Credit to Private Sector, Investor Protection, Foreign Exchange Rate, Corruption Perception and Economic Growth Nexus Among COMESA Countries

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Abstract

Economic growth has remained an elusive issue in all economies in the world for a long period of time with empirical studies about factors determining economic growth giving mixed results in different countries. Common Market of Eastern and Southern Africa (COMESA) was founded to foster and promoting joint development in all fields of economic activity and the joint adoption of macro-economic policies and programmes to raise the standard of living of its peoples among its members states. Among others, emphasis was put on mobilizing domestic financial resources, mobilizing international resources, and promoting international trade as the engine of economic growth. However, it is not clear if these policies are a panacea to economic growth issue in COMESA countries and economic growth in these countries has remained a challenging issue in all economies. This study analyzed determinants of economic growth such as investor protection, credit to private sector, foreign exchange rate, and corruption. The study concluded by expounding that an increase in credit to private sector spurs economic growth. This is because investors are willing to invest in more risky venture while encouraging safe borrowers to be more effective. A depreciation of the currency can make a country's exports cheaper and imports more expensive. The financial sector, especially in the formal sectors of the economy, is critical in channeling savings into productive investment. The banking sector is widely regarded as an important economic conduit for financial intermediation. Credit to private sector increases a country's productive capacity. The result of this research adds new knowledge by analyzing the determinants of economic growth among COMESA countries. Results enables macroeconomists, policy makers and central monetary authorities of all the nations to deeply understand the role of investor protection, credit to private sector, foreign exchange rate, and corruption to spur economic growth.

Keywords: Economic growth, Random effects model and COMESA

1. Introduction

Economic growth has been used interchangeably with different concepts like development, modernization, westernization, and industrialization. In other words, it represents a transition from a simple, low-income economy to a modern, high-income economy (Haller, 2012). Economic growth encompasses the process and policies by which a country improves its people's economic, political, and social well-being (Aron, 2010). According to Mankiw (2014), economic growth is defined as an increase in real GDP (gross domestic product) or real GDP (gross national product) (GNP).

Although economic growth is frequently measured by the rate of change in GDP, it is often defined in terms of per capita income growth and attainment of a standard of living comparable to that of developed countries as a result, economic growth implies an improvement in a wide range of developmental indicators such as literacy rates, life expectancy, and poverty rates (World Bank, 2012). Furthermore, economists use the term growth to describe the augmentation of the production over a long period of time, while in short-term, economists define growth as the expansion or recession of the business cycle of economy (Mankiw, 2014; D'Alisa, Demaria & Kallis, 2014). Thus, with economic growth defined as a change per capital gross domestic product (GDP) or other measure of aggregate income, it can be either positive or negative (Haller, 2012).

According to the literature on economic growth, GDP has been and continues to be one of the most widely used measures of a country's economic performance. In the same vein, Sabillion (2017) defined economic growth as an increase in the number of goods and services produced in an economy over a specific time, typically a year (Sabillion, 2017). The author emphasized that economic growth has been so slow for the beginning of human history that it has been non-existent in most countries. The preceding statements demonstrated that GDP has been widely used to measure economic growth since its inception. GDP is thus viewed as a measure of market activity, but it is also widely used as an indicator of quality of life. However, using GDP as a measure of a country's prosperity and development has many limitations that can make it less useful as a measure of a country's economic performance and as a measure of its society's standard of living.

Because of the world economy's strong performance between 2004 and 2007, many people were caught off guard by the global economic crisis. Temporary profits in the financial industry, rising debt levels, and the

real estate bubble all contributed to a distorted picture of true economic conditions during this period. This demonstrates that our current measurement system is flawed, and steps should be taken to improve GDP as a measure of economic performance and social progress (Simon, O. (2010)). Nonetheless, despite its limitations, GDP is difficult to replace because it provides a single summarized figure that is comparable across nations. According to Kiriga, B., Chacha, T., & Omany, D. (2020). credit availability allows firms to make investments that they would not have made with their own funds. They also show the macroeconomic impact of increased credit availability; as credit availability increases, so does consumption and investment demand, raising output and employment.

2. Empirical Literature Review

Geller (2003) investigated how different levels of investor protection and how legal origins have affected the stock market development in developing and developed economies in the period between 2003 and 2007. The study findings showed that investors protection influence the depth of financial markets and revealed that the relation has worked differently in emerging economies in comparison to developed countries under the investigation. Odongo (2012) conducted a study in Uganda on foreign direct investment and economic growth. The study used the time series data covering time from 1970 to 2010. The main objective of the study was to analyze the determinants of FDI inflows in Uganda. The study employed the granger causality, variance decomposition and impulse response function method. The study found that international capital flows are particularly important in accelerating economic growth in Uganda. In addition, the study findings found that the determinants of inflows of foreign direct investment are domestic investments, growth in Gross Domestic product, growth in exports and imports.

The relationship between economic growth and credit to private sector has attracted attention among scholars in the recent past who have articulated empirical and theoretical studies on the relationship between economic growth and credit to private sector. Athanasios & Antonios (2010). investigated the relationship between economic growth and credit market in Italy for the period 1965-2007 by applying vector error correction model. It further the short-run and the long-run relationship between bank lending, gross domestic product and inflation rate applying the Johansen cointegration analysis. Results showed that the error correction term is negative indicating that there is long-term relationship between economic growth and credit to private sector. It suggested there is a positive relationship between economic growth

and credit to private sector. A one percent increase in credit to private was found to cause a 0.4 percent increase in economic growth. An increase in credit to private sector spurs economic growth. This is because investors are willing to invest in riskier venture while encouraging safe borrowers to be more effective.

Duican & Pop (2015). aimed at investigating implications of credit activity on economic growth in eight development regions of Romania for the period 2000-2014, namely Northeast, Southeast, South, Southwest, West, Northwest, Centre and Bucharest Ilfov. It was found out that credit to private sector has a positive influence on gross domestic product. The study concluded that it is important to a strong legal framework that would inject more funds toward innovative and profitable products in economy and that the population should have adequate knowledge not only on the benefits of credit but also on risks associated with credits. Armeanu et al., (2015) in more recent study affirms that an increase in credit corresponds to increase in gross domestic product. These results were based on data obtained from the National Bank of Romania sites and from Eurostat for the period of 2007-2013, quarterly data, accumulating a total number of 28 observations. The author argued that in order to capture the effects of credit it was important to split gross domestic product into certain components using either expenditure or income method. Olowofeso Adeleke & Udoji, (2015) investigated the impacts of credit to private sector on economic growth using Gregory Hansen cointegration test. The study accounted for structural breaks the problems associated with endogeneity. Five covariates were defined by specifying the model as a function of five independent variable including credit to private sector. The variables included credit to private sector, nominal exchange rate, prime lending rate, real gross domestic product and gross fixed capital formation. This study applied quarterly data spanning 2000: Q1 to 2014: Q4, while the fully modified ordinary least squares procedure was employed to estimate the model coefficients. The study found a cointegrating relationship between the independent variables and with selected determinants.

The findings showed a significant relationship between private to credit and economic growth in Nigeria. The findings of the study further supported the Nigeria's efforts of the Central Bank of Nigeria (CBN) in promoting a sound and real sector-friendly financial system and gradual reduction of interest rate to increase economic growth. Aliero Ibrahim Shuaibu (2013) studied the relationship between economic growth and credit to private sector by applying autoregressive distributed lag. It was concluded that there exists a long-term relationship between credit to private and economic growth. They found a positive

relationship. It recommended comprehensive policies and strong legal framework to facilitate the disbursement and recovery of private sector credit. Similar findings were obtained by Emecheta and Ibe (2014) also confirmed a positive effect of bank credit on economic growth using a vector autoregressive methodology (VAR).

It is often argued that small economies are mostly dependent on larger economies and wisdom holds that conditions in the larger or rather developed economies and its effect often spills to the small, less developed, and open economies (International Monetary Fund, 2007). One of the major implications is that interest rate of the developed economy is that interest rate change has a strong on small economies. Empirical studies suggest that small open economies with exchange rate regimes may give up their domestic monetary currency and the resultant impact is that the interest rate of the base countries affects floats and pegs of the recipient countries (Arora & Vamvakidis, 2004). Di Giovanni & Shambaugh (2008) explored the connection between foreign interest rate and economic growth of the major industrialized nations. Panel data was applied for the period. The findings showed a negative relationship between economic growth and economic growth. Foreign interest rates do not have a direct effect on the domestic economy. But it revealed that they may operate through some channel and have an indirect impact either by affecting domestic interest rates or other variables that contribute to annual GDP growth. Some of the interest rate that are identified are Domestic interest rate channel, Exchange rate change channel- An increase in the base rate may cause the base currency to appreciate against all other currencies meaning that any floating country will depreciate against the base and Exports to base channel.

Shambaugh, & di Giovanni (2006) studied the impact of foreign interest rates on the economy and the role of exchange in the economy. They argued that the economies of small economies are affected by the activities of their larger counterparts. The paper thus explored the relationship between interest rates and economic growth of the major industrialized nations and the less industrialized countries. The findings showed that high large-country interest rates have a contractionary effect on annual real GDP growth in the domestic economy, but that this effect is centered on countries with fixed exchange rates. The paper then examines the potential channels through which large-country interest rates affect small economies. The direct monetary policy channel is the most likely channel when compared with other possibilities, such as a general capital market effect or a trade effect. It is further noted that base countries real output is

negatively affected with interest rates, similarly countries with pegged exchange rate will have the same effect.

Omodero (2019) investigated the consequences of corruption on economic development in Nigeria. The study made use of the position of Nigeria in the country corruption classification captured by Transparency International and the rate of corruption prevailing in the country to evaluate the extent of influence corruption has on economic growth of the country. The study employed secondary data found from World Bank Development Indicators and Transparency International which cover a period of ten years. The regression result indicated that the country corruption classification has a significant negative impact on economic growth in Nigeria whereas the rate of corruption dominant in the country had a significant positive influence on economic growth in the country. The two results were significant and therefore the study concluded that the image of the country has been tarnished globally due to the high level of corruption in Nigeria and as internationally perceived.

Consequently, significant investment opportunities avoid the country even all the same the economy is rising with the high rate of corruption prevailing in the country. The study recommended amongst others that the religious clergy and non-governmental organizations should help in decreasing the threat of corruption by instilling moral values in the young age group who should grow up to say no to corruption and its magnetisms. Gründler, K., & Potrafke, N. (2019). investigated corruption and economic growth in Nigeria. The relationship between corruption and economic growth had been researched for a long time. However, majority of the empirical studies measured corruption by the reversed Transparency International's Perception of Corruption Index (CPI) and ignored that the CPI was not comparable over time. The CPI is comparable over time since the year 2012. The study employed new data for 175 countries over the period 2012 to 2018 and re-examine the relationship between corruption and economic growth. The results showed that corruption causes a decrease the economic growth. The effect of corruption on economic growth was majorly prominent in absolutisms and conveys to growth by reducing foreign direct investments and causing an increase in inflation.

Nurdeen et al., (2019) conducted a study on the determinants of corruption in Nigeria. Curbing corruption has been one major problem facing government and decision makers in Nigeria. The study employed the Autoregressive distributed lags technique to analyze the determinants of corruption in Nigeria over the

period 1984–2016. The outcome of the cointegration test indicated that corruption and its determinants have a long-run relationship. The results of the Autoregressive distributed lags estimation establish that economic development, political rights, military expenditure, rents, civil liberties and openness, are the leading determining factors of corruption in the long run. Higher-economic development, greater civil liberties, more openness, and higher military expenditure are connected to reduce corruption, but higher rents and political rights are related with higher corruption. Grounded on these outcomes, the study recommended policies to stimulate economic growth, civil liberties, political rights, and openness, comprising decreasing the dependence on the oil sector to control corruption in Nigeria. Obamuyi et al., (2019) investigated the effects of corruption on economic growth as measured in real Gross Domestic Product (GDP) per capita growth in Nigeria and India because of the pervasive corruption in the two low-income countries. The study employed Mo's framework (2001) for examining corruption and growth mechanism. The data for the study which covered 1980-2015 was extracted from the World Bank data repository. Corruption was measured by the Corruption Perception Index. Population growth rate, trade openness, education and the output of agriculture, industry and service sectors were also included in the study as the independent variables. Correlation coefficients were used to show a correlation between corruption and GDP growth rate for both countries.

3. Research Methodology

Random Effect Model: In the random effects model, the individual-specific effect is a random variable that is uncorrelated with the explanatory variables. Random effect assumes that the individual-specific effect is a random variable that is uncorrelated with the explanatory variables of all pasts, current and future time periods of the same individual. As noted by (Greene, 2008) the difference between random and fixed effects is whether the unobserved individual characteristics effect embodies elements that are correlated with the independent variables in the model and not whether these effects are stochastic or not. If there is a reason to believe that these differences across panels to affect the relationship between the regressors and regressand then random effects is estimated as time invariant characteristics can be included. The relationship can be represented as:

$$y_{it} = \beta x_{it} + \alpha + \mu_{it} + \varepsilon_{it} \dots\dots\dots\dots 1$$

Where y_{it} is the dependent variable μ_{it} is the error between entities while ε_{it} is the error within and random effects assume that the entity's error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables.

Test for the Multivariate Linear Assumptions: There are several key assumptions in regression analysis have been made between the relationship independent variable and the outcome variable. In this study, normality, multicollinearity, autocorrelation and heteroskedasticity assumptions were tested on the data before making statistical inferences.

Stationarity: The study used Levin Lin Chu and Im-Pesaran-Shin unit root tests.

4. Results

Normality Test: According to Ernst & Albers (2017), normality test is important because it accesses the distribution of the data, and it helps to determine how likely it is for a random variable underlying the data sets to be normally distributed. The study carried out a skewness kurtosis test and plotted the normality graphs using the histogram as shown in Figure 1. Normality test is about skewness and kurtosis. Skewness measures of symmetry of the probability distribution of a random variable about its mean, while kurtosis measures the central peak relative to that of the standard bell curve. The purpose of testing normality is to define if the distribution of the score on the variables is normal, if not the subsequent results are unreliable. A normal distribution has values of both Skewness and Kurtosis are far away from zero (Jayaram & Baker, 2008).
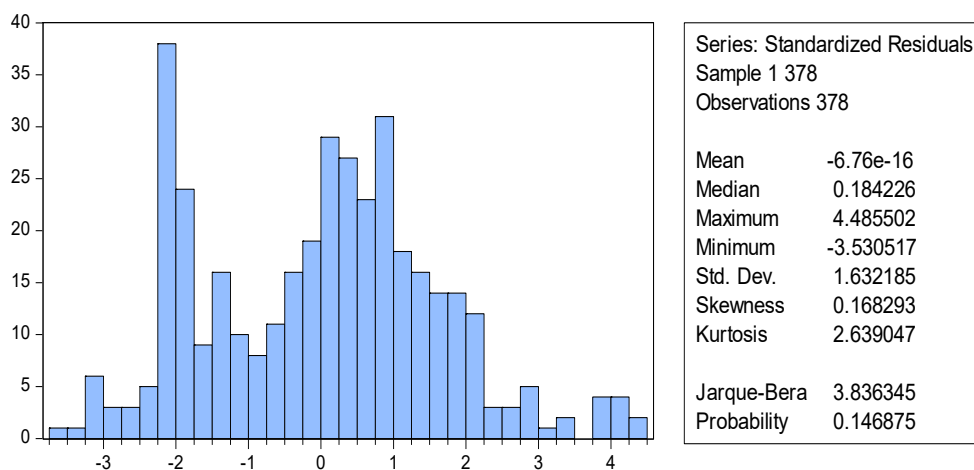

Series: Standardized Residuals	
Sample 1 378	
Observations 378	
Mean	-6.76e-16
Median	0.184226
Maximum	4.485502
Minimum	-3.530517
Std. Dev.	1.632185
Skewness	0.168293
Kurtosis	2.639047
Jarque-Bera	3.836345
Probability	0.146875

Figure 1. Normality test

From the output, it can be concluded that the sampled data was drawn from a normal distributed population, or the data normally exhibited distribution. The output conforms to the properties of standard normal distribution; it has a mean of zero, variance of one (1) a, skewness of zero (0) and kurtosis of three (3). This is an indication that the direction of distribution of variables around their means was asymptotically normally distributed for both skewness and kurtosis of the data. It is observed that that the mean is-6 .36e-17 $\cong$0, skewness of 0.168 and kurtosis value of 2.639$\cong$3. the value for Jarque-Bera which is a joint test is 3.836 and its probability of .1469 implying the null hypothesis that the data follows a normal distribution is accepted. Further, Figure 1 possesses the characteristic of belled shaped with rapidly decaying tails.

Multicollinearity Test

Table 1. VIF test for multicollinearity test

Variables	VIF	TOLERANCE (1/VIF)
CPS	1.49	0.6179
INP	1.47	0.6783
FER	1.13	0.8833
CPE	1.10	0.9094
Mean VIF	**1.30**	

Source: Researcher Analysis, 2022

Schofield (2015) opines that presence of multicollinearity among explanatory variables in a regression model is unacceptable since high correlation makes it difficult to determine the individual contribution of each of the independent variables to the dependent variable and potentially affect the estimates of regression coefficients and the statistical significance tests.

A multicollinearity test was undertaken to determine if two or more variables were highly correlated (not independent of each other) thus affecting the estimation of the regression parameters (Hair et al., 2009). Presence of multicollinearity makes the assessment and hypothesis testing about regression coefficients unknown, which frustrate interpretations of the model coefficients (Gujarati, 2003), thus providing incorrect regression. Similarly, if the VIF is greater than 10 then there is multicollinearity problem (Stevens, 2009). Further VIF values greater than 10 confirm the presence of a collinear relationship. The study used VIF to check for multicollinearity among the explanatory variables. Multicollinearity reduces the precision

of the estimated coefficients because of inflated standard errors and weakens the statistical power of the regression model. Multicollinearity in panel data can be tested using Variance Inflation Factors (VIF). CPS indicated a VIF of 1.49, INP a VIF of 1.47, FER; 1.13 and CPE; 1.10. The mean VIF is 1.30 < 10 which indicates absence of multicollinearity. Mean VIF values less than 10 indicates no multicollinearity among the independent variables.

Heteroscedasticity: The main assumption in regression is that the variance of the error term is homoscedastic across all observations.

Table 2. Breusch-pagan / cook-weisberg test for heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for
Ho: Constant variance
Variables: fitted values of lngdp
chi2(1)= 0.07
Prob > chi2 = 0.7895

Source: Researcher Analysis, 2022

When heteroskedasticity is present, ordinary least squares estimators become biased and inconsistent, an inefficient, and when standard errors are inconsistent, invalidating statistical tests. (Breusch, T. S., and A. R. Pagan. 1979). The null hypothesis for Breusch-Pagan/ Cook-Weisberg test is that the is constant variance (variance is homogeneous). Results in Table 2 indicate probability of Chi2 of .07 is Prob > chi2= .7895 implying the null hypothesis failed to be rejected and therefore, null hypothesis of constant variance holds.

Autocorrelation (Serial Correlation): When one of the Gauss-Markov assumptions fails, the error terms become correlated, giving rise to auto - correlation (also known as serial correlation).

Table 3. Autocorrelation (serial correlation) results

Dependent Variable: LNGDP
Method: Panel (random effects)
Sample1: 378
Periods included: 21
Cross-sections included: 18
Total panel (balanced) observations: 378
Swamy and Arora estimator of component variances

Cross-section random		0.073141	0.0016
Period random		1.754444	0.9287
Idiosyncratic random		0.480466	0.0697
F-statistic	5.239966		
Prob(F-statistic)	0.000408		
	Unweighted Statistics		
R-squared	0.015195	Mean dependent variable	9.905331
Sum squared residual	1122.529	Durbin-Watson statistic	**1.940961**

Source: Researcher Analysis, 2021

This can be caused by a variety of issues, the most common of which is when an important variable is omitted from the regression. To test for first order autocorrelation, the Durbin-Watson (DW) d statistic is used. Serial correlation analysis is used to determine the serial correlation of errors in a regression model. The presence of serial correlation between the residuals of successive years invalidates the statistical test. This necessitates a test to determine whether an important variable was omitted from the model or if a variable was incorrectly included. The lower part of Table 3 shows that Durbin Watson value is 1.94 which is between 1.5-2.5, the threshold for no serial correlation as per Durbin and Watson (1950).

Random Effects Results: The random effects assumption is that the individual unobserved heterogeneity is uncorrelated with the independent variables. If the random effects assumption holds, the random effects estimator is more efficient than the fixed effects model. Results in Table 4 indicates that the R square which is the coefficient of determination measuring the extent at which the independent variables influence the dependent variables. Since there was no unit root at levels (confirmed by Levin-Lin-Chu and Im-Pesaran-Shin tests), panel regression analysis was computed on the series in their levels. Results of regression analysis indicated that the modelled variables fitted the data very well as explained by Wald test statistic which uses Chi-square test is significant (Prob>Chi2=0.000<0.05). This is a good indication since it points to a strong correlation which indicates that the explanatory variables jointly have a significant impact on the economic growth of COMESA countries. Further, the value for overall R square is 0.6174 in random effects estimation showing independent variables such as credit to private sector, strength of investor protection, foreign exchange rates and corruption explained at least 61.74% of the variation of the economic growth of 18 countries in COMESA trading bloc.

Table 4. Random effects GLS regression

Random Effects GLS Regression						
Group variable		Year				
				No. of Obs		= 378
R- square		=.6174		No. of groups		= 18
				Obs per group		= 21
Corr(u_i, x)	=0 (assumed)			Wald chi2 (4)		= 50.33
				Prob > chi2		.000
LnGDP	**Coeff.**	**Std. err**	**Z**	**P |z|**	**[95% Conf. Interval]**	
CPS	.0267	.0056	4.77	.000	.0157	.0376
INP	-.4568	.0853	-5.36	.000	-.6240	-.2897
FER	.0003	.0001	2.87	.004	.0001	.0005
CPE	-.2179	.1042	-2.09	.037	-.4221	-.0136
Constant	12.0111	.4126	29.11	.000	11.2023	12.8198
Sigma_u	0					
Sigma_e	1.6697					
rho	0	(Fraction of variance due to u_i)				

Source: Researcher Analysis, 2022

In this model, credit to private sector and foreign exchange rates positively and significantly influenced economic growth with respective coefficient and probabilities $\beta = .027, p = .000$ and $\beta = .0003, p = .004$. Strength of investor protection and corruption perception index negatively and significantly affected economic growth in COMESA trading bloc with $\beta = -.457, p = .000$ and $\beta = -.218, p = .037$. The results for the direct effects can be fitted into an equation as

$$ECG_{it} = 12.011 + 0.027CPS_{it} - .457INP_{it} + .0003FER_{it} - .218CPE_{it}$$

5. Conclusion and Recommendation

The financial sector, especially in the formal sectors of the economy, is critical in channeling savings into productive investment. The banking sector is widely regarded as an important economic conduit for financial intermediation. Credit to private sector increases a country's productive capacity. Protecting investors entails expressing risk that may arise and have a negative impact on their investment. According to the study, the positive effect of investor protection on growth is stronger in countries with fewer restrictions. A growing economy can entice investors who anticipate higher revenues/profits in the future.

Consumption demand rises as production increases. and savings coming into the financial system which will allow it to extend credit.

Countries with floating exchange rates, on the other hand, can expect their currencies to appreciate. Trading partners may feel the impact of lower import demand sooner. As a result, currency depreciation is frequently a source of concern for trading partners. Furthermore, due to differences in products traded, some countries' trade is more responsive to changes in price competitiveness, while others are more sensitive to trading partner economic growth. Consequently, a depreciation of a currency may have variable effects on trading partners.

Changes in the exchange rate, according to economic theory, can cause a shift in stock prices, both intrinsically and extrinsically, in the case of multinational corporations. Along with the importance of the country of legal origin and investor protection, corruption appears to be another major source of uncertainty in the stability of a financial system. Transparency International defines corruption as "the misappropriation of entrusted power for personal gain. Corruption at both the public and state levels is included in this interpretation. Transparent countries are less corrupt, which reduces former uncertainty and volatility in the equity market. The findings, on the other hand, confirm that corruption discourages private investment, implying that corruption increases the costs of doing business while increasing uncertainty about the future. To avoid misalignments (overvaluation or undervaluation of the currency), the study recommends that COMESA countries should have exchange rate determination to the forces of demand and supply, allowing the foreign exchange rate to revert to its own equilibrium.

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