1217987 0.1248718 0.130814 2 2 0 5 23 8 0.003 0.002 0.000 0.9134 0.9949 0.0215 2.22652 19522.5 8.56364 0.4461 0.9982 0.5758 I (2) I (2) I (0) DCPB GDP INFLR -0.0000531 -0.1196352 0.001 0.0139944 248.8164 261.1791 -118.4082 0.004 0.000 0.001 0.361 0.000 0.361 0.000 0.001 0.361 0.0297769 44.74876 408.3364 418.8082 0.000103 | DCPB GDP INFLR K 4.4891 22.64686 7.183266 5.646043 4.530613 22.68838 7.224779 5.687556 4.595674 22.75344 7.289841 5.752617 -0.3619097 -0.3790558 0.1261742 -0.2913828 0.1217987 0.1248718 0.130814 .1252065 2 2 0 2 5 23 8 6 0.003 0.002 0.000 0.020 0.9134 0.9949 0.0215 0.4900 2.22652 19522.5 8.56364 3.97059 0.4461 0.9982 0.5758 0.0005 I (2) I (2) I (0) I (6) DCPB GDP INFLR K -0.0000531 -0.1196352 0.0839236 0.001 0.361 0.0139944 0.0799908 248.8164 261.1791 - - -118.4082 0.004 0.000 0.296 <tr< td=""></tr<> |

 Table 3: Information Criterion for Model Selection.

Source: Authors, using STATA Version 15 4.3. Forecasting The Percentage Of DCPB

In Table 4, the paper interprets only the coefficients of the ARIMA (1,2,1) model because Table 3 justifies its selection. From Table 4 under ARIMA (1,2,1) the coefficient of GDP is -0.0000531. This shows that a 1% increase in GDP will reduce domestic credit to private sectors from Commercial Banks in Cameroon by 0.0000531 unit. The coefficient of inflation rate is -0.1196352. This shows that a unit increase in inflation will reduce domestic credit to private sectors from Commercial Banks in Cameroon by 0.1196352 unit. The coefficient of credit to private sectors from Commercial Banks in Cameroon by 0.1196352 unit. The coefficient of capital is 0.0839236 indication that a unit change in capital will lead to an increase in DCPB by 0.0839236 unit.

| Table 4: ARIMA (1,2,1) Results. | |
|---------------------------------|--|
| | |

| ARIMA (m, I, n) | DCPB | GDP | INFLR | Κ |
|--------------------|-----------|------------|------------|-----------|
| | | | | |
| ARIMA (1,2,1) | | | | |
| Coefficient | | -0.0000531 | -0.1196352 | 0.0839236 |
| Standard Error | | 0.0000146 | 0.0139944 | 0.0799908 |
| AIC | 248.8164 | | | |
| BIC | 261.1791 | | | |
| Log likelihood | -118.4082 | | | |
| AR (1) Coefficient | 0.5025488 | | | |
| MA (1) Coefficient | 9999998 | | | |
| P-Value for Model | | 0.004 | 0.000 | 0.296 |
| P-Value (AR (1)) | | 0.001 | | |
| P-Value (MA (1)) | | 0.361 | | |

Source: Authors, using STATA Version 15

Thus, the ARIMA model best suitable for forecasting can now be established as follow:

$$DCPB_t = .0071664 - 0.0000531 log GDP_{t-i} + -0.1196352 INFLR_{t-i} + 0.0839236 K_{t-i} + \xi_{t-i}$$

Where, *i* starts from 1961 to infinity. 2019.

In order to verify if there is the problem of multicollinearity, the variance inflation factor is computed. The variance inflation factor tells us the extent to which the standard error of the coefficient of interest has been inflated upwards.

The rule of thumb is that the variance inflation factor should not be greater than 10. If it is greater than 10, then our results are faulty. The variance of the error terms for the coefficient of interest has not been doubled. Table 5 shows us the results of the variance inflation factor.

The variance inflation factors are all far below 10. This means that there is no problem of multicollinearity. Hence our results are trust worthy and reliable.

Table 5: Variance inflation factor.

| | VIF | 1/VIF | |
|----------|-------|-------|--|
| GDP | 1.251 | 0.799 | |
| INFLR | 1.152 | 0.868 | |
| K | 1.119 | 0.894 | |
| Mean VIF | 1.174 | | |

Source: Authors, using STATA Version 15

5. Conclusion

The paper has established how to select a model that best fits the Domestic credit to private sectors in Cameroon by commercial banks. With reference to the first and second objective of this paper, it is empirically evident that the ARIMA (1,2,1) model was the best for modelling on the comparison of the AIC's and BIC's of the different models tested before and after differencing.

In order to model the impact of impact of domestic credit to private sector by commercial banks and economic growth in Cameroon, it is necessary to compare the forecasting efficiency so as to guarantee the reliability and validity of the model in used in modelling [38]. Since GDP, INFLR and K had coefficients that were all small and had very negative influence on domestic credit to private sector by commercial banks, it is indisputable to conclude that Commercial Banks have a great influence on economic growth of Cameroon. Hence, the private sector should be given more credit to boost economic activities and subsequently impact the economy. Therefore, this paper recommends that more credit should be given to the private sector in Cameroon.

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