The Real Exchange Rate Regime and Economic Growth in Ghana

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Abstract

An empirical research that aims at investigating the interplay between real exchange rate and economic growth is imperative in the study of modern international economics. The real exchange rate regime plays a critical role in the economic growth of a country. The research focusses on the interaction that exist between Real Exchange Rate and Economic Growth in Ghana. Real GDP was used as a measure of Economic Growth Rate. Results from the empirical analysis revealed a statistically significant and positive association existing between real exchange rate and the growth of Ghana's economy (Real GDP). This affirms the major hypothesis. Results from the data analysis also showed a statistically significant and positive association between labour force and economic growth. Results from the analysis also revealed an inverse relation between government's consumption expenditure patterns and economic growth. The study finally considered the theoretical and practical contributions of the study.

Keywords: Economic growth, exchange rate regime, real GDP, labour force

Introduction

The sensitivity of exchange rate movements is real and vital to the position of every country's growth. Despite the attempt of some economists to justify currency depreciation in terms of its export trade contribution; Stabilized currencies have the propensity to foster favourable trade balance (Doyle, 2001), others believe that its demerits outweigh the gains derived by

an economy (Rodriquez, 2001). Most developing countries like Ghana with high inflationary rates that have aligned their currencies to the currency of another country usually experience persistent devaluations of their currencies, coupled with negative balances. The devaluation of a country's currency mostly leads to high inflation and that acts as an impediment to economic growth. Increased capital expenditure together with improved export volumes lead to positive economic conditions (Feuntus et al., 2006). Exchange Rate determines the amount needed to purchase a foreign currency. The modern explanation of the long-term exchange rate determination is founded on the purchasing power parity (PPP) between different currencies, that derives its essential validity from the law of the single price. The Purchasing Power Parity theory asserts that, products and services that are identical in nature should cost the same in the long run, in different countries. This can be traced to the principle that there will be adjustment in exchange rates and that will remove the arbitrage opportunity of purchasing cheaper products in one country and selling at increased prices in another. The theory only holds for tradable goods and ignores several real -world factors, such as transportation costs, tariffs and transaction costs. The other assumption is the existence of competitive markets for products in all countries. The relative version of PPP assumes a causal link between the path of the unit price of one currency in terms of another and the relative dynamics of price levels in the respective two countries within a lengthy period of time. The determinants of the long-term behavior of exchange rates through time are essentially reduced to the same factors which govern the original concept of money's domestic value.

With regards to fixed exchange rate, the "Bretton Woods" system still remains a period of its largest experiment in the post-World War II era. The system, however, was predicted to fail at its inception, by 1973, the international monetary and financial system embraced floating exchange rate. The halt of the system was attributed to several factors such as, large US balance of payment deficits and the decision by some trade partners not to adjust their currency values. The concept of demand and supply began to determine the value of currencies after the collapse of the system. There exist diverse positions on fixed and flexible exchange rate regimes in modern international finance discussions. Those who argue for fixed exchange rates state the uncertainty conditions attached to flexible exchange rates (Rose, 2000). Exchange rate volatility is the tendency for a domestic currency to change in value in relation to a foreign currency. These changes are mostly rapid in developing economies. The concept of exchange rate volatility has achieved much recognition in recent literature, mainly, due to its impact on developing economies. The concept of exchange rate volatility is worth studying due to its impact on a country's export ability (Arize et al. 2000; Wang and Barrett, 2007). The exchange rate regime also impacts on

employment creation in an economy (Belke and Setzer, 2003; Belke and Kaas, 2004). Exchange rate dynamics affect an economy's investment decision (Serven, 2003). This is consistent with previous research (Mundell, 1995; Adu, 2008).

Exchange rate dynamics significantly affects economic growth, both in the short and long runs (Peter and Isaac, 2017). Ghana is a West African country with about 7% growth rate (World bank; February, 2020). The country introduced an economic reform programme in 1986, popularly known as the Financial Sector Adjustment Programme (FINSAP) which was aimed at reforming the financial sector of the country. The flexible exchange rate regime in Ghana has been characterized with rapid depreciation of the Ghanaian Cedi against the US Dollar (US$). A US$ was exchanged for 93 pesewas when the country first redenominated her currency on 1st July 2007. This was however not sustained and that resulted in a downward trend of the currency until March 2010 when the currency experienced a marginal appreciation of 3%. The Ghanaian cedi has since then experienced a rapid depreciation. The currency saw an astronomic depreciation against the dollar by the end of September 2014, and was exchanged at GH¢3.20, indicating about 44.65% depreciation. The Cedi-Dollar exchange rate stood at GH¢4.02 in May 2015 and was GH¢3.81 in December 2015. The exchange rate between the cedi and the dollar was GH¢4.40 in February 2017 and increased to GH¢4.53 in December 2017. The rate as at May 31st, 2018 was GH¢4.66, the exchange rate between the Ghanaian cedi to the US dollar increased to 4.80 as at September 1st 2018. A dollar is currently (as at February 2020) equivalent to GH¢5.42 (Bank of Ghana Annual Report, 2019). Depreciation of the cedi is not mainly initiated by inadequate financial policy decisions. These are sometimes due to shocks in macroeconomic environment. The country has been unable to maintain adequate foreign reserves for stabilizing its currency since 1986 due to the lack of diversification of her export products and the overdependence of agricultural products. This lack of diversification has been the main source of depreciation of the Ghanaian cedi. Economic growth and development declines when exchange rate volatility is not properly checked (Gala et al., 2007).

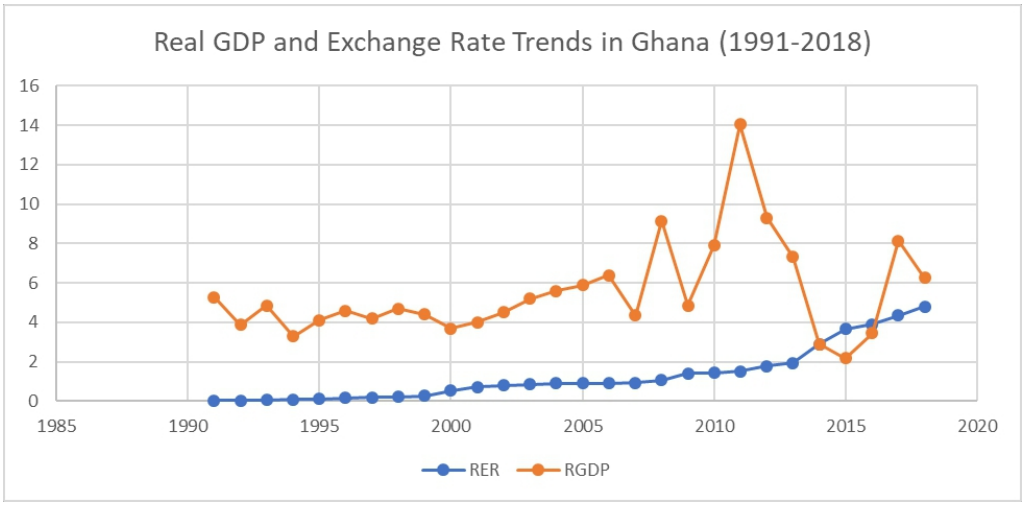
Economic Growth increases an economy's market value of goods and services. Economic Growth Rate can be determined by assessing a country's annual growth rate in real Gross Domestic Product (GDP). The adoption of market-led economic policies, with less government involvement in economic activities in Ghana has relatively led to a robust macroeconomic fundamental over the past three decades. The implementation of the economic reforms in the 1980s also contributed to the strong macroeconomic fundamentals of the economy. This motivated some economists and financial analysts to describe the country's economy as a frontrunner in the economic reform process (Sachs

et al., 1995). The country experienced a 5.2 % growth rate between the periods of 1984 and 2010. This resulted in the country gaining a lower middle- income status, also after a rebase of her accounts in the year 2010. The economy then grew at 8.3% in the year 2012. The discovery and commencement of commercial quantity production of oil in 2011 uplifted Ghana's economic growth. Some economists however challenged the impact of the recorded growth in the livelihood of people (Aryeetey et al, 2001). The rate of unemployment in the economy was not seen to be declining despite the recorded growth (Bekoe et al., 2013; Osei A., 2013). Therefore, a study that aims at ascertaining the association between exchange rate and economic growth is imperative in modern times. Exchange rate instability and its impact on a country's economy keep getting an important economic discourse and its study is necessary (Gagnon & Ihrig, 2004).

Exchange Rate and GDP Trends in Ghana:

Ghana's currency is compared to the United States dollar when determining its purchasing power. The cedi has undergone several fluctuations between the periods of 1991 to 2018 in determining its real value. As shown in Figure 1, the real value of the cedi has always fluctuated between the periods under review. The cedi experienced a high exchange rate in 1991, the exchange rate then decreased from 1992 to 1995. The exchange rate depreciation again increased between the periods of 1996 to 1999. The currency gained stability between the periods of 2000 to 2005 and then increased from 2006 to 2010. The cedi has since then experienced a rapid depreciation, from 2010 to 2018.

With regards to economic growth, figure 1 below presents a fluctuating trend of Ghana's growth rate between 1991 and 2018. As indicated in the figure below, the Ghanaian economy recorded the highest GDP growth rate in the year 2011, with about 14.047 growth rate. The country recorded its lowest GDP growth in 2015, with about 2.178 growth rate. The rapid depreciation of the cedi is sometime attributed to inadequate fiscal space as well as lack of import substitution policies by governments. The economy's overdependence on foreign goods increases the demand for the United States dollar. This increases the price of the dollar and also results in trade deficits.



Source: IMF, 2018

This study therefore seeks to analyze the interaction between Real exchange rate regime and economic growth in Ghana, empirically. This study primarily aims at examining the association between real exchange rate regime and economic growth in Ghana. The study would also be extended to ascertaining the association between labour force and the country's growth as well as assessing the impact of government consumption expenditure on the country's growth.

Review of Literature:

Theoretical background of the study:

Solow's 1995 economic growth model was used as a theoretical model for the study. This is a dynamic model of an economy, the model shows the economic dynamics of a country and also captures how growth occurs as savings and investment, labor force growth, and technology advances, thereby reflecting in the standard of living of people. The key variable in the model is labor productivity, output per worker, how much the average worker in the economy is able to produce. This is calculated by taking the economy's level of real GDP or output Y and dividing it by the economy's labor force L. This quantity, output per worker, Y/L, is the best simple proxy for measuring the level of growth of the economy. The Solow growth model portrays that the accumulation of labour and capital are the basic drivers of growth, with no role for the tax regime as well as other policies. Solow's model looks neoclassical in nature because of continuous substitutability of the factors that boost production (Van den Berg, 2001).

The Solow model asserts that the efficiency of labour and capital intensity leads to economic growth. Solow constituted three basic components of production, namely, labour, capital and total factor productivity. This type

of measurement of total factor productivity is still often referred to as the Solow residual. Solow used a production function to account for the residual which is popularly known as the Cobb-Douglas production function and started from his simple growth equation; Y=f(A, L, K), Where A = total factor productivity which allows for augmentation and this is captured as, real exchange rate, GDP per capita, FDI, and industry.

L = Labour force
K = Capital stock
Using Cobb-Douglas production function, Solow stated the following equation

$Yt = AtKt \propto Lt$
It is convenient to use this function because it shows constant returns to scale.

Empirical perspectives on exchange rate and economic growth:

Volatility in the exchange rate regime and its effect on macroeconomic variables have become an important economic discourse in the study of modern international economics and finance. Economic theory regards currency overvaluation as an impediment to economic growth. Avoiding rapid currency overvaluation is one of the ideal considerations that has strong empirical backing (Razin and Collins 1997; Johnson etel., 2007; Rajan etel., 2007). Despite this position, the degree of valuation is a matter that strikes diverse opinions among economists. Paul and Muazu (2016) assessed the impact of Ghana's exchange rate regime on its economy. The results suggested a mean reverting situation for Ghana's exchange rate shocks. They also found that, excessive volatility is detrimental to economic growth. Majidah and Chen (2018) examined the impact of exchange rate on the economic growth of sampled developing countries withing the period of 1974-2006. Their findings revealed a statistically significant and direct relation between the two variables. Jeffrey, Xiaonan and Danxia (2019) researched the impact of exchange rate regimes on economic growth by taking into account, a continuous classification of de facto regimes. Their findings suggest that, intermediate exchange rate regimes are directly related to economic growth at the highest level of significance. A research by Maurizio, Elitza and Livio (2016) concluded that, currency appreciation significantly affects annual real GDP growth. Qaiser, Irfan, Muhammad and Saif-ud-Din (2017) employed the use of simultaneous equation model in their analysis and found that, exchange rate positively affects economic growth in Pakistan. They also added that, this growth is triggered by increase in exports, investment and FDI. Lucas dos Santos and Claudio (2019) applied the Non-linear Autoregressive Distributed Lag in their attempt to assess the trade patterns and exchange rate volatility in

Brazil. They identified a non-linear behavior of the exchange rate regime in the country. They also found that, exchange rate appreciation does not decrease export volumes by a significant amount. This is consistent with a research by Eliphas and Nombulelo (2019). They added that, the pass-through of the exchange rate regime is time-varying and size of the second-round effects is inflation regime dependent.

Inès ABDELKAFI (2016) adopted the SVECM model as well as the Granger causality test in their analysis and concluded that, there exist interdependence between government debt profile, their monetary policy as well as economic growth. A bidirectional causal relation was identified among the variables. Isiwu (2019) analyzed the impact of corruption on economic growth in Nigeria. The results revealed a negative correlation between the two variables. Ahmad (2015) applied regression model to assess the effect of remittance on economic growth. The study showed a positive association between remittance and the growth in GDP. Tafirenyika (2017) used the ARDL bounds testing technique to analyze education expenditure and economic growth relationship in Mauritius. Results of the analysis indicated a direct relation between education expenditure and economic growth in the country. A research by Mouyad and Zouhair (2018) concluded that, the response of money demand to a negative shock in exchange rate (appreciation) was stronger than its reaction to a positive shock (depreciation). Also, a research by Richard and Sharmistha (2019) concluded that, there exist a statistically significant relation between exchange rate and agricultural productivity. They also found that, exchange rate depreciation leads to an increased competitiveness in the production of tradable goods, in particular manufactured goods. Using 17 Latin American countries, Dennis and Diego (2019) provided a suggestive empirical evidence that, parameterization of the utility function determines changes in economic variables such as labour productivity and inflation. They also added that, flexible exchange rate increases output. Suna (2016) found a causality from exchange rate towards economic growth after examining nine European countries with a panel data spanning from 2002-2011. Mohammed, Sayema, and Bazlul (2017), found evidence that, in the long run, a 10 percent depreciation of Bangladesh's currency was associated with a 3.2 percent increase in aggregate output, on the average.

Empirical Strategy:

Data:

Data for this study was obtained from the WDI, a database of the World Bank, IMF, Ghana Statistical Service (GSS) and Ghana's central bank, with a span of 1991 to 2018. Data on Real GDP, Real Effective Exchange Rate (REER), Labour Force, Foreign Direct Investment (FDI), Gross Savings (GS),

Gross Capital Formation (GCF), Access to Electricity (ATE) and Government Consumption Expenditure (Gov't Exp) are used as variables for the study.

Description of variables:

Key variables:

Real GDP was used as an indicator for measuring economic growth in the attempt to ascertaining the association between the major variables (exchange rate and economic growth). It is a widely used indicator for measuring economic growth (Rodrik, 2008). The study measured the data on real exchange rate from the IMF database. This is denoted as RER.

Control variables:

Other relevant variables that may have the propensity to affect Ghana's growth are included in the analysis so as to reduce potential endogeneity (Wooldridge, 2010).

Inflation (INF): Inflation determines pricing of products in a country and that goes a long way to influence economic growth. High inflation increases the cost of borrowing in an economy and reduces a currency's ability to make purchases. High inflation is detrimental to economic growth. The study therefore controlled for inflation in the model.

Labour Force (LF): Labour force affects a country's production capacity, which manifests in its trade capacity. A country with large active labour force has the tendency to increase production, thereby having positive impact on its growth. Labour force is therefore controlled for in the model as an explanatory variable.

Government Consumption Expenditure (GCE): The rate at which a government spends its revenue has impact on its growth. Capital expenditure leads to economic growth unlike expenditure such as payment of salaries. For this reason, the study controlled for government consumption expenditure in the model.

Foreign Direct Investment (FDI): FDI basically refers to foreign investments in a country. FDI increases a country's production base. FDI affects a country's growth. The study controlled FDI in the model.

Gross Savings (GS): A country's ability to save affects its level of growth. The study therefore controlled Ghana's gross savings in the model.

Access to Electricity (ATE): Electricity increases productivity in an economy. The study controlled the electricity coverage as an explanatory variable in the model.

Gross Capital Formation (GCF): This consist of the totality of a country's fixed assets together with the level of changes in inventories. This variable is also controlled.

Statement of Hypotheses:

The study developed hypotheses upon a considered retrospection of previous research related to the study. It first examined past researches that capture the interplay between the major variables (real exchange rate and economic growth). The study also had a considered view of past literature that assessed the relationship between labour force and the dependent variable.

Main hypothesis:

hypothesis 1: *Ghana's exchange rate regime has positive correlation with economic growth.* This hypothesis is deduced upon having a retrospective view of past related literature that suggested a statistically significant and positive association between the said variables (Richard and Sharmistha, 2019; Dennis and Diego 2019). High depreciation of a local currency leads to corresponding rise in the price of a foreign currency and that serves as a disincentive to high imports and encourage exports, thereby leading to high economic growth.

Other stated hypotheses:

hypothesis 2: *labour force growth rate affects economic growth positively*. This is stated on the grounds that, as a country's labour force increases, it enjoys a rise in output which leads to an increase in economic growth.

hypothesis 3: *government consumption expenditure affects economic growth*. A rise in capital expenditure manifest in growth of an economy unlike consumption expenditure such as payment of salaries.

Empirical model:

An empirical model is employed in an attempt to ascertaining the statistical relationship between the variables. The study employed a log-linear regression model in analyzing a dataset from 1991-2018. The log-linear model was employed because the study aims at ascertaining how exchange rate volatility would lead to a change in growth in the country. The log-linear model also gives precision to the scale of the variables. The relationship between economic growth and the explanatory variables can be expressed as: RGDP=f (RER, LF, GCF, FDI, GCE, ATE, GS, INF).

The empirical model is specified as:

$$log(RGDP) = \beta_0 + \beta_1 log(RER) + \beta_2 log(LF) + \beta_3 log(GCF) + \beta_4 log(FDI) + \beta_5 log(GCE) + \beta_6 log(ATE) + \beta_7 log(GS) + \beta_8 log(INF) + \boldsymbol{\varepsilon}$$

All variables are transformed using logarithms, β_0 refers to intercept whilst β_1-β_6 refers to slope coefficient. An extensive number of other relevant variables are included in the model so as to deal with possible endogeneity, as suggested by Wooldridge, 2010.

Results

The descriptive statistics and correlation of the variables are presented in tables 1 and 2 respectively. Table 1 presents Labour Force (LF) as the variable with the highest mean value (1.860) as the maximum value (1.903). FDI has the lowest mean value (-1.310) and also recorded the minimum value (0.325). Table 2 reports the variables' correlation. The table presents RER and ATE as the variables with the highest bivariate correlation (0.991). It also reports the same value for a bivariate correlation between INF and FDI (0.991). Table 2 also reports RGDP and GS as the variables with the lowest bivariate correlation (-0.999). Table 3 presents an ADF test for the variables. It shows a unit root for the variables except one (GCE). Table 4 presents the PP test for stationarity. It indicates that, almost all the variables are non-stationary except the variable, government consumption expenditure (GCE).

The logistic regression model was employed in our analysis. This is presented in Table 5. Results from the empirical analysis suggest a statistically significant and positive association between our major variables (exchange rate and economic growth) for the study, (β=0.009, $p<0.1$) This means that, high exchange rate leads to high economic growth due to the fact that it serves as a disincentive to import and promotes export. This strongly supports hypothesis 1. Table 5 also presents a statistically significant and direct relationship between labour force and economic growth (β=0.001, $p<0.01$). This means that, an increased labour force increases output, thereby affecting the GDP positively. This also supports hypothesis 2. Results of the study also suggested an inverse relation between government spending in terms of consumption and growth in the country (β=-0.079, $p<0.01$). This supports hypothesis 3. Results from the analysis showed an existing relationship that is statistically significant, between foreign direct investment and economic growth. This means that, FDI leads to an increased output, which positively affects export volumes in the country. The study also identified a statistically significant and positive association between gross capital formation and economic growth. Table 5 also presents a statistically significant relationship between access to electricity and economic growth in Ghana. We also found an inverse relation between inflation and economic growth. This means that, high inflation reduces economic growth in the country.

Table 1. Descriptive statistics.
The table below presents a summary statistic of the sample (1991-2018).

Variable	Median	Mean	Std. Dev.	Min.	25^{th}	75^{th}	Max.
RGDP	0.679	0.702	0.171	0.338	0.608	0.801	1.148
RER	-0.044	-0.190	0.611	-1.432	-0.662	0.217	0.681
LF	1.873	1.860	0.045	1.756	1.849	1.884	1.903
GCF	1.339	1.317	0.115	1.107	1.216	1.409	1.478
FDI	-1.554	-1.310	0.856	-2.975	-1.727	-0.745	0.325
GCE	0.797	0.833	0.371	0.002	0.690	1.173	1.238
ATE	1.738	1.721	0.128	1.486	1.629	1.807	1.899
GS	1.254	1.136	0.247	0.598	1.003	1.330	1.405
INF	1.185	1.222	0.218	0.853	1.052	1.396	1.774

Table 2. Correlation between variables

Variable	RGDP	RER	LF	GCF	FDI	GCE	ATE	GS
INF								
RGDP	1.000							
RER	-0.599	1.000						
LF	0.984	-0.449	1.000					
GCF	-0.802	0.959	-0.684	1.000				
FDI	-0.696	-0.158	-0.811	0.129	1.000			
GOE	-0.171	0.891	0.005	0.726	-0.589	1.000		
ATE	-0.489	0.991	-0.328	0.913	-0.286	0.943	1.000	
GS	-0.999	0.634	-0.976	0.828	0.664	0.214	0.527	1.000
INF	-0.787	-0-023	-0.883	0.262	0.991	-0.474	-0.154	0.759
1.000								

Preliminary test on variables:
Augmented Dickey Fuller Test (ADF)
H_0: variables are non-stationary
H_A: variables are stationary

Table 3. ADF Test

Variable	L1	Constant	Trend	t-statistic
RGDP	-0.567	0.344	0.004	-3.109**
RER	-0.162	-0.079	0.009	-1.918**
LF	-0.039	0.204	-0.029	-1.999**
GCF	-0.364	0.501	-0.002	-2.231**
FDI	-0.587	0.038	-0.051	-1.320**
GCE	-1.556	1.325	0.000	4.154
ATE	-0.498	0.770	0.008	-2.674**
GS	-0.371	0.412	0.001	-2.296**
INF	-0.625	0.900	-0.010	-3.355**

Source**:** Author's calculation using STATA. ***, ** and * indicate significance at 1%, 5% and 10% level respectively. Most variables have unit root

Phillips-Perron (PP) Unit Root Test
H_0: Variables are non-stationary
H_A: Variables are stationary

Table 4. PP Test

Variable	L1	Constant	Trend	t-statistic
Real GDP	0.433	0.344	0.004	-3.186**
RER	0.838	-0.079	0.009	-1.933 **
LF	0.961	0.108	-0.029	-1.504**
GCF	0.636	0.501	-0.002	-2.342**
FDI	0.413	0.038	-0.051	-1.297**
GCE	-0.556	1.325	0.000	-4.939
ATE	0.503	0.770	0.008	-2.441**
GS	0.629	0.412	0.001	-2.342**
INF	0.375	0.900	-0.010	-3.351**

Source: Author's calculation using STATA. ***, ** and * indicate significance at 1%, 5% and 10% level respectively. All variables are non-stationary except Government Consumption Expenditure (GCE).

Regression

The study's primary objective is to ascertain the existing relationship between Ghana's real exchange rate and the growth rate in the economy. The R^2 in the model measures its goodness of fit. The R^2 has a limit of 1 and its closeness to 1 makes it better in the model. It describes the portion of growth which is attributable to the explanatory variables. The R^2 in the model is 0.63 which means that about 63% can be explained by the independent variables in the model.

Table 5. Regression results

Variable	Coefficient	standard error	t-statistic	P-values
RER	0.009	0.005	1.898	0.074*
LF	0.001	0.002	3.624	0.002***
GCF	0.075	0.022	3.353	0.004***
FDI	0.015	0.035	1.321	0.067***
GCE	−0.079	0.027	−2.890	0.010***
ATE~	0.012	0.037	−3.361	0.004***
GS	0.002	0.022	0.113	0.911
INF	-0.377	0.135	-2.800	0.010**
Cons.	1.168	0.167	6.980	0.016

R^2 = 0.634 Adj R^2 = 0.492 F-stat (7,18) = 4.463 DW = 1.821

Source: Author's calculation using. ***, ** and * indicate significance at 1%, 5% and 10% level respectively.

Conclusion

Findings of the study suggested that, real exchange rate is statistically significant to economic growth in Ghana. The study also identified a positive association between the said variables. This means that, the country imports less during the periods where exchange rate is high. The country resorts to low importation when exchange rate is high and it is motivated to increase export volumes and that leads to economic growth.

Findings of the study also showed a statistically significant and direct relationship between the country's labour force and its economic growth rate. This implies a positive association between labour force and economic growth, signaling an increased growth rate as the country's labour force increases.

The study also ascertained a statistically significant and inverse relation between government's decision to spend on consumption and its corresponding growth on the economy. It was found that, high consumption expenditure has no positive correlation with economic growth in the country.

Contributions of the study:

The study improves on the few existing literatures that examine the interplay between our major variables of the study; exchange rate behaviour and economic growth (Suna, 2016; Alagidede and Muazu, 2016; Qaiser etel. 2017; Eliphas etel. 2019). It increases the knowledge in literature on the study area. The study provides policy makers with adequate information on the cedi-dollar behaviour in the financial system and its impact on the country's growth.

Findings of the study make an imperative theoretical contribution on labour force and economic growth interactions in the country. Findings would serve as essential information for government's strategic decisions.

The study would also guide the government in making consumption decisions since results of the analysis suggest an existing statistically relationship between government's decision to consume its revenue and growth of its economy.

Limitations and future research:

The unavailability of full dataset on some used variables despite the attempt to critically examine the cedi-dollar dynamics and its impact on the growth of Ghana's economy, served as a limitation to the study. Future research is therefore admonished to consider the full dataset if available.

Also, the lack of data on other relevant variables that may have the propensity to cause changes in Ghana's real GDP acted as a shortfall to the study. Future research should endeavor to include all other relevant variables if the data is available.

References:

1. Adu G. (2008). *Economic Growth in Ghana: Convergence and Determinants. Department of Economics, KNUST: Kumasi, Ghana.*
2. Ahmad A., (2015). *Workers' Remittances and Economic Growth: Evidence from Jordan. European Scientific Journal (ESJ).*
3. Arize, A. C., Osang, T., and Slottje, D. J. (2000). *Exchange Rate Volatility and Foreign Trade: Evidence from Thirteen LDCs, Journal of Business and Economic Statistics,* 18(1), pp 10-17.
4. Aryeetey E. and A.K. Fosu (2001*). Economic Growth in Ghana: 1960-2000. Draft Chapter for AERC Growth Project Workshop, Cambridge.*
5. Bank of Ghana, Annual Report (2019).
6. Bekoe, W. and Adom, K. P. (2013). *Macroeconomic Uncertainty and Private Investment in Ghana: An Empirical Investigation*. *International Journal of Economics and Financial Issues,*Vol. 3, No. 2, 2013,pp.276-293.
7. Belke A, and Kaas, L. (2004). *Exchange Rate Movements and Employment Growth: An OCA Assessment of the CEE Economies*. Empirica 31(2-3), pp 247–280. http://dx.doi.org/10.1007/s10663-004-0886-5.
8. Belke, A., and Setzer, R. (2003). *Exchange Rate Volatility and Employment Growth: Empirical Evidence from the CEE Economie*s. *Paper prepared for the "First Annual Conference of the Euro-Latin Study Network on Integration and Trade" der Inter-American Development Bank*, November 6–7.
9. Dennis W. Jansen, Diego E. Vacaflores (2019). *Remittances, Output, and Exchange Rate Regimes: Theory with an Application to Latin America. Southern Economic Journal.*

10. Dickey, D. and Fuller, W. (1979). *Distribution of the estimators for autoregressive time series with a unit root*. Journal of the American Statistical Association, 74(366):427-431.
11. Doyle, E. (2001). *Exchange Rate Volatility and Irish-UK Trade, 1979-1992*. *Applied Economics* 33(2), pp 249-503. http://dx.doi.org/10.1080/00036840122999.
12. Eliphas N., Nombulelo G., Mthokozisi M. T. (2019). *Exchange Rate, Second Round Effects and Inflation Processes, Evidence from South Africa. Palgrave: Macmillan.*
13. Fuentes, R., Larraín, M. and K. Schmidt-Hebbel (2006). *"Sources of Growth and Behavior of TFP in Chile"*. *Cuadernos de economía*, 43, 127, 113-142.
14. Gagnon, J. E., & Ihrig, J. (2004). *Monetary policy and exchange rate pass-through*. *International Journal of Finance & Economics*, 9(4), 315–338.
15. Gala, Paulo, (2007). *Real Exchange Rate Levels and Economic Development: Theoretical Analysis and Econometric Evidence*. *Cambridge Journal of Economics* 32, no. 2: 273–88.
16. Government of Ghana (2006). *Growth and Poverty Reduction Strategy (GPRS II) (2006-2009) Volume 1: Policy Framework, National Development Planning Commission, Accra, Ghana*, 147 pp.
17. International Monetary Fund. (2018). *World Economic Outlook: Adjusting to Lower Commodity Prices. Washington, DC.*
18. Inès A., (2016). *The Relationship Between Public Debt, Economic Growth, and Monetary Policy: Empirical Evidence from Tunisia. CrossMark: J Knowl Econ*.
19. Isiwu G. D., (2019). *Democratic Stability in Mitigating the Impact of Corruption on Economic Growth in Nigeria*. *European Scientific Journal (ESJ).*
20. Jeffrey Frankel, Xiaonan Ma and Danxia Xie (2019). *The Impact of Exchange Rate Regimes on Economic Growth with Continuous Classification of de facto Regimes. Havard University press.*
21. Johnson, Simon, Jonathan Ostry, and Arvind Subramanian. (2007). *"The Prospects for Sustained Growth in Africa: Benchmarking the Constraints." IMF Working Paper* 07/52. *Washington: International Monetary Fund (March).*
22. Lerner, A. (1944), *The economics of control. New York: Macmillan.*
23. Lucas dos Santos L., Claudio R. F. V. (2019). *Impacts of exchange rate non-linearity on Brazilian foreign trade.* CrossMark*: International Economics and Economic Policy*.
24. Majidah A., Chen C. Y. (2018). *The Impact of Exchange Rate Regimes on Economic Growth: Empirical study of a set of developing countries*

during the period 1974-2006. An International and Comparative Review: *The Journal of International Trade & Economic Development*.

25. Maurizio M. H., Elitza M. and Livio S. (2016). *The real exchange rate and economic growth; revisiting the case using external instruments. EUROSYSTEM: European Central Bank.*
26. Mohammed A. R., Sayema H. B. and Bazlul H. K. (2017). *Exchange Rate and Economic Growth: An Empirical Assessment for Bangladesh.* SAGE: *Journal of South Asian Development.*
27. Mundell, R. (1995). *Exchange Rate Systems and Economic Growth*. *Rivista de Politica Economica* 85, pp 1–36. http://dx.doi.org/10.4324/9780203031223.pt1.
28. Mouyad A., Zouhair M. (2018). *Asymmetric impacts of foreign exchange rate on the demand for money in Turkey: new evidence from nonlinear ARDL*. *CrossMark: International Economics and Economic Policy.*
29. Osei-Assibey, E. (2013). *Exchange Rate, Interest Rate, and Inflation Rate in Ghana. Is There a link?*
30. Paul A., Muazu I. (2016). *On the causes and effects of exchange rate volatility on economic growth: Evidence from Ghana. IGC International Growth Centre. In press*.
31. Peter Yeltulme Mwinlaaru and Isaac Kwesi Ofori (2017). *Real Exchange Rate and Economic Growth in Ghana. Munich Personal RePEc Archive*.
32. Qaiser Aman, Irfan Ullah, Muhammad Imran Khan and Saif-ud-Din Khan (2017). *Exchange rate and Economic Growth policies. European Journal of Economics and Law*, 44, pages157–164.
33. Rajan, Raghuram G. and Arvind S. (2006). *"Aid, Dutch Disease, and Manufacturing Growth." Peterson Institute for International Economics: Washington.*
34. Razin O., Collins S.M. (1997). *"Real exchange rate misalignments and growth", NBER Working Paper No. 6174.*
35. Richard G., Sharmistha S. (2019). *Structural change in Asia, the real effective exchange rate, and agricultural productivity. AEF: Journal of Economics and Finance*.
36. Rodrik, Dani (1993). *Getting Interventions Right: How South Korea and Taiwan Grew Rich, NBER Working Paper* no.4964 (December).
37. Rodrik, Dani, (2008). *The Real Exchange Rate and Economic Growth*. *Brookings Papers on Economic Activity.*
38. Rodriguez, Francisco, and Dani Rodrik. 2001. *Trade Policy and Economic Growth: A Skeptic's Guide to the Cross-National Evidence. NBER Macroeconomics Annual* 2000 15:261–325.

39. Rose, Andrew, (2000). *"One Money, One Market: The Effect of Common Currencies on Trade." Economic Policy* 15 (30): 8–45.
40. Sachs, Jeffrey, and Andrew W. (1995). *"Economic Reform and the Process of Global Integration."* BPEA, no. 1: 1–95.
41. Serven, Luis, (2002). *Real Exchange Rate Uncertainty and Private Investment in Developing Countries.* Policy Research Paper no.2823, *Washington, D.C.: The World Banks*.
42. Solow, Robert (1995). *Technical Change and the Aggregate Production Function*. *Review of Economics and Statistics* 39, pp.312-320.
43. Suna K. (2016). *The Effect of Exchange Rate on Economic Growth*. In press.
44. Tafirenyika S., (2017). *Education Expenditure and Economic Growth in Mauritius: An Application of the Bounds Testing Approach. European Scientific Journal (ESJ).*
45. Van den Berg H. (2001), *Economic Growth and Development*. *McGraw-Hill Companies, Inc, New York, US.*
46. Wang, K-L., and Barrett, C. (2007). *Estimating the Effects of Exchange Rate Volatility on Export Volumes*. *Journal of Agricultural and Resource Economics*, 32(2), pp 225-255.
47. W.D.I. (2014). *World Development Indicators*. World Bank Database.
48. Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data*. *Cambridge, MA: MIT Press.*
49. World Bank, (2020). *Global Economic Prospects. The World Bank.*