

Titoe, Michael D.

**Article**

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West African Journal of Monetary and Economic Integration

**Provided in Cooperation with:**

West African Monetary Institute (WAMI), Accra

*Suggested Citation:* Titoe, Michael D. (2019) : Remittances, financial development and economic growth in the economic community of West African states, West African Journal of Monetary and Economic Integration, ISSN 0855-594X, West African Monetary Institute (WAMI), Accra, Vol. 19, Iss. 2, pp. 71-83

This Version is available at:

<https://hdl.handle.net/10419/264260>

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# REMITTANCES, FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN THE ECONOMIC COMMUNITY OF WEST AFRICAN STATES

*Michael D. Titoe, Jr.<sup>1</sup>*

## **Abstract**

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*There are varied findings on how the remittances, financial development and economic growth relationship works. Some studies find that in countries with low financial development, remittance inflows may have a higher impact on economic growth by serving as a substitute for inefficient or nonexistent financial markets. Other studies show that remittance inflows enhance economic growth in countries with high financial development. This paper analyzes such tripartite relationship in the Economic Community of West African States for the period 2004-2016. Dynamic panel data estimations are carried out, and the results show that remittances positively impact economic growth while financial development is found to have no significant impact on economic growth. The interaction between the remittances and financial development variables is, however, found to have a significant, negative coefficient, implying that remittances substitute inefficient or nonexistent financial markets.*

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**Keywords:** *Remittances, Financial Development, Economic Growth*

**JEL Classifications:** F43, O16

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<sup>1</sup> *Research, Policy and Planning Department, Central Bank of Liberia. Email: [mdtitoe@cbl.org.lr](mailto:mdtitoe@cbl.org.lr)*

## 1.0 INTRODUCTION

The relevance of remittances as a major source of external finance and foreign exchange earnings for many developing countries has gained attention over time. Many scholars and researchers have investigated the impact of remittances in recipient economies in order to inform policymaking. Findings from empirical studies have been diverse. Some studies have found remittances to positively impact recipient economies by aiding to surmount credit constraints and serving as an alternative source of investment funds (Fayissa and Nsiah, 2010; Guiliano and Ruiz-Arranz, 2009); by lessening output volatility (Jidoud, 2015; Chami et al., 2009; Singh et al., 2009); and by mitigating poverty levels (Gupta et al., 2009; Jongwanich, 2007; Adams and Page, 2005). Several other studies have shown remittances to adversely impact growth by occasioning a reduction in labor force participation (Chami et al., 2005); and by causing the Dutch disease phenomenon (Lartey et al., 2008; Amuedo-Dorantes and Pozo, 2004). Remittances have also been found to play a role in the financial development and growth relationship. Some studies show that efficient financial markets, which reflect higher financial development, ensure that remittances are channeled to productive investment projects thereby enhancing growth (Singh et al., 2009; and Mundaca, 2009). Other studies show that remittances substitute inefficient or nonexistent financial markets in countries with low financial development by helping to solve the problems of high lending cost and lack of collateral for acquiring loans, and by providing finance for investment projects which promote growth (Guiliano and Ruiz-Arranz, 2009).

The Economic Community of West African States (ECOWAS)<sup>2</sup> has received significant remittance inflows over time, with Nigeria, Ghana and Senegal among countries receiving the highest amounts of remittance inflows. For instance, in 2016, Nigeria received about \$19.7 billion in remittances, amounting to about 4.9% of gross domestic product (GDP), while Ghana received \$2.98 billion amounting to about 7.0% of GDP and Senegal received \$2.02 billion amounting to about 13.7 % of GDP (WDI, 2017). Given the sizable inflows of remittances to the ECOWAS sub-region, some studies have investigated the growth impact of remittance inflows in the sub-region and the results arrived at are mixed. For example, while Koyame-Marsh (2012) finds remittances not to enhance growth in ten (10) ECOWAS countries including Nigeria, Senegal and Togo, Nyeadì et al. (2014) find remittances to drive growth in Nigeria and Senegal but not Togo.

Financial development is another issue which has gained major attention in developing countries including the ECOWAS countries. One of the indicators used to measure the level of financial development is credit to private sector (% of GDP). Over time, there has been, on average, a rise in credit to private sector (% of GDP) in the ECOWAS sub-region, somewhat implying an increase in financial development. For instance, in 2016, domestic credit to private sector (% of GDP) in Ghana stood at 19.7%, up from 13.2% in 2004; in Senegal, it stood at 33.3%, up from about 18.0% in 2004; and in Cote d'Ivoire, it stood at 22.5%, up from 10.9% in 2004 (WDI, 2017). The rise in domestic credit to private sector (% of GDP) was significantly higher in Cabo Verde, amounting to 62.2% in 2016, up from 37.8% in 2004 (WDI, 2017). However, how this level of financial development has affected economic growth in the ECOWAS sub-region has been an issue meriting empirical investigation. Previous studies have investigated the relationship between financial development and economic growth in ECOWAS countries, but their findings have been mixed. For example, Agbélénko and Kibet (2015) find that financial development positively affects economic growth in the West African Economic and Monetary Union (WAEMU)<sup>3</sup>. However, Keho (2010) finds financial development to have no significant effect on economic growth in seven (7) WAEMU countries.

<sup>2</sup> ECOWAS comprises the following 15 countries: Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

<sup>3</sup> WAEMU comprise eight (8), mainly Francophone ECOWAS countries, namely, Benin, Burkina Faso, Cote d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo.

A number of studies have looked at the relationship between remittances, financial development, and economic growth in sub-Saharan Africa (SSA) in general (Olayungbo and Quadri, 2019; Lartey, 2013; Fayissa and Nsiah, 2010). However, isolating the ECOWAS bloc from the SSA group and investigating if this relationship exists in the bloc is worth doing on the grounds that ECOWAS can more easily institute policies for member states to adopt, unlike in the case of SSA which is not a bloc per se. Therefore, in order to contribute to the empirical literature and provide evidence to inform policymaking, this paper conducts dynamic panel data estimation to analyze the relationship between remittances, financial development, and economic growth in the ECOWAS sub-region while controlling for polity and other factors which affect economic growth.

The rest of this paper is organized as follows. Section 2 gives the literature review; section 3 presents the methodology containing the theoretical framework and the empirical model; section 4 presents the empirical results; and section 5 gives the conclusion and policy recommendation.

## 2.0 LITERATURE REVIEW

In the literature on the remittances-growth relationship, several studies have applied various theoretical and empirical models to analyze how remittances affect growth and the conclusions arrived at are mixed. However, from the theoretical standpoint, there are three main channels through which growth is affected by remittances. As presented by Barajas et al., (2009), these channels are through the accumulation of capital; through the growth of labor force; and through the growth of total factor productivity. In the empirical literature, many studies have investigated the remittances-growth nexus in developing countries in regions such as SSA, the Asia-Pacific region, and Latin America and the Caribbean, among others. The growth impacts of remittances in these countries are varied. In some studies, remittances are found to positively impact growth, while in others they are found to have negative impacts on growth or even no significant impact at all.

Koyame-Marsh (2012), using data for a sample of ten ECOWAS countries for the period 1976 to 2007, conducts time series analysis and finds that remittances do not enhance growth in those countries. Nyeadi et al., (2014), conducting Granger-causality and cointegration tests using data spanning 1980-2012 on Nigeria, Senegal and Togo, find remittances to drive growth in Nigeria and Senegal, but not in Togo.

Studies investigating the nexus between financial development and growth have also produced mixed results. For example, considering the West African region, Agbélénko and Kibet (2015) find that financial development positively affects economic growth in the WAEMU countries. They use generalized method of moments estimation and data for the period 1981 to 2010. On the contrary, Keho (2010), conducting time series analysis, finds financial development to have no significant effect on economic growth in seven (7) of the WAEMU countries.

There are some studies which have investigated the tripartite relationship involving remittances, financial development and economic growth, and the results arrived at are varied. Olayungbo and Quadri (2019) use pooled mean group and autoregressive distributed lags estimations to investigate the remittances, financial development and economic growth nexus in a panel of 20 SSA countries for the period 2000-2015. They find that remittances and financial development, proxied by broad money supply (% of GDP), positively affect growth while financial development acts as a substitute in the remittances-growth nexus. Lartey (2013) conducts dynamic panel data analysis using data for 36 SSA countries for the period 1990-2008 to analyze how remittances impact growth. He finds that remittances impact growth positively, and that the impact is further enhanced in countries which are highly financially developed. Singh et al., (2009) confirm that the growth impact of remittances is enhanced by

a deeper financial sector. Bjuggren et al., (2010) analyze data for 79 developing countries and find that the significance of remittances as a source of finance for investment is indirectly related to the nature of institutional frameworks and credit markets. This means that the more efficient credit markets are, the less reliant domestic investments would be on remittance inflows for financing because investors would be able to acquire funding from the said markets. Using data for the Latin American and Caribbean countries for the period 1970-2002, Mundaca (2009) finds that financial intermediation causes growth to be more sensitive to remittance inflows.

Guiliano and Ruiz-Arranz (2009) also conduct dynamic panel data analysis but find a somewhat different result. Their findings show that in countries with shallow financial development, remittance inflows foster economic growth by helping to surmount credit constraints and acting as an alternative source of finance for investment. Fayissa and Nsiah (2010) analyze data on 36 SSA countries within a neoclassical growth framework for the period 1980-2004, and they find that remittances positively affect growth by serving as a source of finance for investment. Findings by Barajas et al., (2009) reveal a different impact of remittances. The authors find that remittances minimally impact growth in some countries and even slow growth in others.

Remittances have also been found to alleviate poverty. Findings by Gupta et al., (2009) reveal that remittance inflows directly alleviate poverty and as well foster financial development. Jongwanich (2007) finds evidence that in the Asia-Pacific region, remittances have little growth impact but significant poverty-reducing impact.

### 3.0 METHODOLOGY

#### 3.1 Theoretical Framework

This study utilizes an endogenous growth framework to analyze the remittances, financial development and economic growth nexus. While in the traditional neoclassical model by Solow (1956) long-run economic growth is mainly determined by exogenous factors, the endogenous growth model, which became popular since the work of Romer (1986), shows that growth can be influenced by endogenous factors including policy measures, investment in human capital, innovation and knowledge.

Bailliu (2000) extends the endogenous growth model used by Pagano (1993) and analyzes the role capital inflows play in the financial development and economic growth nexus. This study adopts such an extended model as its theoretical framework.

The closed-economy version of the model is stated as:

$$Y_t = AK_t \quad (1)$$

where national output,  $Y_t$ , is a linear function of the aggregate capital stock,  $K_t$ .<sup>4</sup>

Capital stock is assumed to depreciate in each period at a rate of  $\delta$ . Therefore, gross investment is given by

$$I_t = K_{t+1} - (1 - \delta)K_t \quad (2)$$

In the model, the transformation of savings into investment is done through financial intermediation. From each dollar saved, financial intermediaries take a fraction  $1 - \theta$  as transaction cost, and  $\theta$  is available

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<sup>4</sup> According to Lucas (1988), the  $K_t$  is assumed to be composed of both physical capital and human capital.

for investment. Equilibrium in the capital market is then attained when net savings (that is, savings minus transaction cost) and gross investment are equal such that

$$\theta S_t = I_t \quad (3)$$

By utilizing equations (1), (2) and (3) and omitting the time subscripts, the steady-state growth rate of output,  $g$ , with financial intermediation is given by:

$$g = A \left( \frac{I}{Y} \right) - \delta = A\theta s - \delta \quad (4)$$

where the gross savings rate is denoted by  $s$ . Equation (4) shows that growth can be affected by financial development through the efficiency of financial intermediation. For example, commercial banks tend to get more efficient as the level of intermediation they engage in increases, and this causes the transaction cost to fall. With a fall in transaction cost, the fraction of savings available for investment increases, thereby causing an increase in  $g$  in equation (4).

As the allocation of capital improves, the overall productivity of capital,  $A$ , increases, and this leads to higher growth. This is possible because as financial institutions engage in more financial intermediation, they gain experience in assessing various investment projects and can better choose those ones with higher yields.

Assuming that the economy can receive international capital inflows such as remittances, this would mean that higher net capital inflows would ensure a larger pool of savings to facilitate investment. Hence, the capital market equilibrium becomes:

$$\theta^*(S_t + CI_t) = I_t^* \quad (5)$$

where  $CI_t$  represents capital inflows (in this case, from remittances), and \* indicates the presence of international factors. By substituting equation (5) into (4), the steady-state growth rate becomes:

$$g^* = A^* \frac{I^*}{Y} - \delta = A^* \theta^* \frac{(S+CI)}{Y} - \delta = A^* \theta^* s^* - \delta \quad (6)$$

According to Bailliu (2000), by comparing equations (6) and (4), it can be seen that capital flows can enhance growth if they cause an increase in financial intermediation; if they lead to investments which occasion positive spillovers; and mainly, if they make the investment rate to rise to an extent that  $g^*$  is greater than  $g$  when  $s^*$  is higher than  $s$ , all other things being equal. But for  $s^*$  to be higher than  $s$ , there should be net inflows of capital which are not used to finance consumption, but which are used to finance investments that do not crowd-out domestically financed investments.

### 3.2 Empirical Model

In order to determine how GDP growth,  $g^*$  in equation (6), is impacted by the independent variables used in this study, a dynamic panel data model is estimated using the system Generalized Method of Moments (GMM) technique suggested by Arellano and Bover (1995) and Blundell and Bond (1998). By using lagged variables as instruments, this technique addresses the problem of endogeneity which affects static panel data models. The system GMM estimator utilizes both a levels equation and a first difference equation and can be used to estimate models with predetermined variables (Arellano and Bover, 1995). It extends the difference GMM estimator by using the levels equation, and it ensures that cross-country differences are accounted for. The system GMM estimator is given by:

$$y_{i,t} - y_{i,t-1} = (\phi - 1)y_{i,t-1} + \beta'x_{it} + \alpha_i + \varepsilon_{it} \quad (7)$$

where  $y$  is the dependent variable,  $x_{it}$  is a set of regressors,  $\alpha_i$  is a country-specific effect, and  $\varepsilon_{it}$  is an error term.

The relationship between remittances, financial development and growth can be specified in a production function as follows:

$$GDP_{it} = \beta_0 + \beta_1 REM_{it} + \beta_2 CREDIT_{it} + \beta_3 (REM_{it} * CREDIT_{it}) + \beta_4 X_{it} + \varepsilon_t \quad (8)$$

where  $GDP_{it}$  represents GDP growth rate,  $REM_{it}$  represents remittances (% of GDP),  $CREDIT_{it}$  represents domestic credit to private sector (% of GDP),  $REM_{it} * CREDIT_{it}$  represents the interaction between remittances and domestic credit to private sector, and  $X_{it}$  is a matrix of control variables. Given the increased inflows of remittances to ECOWAS and how crucial they are as a source of finance for investment,  $\beta_1$  is expected to be positive and significant to drive growth. Also,  $\beta_2$  is expected to be positive and significant if financial development drives growth. A negative and significant coefficient would imply that developments in the financial sector adversely affect growth. To ascertain how financial development affects the impact of remittance on growth, the coefficient on the interaction term ( $\beta_3$ ) is analyzed. When the coefficient on the remittance variable ( $\beta_1$ ) is positive and significant, a negative and significant  $\beta_3$  would mean that where there is low financial development, remittances more effectively enhance growth. This would also imply that remittance inflows substitute inefficient or nonexistent financial markets in the recipient economies. Conversely, a positive and significant coefficient would indicate that growth is enhanced by remittance inflows in countries which are more financially developed. So, in essence,  $\beta_3$  can be positive or negative depending on which effect is in place. The subscripts  $i$  and  $t$  indicate the cross-sectional (unit) dimension and the time dimension, respectively, with  $i = 1, 2, \dots, N$  and  $t = 1, 2, \dots, T$ .

### 3.3 Data and Variable Description

This study utilizes a data set which contains yearly observations for the 15 ECOWAS countries for the period 2004-2016 (with  $N = 15$  and  $T = 13$ , giving a total of  $NT$  (195) data points for the panel analysis). The data are sourced from the World Development Indicators (World Bank, 2017) and the Polity IV Project (Marshall et al., 2017). Table 1 gives the variable description and Table 2 provides the descriptive statistics.

**Table 1: Variable Description**

<b>Dependent Variable</b>	<b>Description</b>	<b>Source</b>
<i>GDP</i>	Gross domestic product growth (annual %)	WDI 2017
<b>Independent Variables</b>		
<i>REM</i>	Log of personal remittances (% of GDP). Personal remittances include personal transfers and compensation of employees. <sup>5</sup>	WDI 2017
<i>CREDIT</i>	Indicator of financial development represented by the log of domestic credit to private sector (% of GDP) – this indicator measures the extent to which the private sector is reliant on financial institutions to finance consumption, working capital and investment	WDI 2017
<i>REM*CREDIT</i>	Interaction of remittances and financial development	WDI 2017
<i>GCF</i>	Log of gross capital formation (% of GDP) which is used to represent investment in capital stock	WDI 2017
<i>TROP</i>	Trade openness- log of sum of exports (% of GDP) and imports (% of GDP)	WDI 2017
<i>INFL</i>	Inflation- annual percentage change in consumer price index	WDI 2017
<i>POLITY</i>	This variable gives yearly information on the political regime and authority characteristics of countries. It is compiled under the Polity IV Project conducted by the Center for Systemic Peace. It reflects the difference between democracy and autocracy, and it ranges from +10 (strong democracy) to -10 (strong autocracy).	Polity IV Project, Center for Systemic Peace

### 3.3.1 Descriptive Statistics

As shown in Table 2, over the study period, the average GDP growth in the ECOWAS sub-region was 4.8%, with the highest growth rate being 33.7% and the lowest being -20.6%. The average inflation was 5.4%, with the highest being 34.7% and the lowest being -35.8%. In terms of the political regimes and

<sup>5</sup> According to the IMF's Balance of Payments Manual 6<sup>th</sup> Edition (BPM6), the personal transfers include all current transfers in cash or in kind between resident and non-resident individuals, independent of the source of income of the sender and the relationship between the households; while compensation of employees refers to the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by non-resident entities.



authority characteristics, the ECOWAS countries, on average, skewed toward democracy as indicated by the mean of the polity score (4.02).

**Table 2:** *Descriptive Statistics of Variables*

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
<i>GDP</i>	4.77	4.24	-20.60	33.74
<i>REM</i>	1.32	1.06	-1.91	3.45
<i>CREDIT</i>	2.64	0.72	0.02	4.19
<i>GCF</i>	2.97	0.43	1.55	3.95
<i>INFL</i>	5.43	6.71	-35.84	34.70
<i>TROP</i>	4.25	0.40	3.03	5.74
<i>POLITY</i>	4.02	4.23	-5	10

**Note:** *Statistics are based on the logs of all variables excluding GDP, INFL AND POLITY.*

### 3.3.2 Correlation Matrix

The correlation matrix is presented in Table 3. From the results, the highest positive correlation is between *REM* and *CREDIT* at 0.448. The lowest positive correlation is between *GDP* and *GCF* (0.02). Some variables are found to be negatively correlated. The largest negative coefficient of correlation is between *CREDIT* and *INFL* (-0.26), while the lowest negative correlation of -0.001 is between *GDP* and *CREDIT*.

**Table 3:** *Correlation Matrix of Variables*

	<i>GDP</i>	<i>REM</i>	<i>CREDIT</i>	<i>GCF</i>	<i>INFL</i>	<i>TROP</i>	<i>POLITY</i>
<i>GDP</i>	1.000						
<i>REM</i>	-0.083	1.000					
<i>CREDIT</i>	-0.001	0.448	1.000				
<i>GCF</i>	0.020	0.042	0.391	1.000			
<i>INFL</i>	0.111	-0.190	-0.260	-0.071	1.000		
<i>TROP</i>	0.040	0.306	0.246	0.227	0.109	1.000	
<i>POLITY</i>	0.120	-0.018	0.162	0.137	-0.038	-0.027	1.000

**Note:** *Results are based on the logs of all variables excluding GDP, INFL AND POLITY.*

#### 4.0 ESTIMATION RESULTS

As a preliminary exercise, static panel data models are estimated. First, the pooled Ordinary Least Squares (OLS) estimation is done and the results are shown in column (1) of table 4. Next, the fixed-effects (FE) and random-effects (RE) models are estimated, and their results are presented in column (2) and column (3), respectively. The Hausman test revealed that the difference in coefficients are not systematic, suggesting that the RE model is the appropriate model in a static framework. The signs on the coefficients in the OLS, FE and RE regression results are all the same, except for the sign of the coefficient on *REM* which is negative in the FE estimation but positive in both the OLS and RE estimations. The focus of this work is, however, on the dynamic framework. Therefore, the system GMM estimator is used, and the results are presented in table (5). First, the results of the one-step system GMM estimator are presented. Next, the results of the more efficient two-step system GMM estimator with corrected robust standard errors by Windmeijer (2005) are presented.

**Table 4:** Results from the OLS, Fixed Effects and the Random Effects Estimations (Dependent variable: Annual GDP Growth)

	(1) OLS	(2) Fixed Effects	(3) Random Effects
<i>REM</i>	1.626 (1.185)	-0.008 (1.875)	1.626 (1.185)
<i>CREDIT</i>	1.276 (0.797)	0.654 (1.390)	1.276 (0.797)
<i>REM*CREDIT</i>	-0.795* (0.445)	-0.383 (0.706)	-0.795* (0.445)
<i>GCF</i>	0.091 (0.809)	0.880 (1.341)	0.091 (0.809)
<i>INFL</i>	0.076 (0.049)	0.023 (0.065)	0.076 (0.049)
<i>TROP</i>	0.673 (0.862)	3.358** (1.557)	0.673 (0.862)
<i>POLITY</i>	0.132* (0.077)	0.406* (0.221)	0.132* (0.077)
<i>Constant</i>	-1.791 (4.154)	-14.135** (6.935)	-1.791 (4.154)
Observations	188	188	188
Number of countries	15	15	15
R-squared	0.052	0.067	0.052

**Note:** (1) Standard errors are reported in parentheses. (2) \*, \*\*, \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

The results from both the one-step and two-step system GMM estimations are similar in terms of signs of the estimated coefficients. However, because the two-step system GMM estimation gives more efficient and robust results, their results are interpreted. From the two-step system GMM results presented in table (5) below, *REM* is found to positively affect growth, confirming the findings by Fayissa and Nsiah (2010) who show that remittance inflows act as a source of finance for investment and a panacea for the problem of liquidity constraint. A 1% increase in *REM* increases growth by about 1.7% in the short run and 2.4% in the long run, all things being equal. Financial development, represented by *CREDIT*, has a negative coefficient but is found to have no significant effect on growth. This result is in line with the one obtained in the work of Keho (2010) who finds financial development

to have no significant effect on economic growth in seven (7) of the ECOWAS countries. However, the interaction between remittances and financial development is found to have a negative and significant coefficient in both the short run and the long run. This result confirms the findings by Guillano and Ruiz-Arranz (2009) and suggests that remittances substitute inefficient or nonexistent financial markets in the ECOWAS sub-region. This implies that the significant inflows of remittances to the sub-region over time have served as a source of funding for investment projects which promote growth.

**Table 5:** System-GMM Estimations (Dependent variable: Annual GDP Growth)

	(1) One-step System GMM (Short-run Coefficients)	(2) One-step System GMM (Long-run Coefficients)	(3) Two-step System GMM (Short-run Coefficients)	(4) Two-step System GMM (Long-run Coefficients)
<i>GDP (-1)</i>	0.249* (0.151)	-	0.272*** (0.047)	-
<i>REM</i>	1.514* (0.785)	2.017 (1.295)	1.730* (0.754)	2.379** (1.070)
<i>CREDIT</i>	-0.252 (0.396)	-	-0.292 (0.332)	-
<i>REM*CREDIT</i>	-0.655** (0.294)	-0.872* (0.496)	-0.742** (0.290)	-1.019** (0.403)
<i>GCF</i>	2.293** (0.897)	3.055** (1.484)	2.525** (0.960)	3.470*** (1.255)
<i>INFL</i>	0.003 (0.020)	-	0.012 (0.017)	-
<i>TROP</i>	2.037** (0.804)	2.714* (1.427)	1.895** (0.653)	2.604*** (0.893)
<i>POLITY</i>	0.166** (0.077)	0.222** (0.099)	0.185*** (0.069)	0.254*** (0.093)
<i>Constant</i>	-11.491** (3.687)	-	-11.758*** (2.587)	-
Observations	175	-	175	-
Number of countries	15	-	15	-
R-squared	-	-	-	-
Number of instruments	11	-	11	-
p-value of AR (1) test	0.073	-	0.027	-
p-value of AR (2) test	0.638	-	0.666	-
p-value of Sargan test	0.796	-	0.796	-
p-value of Hansen test	0.703	-	0.703	-

**Note:** (1) Robust standard errors and corrected robust standard errors are reported in parentheses for the one-step and two-step estimations, respectively. (2) \*, \*\*, \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. (3) Long-run coefficients computed only for variables with significant short-run coefficients using the formula:  $\beta_k / (1 - \Phi)$ , where  $\beta_k$  is the coefficient on the  $k$ th independent variable and  $\Phi$  is the coefficient on the lag of the dependent variable used as a regressor.

For the other control variables, some are found to positively impact growth while the others do not. Investment in capital stock (*GCF*) positively and significantly impacts growth. A 1% increase in *GCF* increases growth by about 2.5% and 3.5% in the short run and the long run, respectively. Inflation

(*INFL*) is found to have no significant impact on growth. Trade openness (*TROP*) significantly drives growth in the sub-region. A 1% increase in *TROP* drives growth by 1.9% in the short run and 2.6% in the long run. The findings also show that *POLITY* significantly affects growth in the sub-region. The coefficient on *POLITY* is positive, implying that the more democratic ECOWAS countries are, the more their economies grow. A 1-unit increase in the polity score drives growth by 0.2% in the short run and 0.3% in the long run.

The results of the two-step system GMM estimation show that remittance inflows serve as a substitute to financial development. These results are satisfactory based on the necessary tests done. Both the Sargan and Hansen tests of overidentifying restrictions verify the validity of the instruments utilized in the estimation, and hence, confirm the consistency of the system GMM estimator. The tests for serial correlation also reveal that the estimator is appropriate for this study, as first order autocorrelation is found to be present while second order correlation is absent.

## 5.0 CONCLUSION AND POLICY RECOMMENDATION

This study is focused on analyzing the remittances, financial development and economic growth relationship in the ECOWAS sub-region to provide empirical evidence to inform policymaking. To this end, the endogenous growth model was employed as the theoretical framework, and the system GMM estimator was utilized to estimate the relationship. The results show that remittances enhance growth, while financial development does not significantly impact growth. However, the interaction of remittances and financial development is found to have a negative and significant coefficient, confirming that remittances substitute inefficient or nonexistent financial markets in the ECOWAS sub-region. Given these findings, countries in the sub-region, especially those with shallow financial development, need to ensure that remittance flows are encouraged. This is important because remittances provide the necessary credit and insurance that inefficient or nonexistent financial markets fail to provide. Also, from the polity result, democracy is found to enhance growth. Therefore, democracy should be enhanced to encourage the inflows of remittances, which serve as a source of funding for investment projects.

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