

Evaluating the Relationship between Financial Inclusion, Remittance, and Economic Growth: A Panel Analysis of ECOWAS Cross-Sectional Countries.

Michael U. Nwogu

Department of Economics, Near East University,
Lefkosia, North Cyprus, via Mersin 10, Turkey.

Corresponding author.

Email address; michaelunwogu@gmail.com

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ABSTRACT

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This research intends to evaluate the relationship between financial inclusion, remittances, and GDP per capita among the cross-sectional of 15 Countries that make up The Economic Community of West African States (ECOWAS) within the timeline of 1970 to 2017. The research focuses on how net financial flows as an indicator of financial inclusion and remittances, percentage of GDP contributes or affect GDP per capita. The empirical result was derived by adopting Vector Error Correction Model (VECM) after finding co-integration in Johansen Co-integration Test. The first VECM between net financial flows as an independent variable and GDP per capita as a dependent variable shows there is no long-run causality relationship existing among the variables using the first difference Unite Root Test (URT) which shows it is stationary, while the Wald Test established a short-run causality relationship between the variables. The second VECM between remittances as an independent variable and GDP per capita as a dependent variable indicates a long-run causality relationship among the variables with first difference (URT); Wald Test indicates a short-run causality relationship among the variables. The remaining variables showed there is no long-run causality running from independent variables to dependent variable.

Introduction

A country's economy resembles a vehicle with numerous segments, which each by playing out its capacity makes it run. Additionally, similar to this vehicle one with better and more grounded parts make for a superior vehicle and for our situation a

superior economic growth. As economists, in attempting to make sense of how to make this economy keep running on better parts there is the need to analyse every single of these elements and consider if there is an association with economic growth or not and if there is to what impact,

positive or negative does these parts or as we call them in quantitative analysis, variables are this effect. Having this as a top priority, economists like us do whatever it takes not to incorporate most of these variables at once to get a clearer and inside and out perspective on the one considered. In this line, we picked financial inclusion, remittances, and their impact on economic growth. Financial inclusion, as indicated by Sibos (2014), implies that people and organizations approach valuable and moderate money related items and administrations that address their issues including; payments, instalments, reserve funds, credit and protection conveyed in a dependable and manageable manner. For this investigation, it was chosen that the attention will be on the member nations of the Economic Community of West African States (ECOWAS). In a report by UNICAD (2014), it was expressed that among the patterns and issues in financial inclusion were developments in financial services, in remittances, condition of play of financial inclusion, obstacles for financial inclusion. This even 5 years after has still being an issue of trend in western Africa as many of the nations are still in process of figuring out financial inclusion.

Following this pattern, realizes the consideration of remittances into this investigation and making sense of the kind of relationship that exists with financial inclusion and afterward consequently economic growth. Remittances in out world today, speak to one of significant global money related assets, which now and then they surpass the progressions of foreign direct investment (FDI). Meyer and Sherer (2016) said that from time past there have been warmed discussions on the wellsprings of economic growth in developing economies and furthermore why a few nations reflect solid economic growth contrasting with others. This for one, bringing significance to our study.

In 2015, Park and Mercado clarified that albeit financial inclusion has turned out to be topical on the worldwide strategy plan for feasible improvement; econometrical writing on it is still in its early stages. The developing poverty and need to discover approach to offer money related services to the downiest populace are altogether went with financial inclusion. The majority of this brings about the requirement for us to discover how these economies are ran and offer proposals to how these nations can foster financial inclusion and remittances in other to boost economic growth, which is supposed to be amongst the main aim of a nation.

In trying to study the literature for this study, there were lot of significant proof that many of the researcher wanted to describe financial inclusion have thought of it in some type of way, making them seeing and describing the role of financial development. These holes, this investigation expects to fill while contemplating ECOWAS nations as contextual analysis with the time period of data analysed from 1970-2017.

The motivation behind this examination will be to set up the nexus between financial inclusion, remittances and economic growth measure in GDP per capita, over the 13-part nations of ECOWAS. Realizing this data is critical to policy makers in the detailing of smaller scale and macroeconomic approaches that will help comprehend financial inclusion and growth in the economy. Improving financial inclusion will help diminish neediness through the accomplishment of Millennium Development Goals (MDGs) and improvement of individuals' prosperity. Financial inclusion offers steady and correlative answers for handling absence of education, avoidance, destitution and elevate comprehensive advancement and to address the MDGs (Demirgüç-Kunt et al., 2014).

This research will use a cross sectional panel study of 15 countries in Africa, specifically ECOWAS countries, within the timeline of 1970 – 2017. As a means of representation of test countries, the below map was used to state them, **figure 1**.

Figure 1: Map of ECOWAS

Source: *Premium times Nigeria*



Literature Review

It is essential to feature references where financial inclusion and remittances have been tried to see the relationship in regard to economic growth. This literature review remains as help with helping the analysts comprehend what part of the examination has been taken a shot at just as where limitations to past investigations are. This consequently will control the line where this research will follow in other to either confirm them or find new finding in accordance with the investigation.

Regarding financial inclusion and economic growth, Hongyi and Bigirimana (2018) inspected their relationship in Rwanda utilizing yearly information from 2014 to 2016. ARDL was utilized as a way to test the presence of a level connection between the dependent and independent factors. Three elements of financial inclusion were utilized to

gauge it. These included access, usage and penetration. The aftereffect of this examination uncovered that there is presence of long-run relationship between both financial inclusion and the economic growth of Rwanda.

Likewise, by utilizing a battery of econometric tests, Odeleye (2016) investigates the long run connection between economic growth and financial inclusion in Nigeria somewhere in the range of 1981 and 2014. As indicated by their model, it was discovered that cash supply, liquidity proportion and credit to the private segment have all the earmarks of being significant drivers of growth in the economy. The investigation additionally approved the given speculation of their examination which was that financial inclusion causes positive effect on growth in the nation.

Sarma (2012), composed on the use of the financial inclusion index as estimation for financial inclusion. He noticed that the advancement of a comprehensive money related framework is an approach need in numerous nations. While the significance of financial inclusion is generally perceived, the writing came up short on a complete measure that can be utilized to gauge the degree of financial inclusion crosswise over economies. This examination endeavours to fill this hole by proposing the utilization of Net Financial Flows, IMF Concessional. The proposed variable methods net financial streams gotten by the borrower during the year are dispensing of advances and credits less reimbursement of capital. The proposed variable was anything but difficult to process and was similar crosswise over ECOWAS nations and after some time. It likewise fulfilled significant numerical properties.

In lines of the relationship among remittances and economic growth, Stratan and Christuga (2012) completed an examination on the financial

consequences of remittance in Moldova, while break down relocation and settlements design so as to detail pertinent strategy suggestions for policy makers. The consequence of the investigation discovered that increments in remittances when financial movement in the nation of origin increases and vice versa.

The scientists likewise inferred this was proof that remittances react to venture openings and the business and political atmosphere in the nation of origin as much as to selfless and insurance contemplations.

Additionally, Meyer and Shera (2016) completed an econometrical investigation of the effect of remittances on economic growth. The investigation utilized the panel data of six high settlements accepting nations. The nations included Albania, Bulgaria Macedonia, Moldova, Romania and Bosnia Herzegovina taking the time of 1999-2003 into consideration. Variables tried for this investigation included natural log of GDP per capita as dependent variable and Worker Remittances Received to GDP, Gross Capital fix formation as a percentage of GDP, Household final consumption expenditure as a % of GDP, Ratio of school enrolment percentage to GDP, Current account BAL or balance as a percentage of GDP, Population growth as a percentage of GDP, Real exchange rate and Government debt as a percentage of GDP as independent variables. The outcomes propose that remittances positively affect development and that this effect increments at larger amounts of remittances with respect to GDP.

Another investigation centres around the methodology that remittances revealed its key role in speculation potential with direct impact on economic improvement in emigrant person's nation of beginning. This study did this by regarding remittances as capital streams that have macroeconomic development potential. In the examination by Goschin (2014), two growth models were built, which included remittances as the variable of focus likewise the components

of creation. The time arrangement for the examination was over the time of 1995 - 2011. The model was moreover tried utilizing total information from ten nations in Central and Eastern Europe. Panel technique of estimation was utilized to represent potential cross-segment heterogeneity and the primary outcome is the huge positive impact of remittances on both outright and relative GDP development in the panel of CEE nations.

Another investigation was completed on remittance inflow of workers, financial development and economic growth, with Bangladesh as the nation of core interest. The time period of this investigation was 1981-2013. The examination utilized the generally utilized Johansen cointegration test alongside vector error correction model to uncover both the short-run and the long-run relationship between remittance in growth and remittance in financial development. Granger Causality tests are likewise used to investigate the conceivable endogenous connection between settlement development and settlement financed improvement. A long run positive connection between inflow of remittance and GDP was found showing that remittance settlement will be bound to add to longer-term development in Bangladesh. It is additionally uncovered that remittances have a noteworthy beneficial outcome on financial development in the tested nation.

Harvey (2016) in his paper on remittances and how it advances monetary improvement in Africa, looks to build up whether remittance advanced money related advancements and investigate the discernible causality amongst remittance and financial development in certain nations in Africa. The relationship between remittance got and how they influence the accessibility of credit to private division, bank stores intermediated by

budgetary organizations and cash supply were inspected. The investigation uses fixed impacts and irregular impact estimations just as Vector Error Correction Model strategy on the panel information for the time span of 1990-2011 more than 50 developing nations. The outcome demonstrated that remittances advance certain parts of money related improvement somewhat and better budgetary framework cultivate receipts of settlements. The impact of causality is found in the short run and not over the long haul.

In the lines of utilizing VECM as a strategy for examination, Lensink and Toxopeus (2007)², in their paper on remittances and financial inclusion being developed centered around the connection between settlement inflows and financial inclusion in developing nations. A solitary condition was displayed to assess on settlements and money related consideration, and framework evaluates in which financial development is clarified. The consequence of the examination bolstered the theory that remittances have an improvement sway through their impact on financial inclusion. This paper likewise left significant notes with respect to for what reason there's significance of contemplating impact of remittances and financial development in developing nations. Following this writing, we had the option to affirm that financial development, even as for the most part utilized instead of financial Inclusion are different components of an economy. Hongyi and Bigirimana (2018) said that most specialists have concentrated on impact of financial development on economic growth instead of the effect of financial inclusion on growth in the economy. From this we draw our model and line of study.

Research Methodology and Data Specification

This research intends to evaluate the relationship that exist between This research intends to evaluate

the relationship that exist between financial inclusion which is represented in this study as net financial flows, IMF concessional measured as current US dollars, remittances as measured percentage of GDP and economic growth measured as GDP per capita, included in the variables are also Price level ratio of PPP conversion factor (GDP) to market exchange rate and trade openness. The focus of this research is geared toward countries among the Economic Community of West African States (ECOWAS) and our dependent variable will be GDP per capita measured in current dollars. This study will at first make sure that all the variables that will be used for this research are stationary either at level, first difference, or second difference by using the Unite Root Method Test (Dickey and Fuller, 1981) and (Philips and Perron, 1988). If after confirmed stationary, Johansen Co-integration Method (Johansen and Juselius, 1990) will be applied to check if there is co-integration in the model or not, the existence of co-integration in the model will leave the study to no other option than to adopt Vector Error Correction Method (VECM), and when co-integration is not found in the model VAR will be used. This research will basically apply VECM to check for the long run causality between the first two variables mentioned above; these two main independent variables will be modelled separately together with the dependent variable. The research will also adopt Wald Test to check for the short run causality between the variables.

Result and Data Analysis

Below shows the panel unit root test summary and its results after checking if the data are stationary at level, 1st or 2nd differenced. By rejecting the null hypothesis, the result above indicates

strongly that all methods are stationary at 1st differenced, which means that these data has no unit root and can be used to perform subsequent analysis. The Dickey and fuller (1981) and Philips and Perron (1988) also showed that both Augmented Dickey Fuller (ADF) and Philips Perron (PP) Test Statistic are both stationary as well. For this reason, because of how stationary our selected variables are, we now will proceed to Johansen Fisher Panel Co-integration Test to check if the data has Co-integration or not.

Johansen Fisher Panel Co-integration Test

The Panel Co-integration test as stated by Johansen and Juselius (1990) method maximum Trace and Eigen value test statistics was used to detect number of co-integration, this result shows that by applying Pedroni (Engle– Granger Based) Method, Individual Intercept and Individual Intercept and Individual Trend are all Co-integrated, so the majority must be granted. The table above shows Johansen Fisher Panel Co-integration test, with a Linear Trend in Data (4) Intercept and Trend in Ce – No Trend in VAR.

Table 1: Definition of variables

ABREVERATION	LIST OF VARIABLES	SOURCE OF VARIABLES
GDPPCT	GDP PER CAPITA, CURRENT DOLLAR	WORLD BANK
NFL_IMF	NET FINANCIAL FLOWS	WORLD BANK
REMIT	REMITTANCE, PERCENTAGE OF GDP	WORLD BANK
PLRMER	PRICE LEVEL	WORLD BANK
TRO	TRADE OPENNESS	GLOBAL ECONOMY

Sources: Author's Compilation

Table 2: Panel Unite Root Test

VARIABLES	METHODS	STATISTIC	PROB.
DGDPPCT	Levin, Lin & Chu t	-25.7641	0.0000
	Im, Pesaran and Shin W-stat	-26.1550	0.0000
	ADF - Fisher Chi-square	490.254	0.0000
	PP - Fisher Chi-square	494.100	0.0000
DNFL_IMF	Levin, Lin & Chu t	-15.6376	0.0000
	Im, Pesaran and Shin W-stat	-25.2222	0.0000
	ADF - Fisher Chi-square	471.921	0.0000
	PP - Fisher Chi-square	469.634	0.0000
DREMIT	Levin, Lin & Chu t	-16.7680	0.0000
	Im, Pesaran and Shin W-stat	-23.5051	0.0000
	ADF - Fisher Chi-square	426.803	0.0000
	PP - Fisher Chi-square	427.883	0.0000
DPLRMER	Levin, Lin & Chu t	-27.6476	0.0000
	Im, Pesaran and Shin W-stat	-24.2069	0.0000
	ADF - Fisher Chi-square	382.552	0.0000
	PP - Fisher Chi-square	386.161	0.0000
DTRO	Levin, Lin & Chu t	-31.3287	0.0000
	Im, Pesaran and Shin W-stat	-28.1183	0.0000
	ADF - Fisher Chi-square	527.159	0.0000
	PP - Fisher Chi-square	527.159	0.0000

Sources: Author's Compilation

D(GDPPCT) AND D(NFL_IMF) FIRST RESULT			D(GDPPCT) AND D(REM		IT) SECOND RESULT
ERROR CORRECTION	D(GDPPCT)	D(NFL_IMF)	ERROR CORRECTION	D(GDPPCT)	D (RE-MIT)
COINTEQ1	0.047265 (0.00613) [7.71022]	18089.42 (851.843) [21.2356]	COINTEQ1	-0.024819 (0.00769) [-3.22656]	-0.001571 (0.00014) [-11.4857]
D(GDPPCT(-1))	-0.024597 (0.03328) [-0.73919]	6111.456 (4624.00) [1.32168]	D(GDPPCT(-1))	0.075197 (0.04218) [1.78297]	0.001147 (0.00075) [1.52963]
D(GDPPCT(-2))	-0.287445 (0.03341) [-8.60345]	-116553.5 (4642.66) [-25.1049]	D(GDPPCT(-2))	-0.205780 (0.03783) [-5.43943]	0.002369 (0.00067) [3.52047]
D(NFL_IMF (-1))	9.13E-07 (2.8E-07) [3.28572]	0.304795 (0.03863) [7.89102]	D(REMIT(-1))	31.48383 (2.28094) [13.8030]	0.073577 (0.04057) [1.81365]
D(NFL_IMF(-2))	4.42E-06 (2.6E-07) [17.2746]	0.526741 (0.03557) [14.8097]	D(REMIT(-2))	-3.110309 (2.51519) [-1.23661]	0.194405 (0.04474) [4.34569]
C	21.05884 (1.88134) [11.1935]	2418889. (261428.) [9.25259]	C	17.19650 (2.14697) [8.00966]	-0.084958 (0.03819) [-2.22486]

Source; Author's Compilation

Relationship between GDPPCT and NFL_IMF

$$Dgdppctt = + 0.047ECTt-1 - 0.025Dgdppctt-1 + 9.130Dnfl_imft-1 + 21.059..... (1)$$

$$Dgdppctt = + 0.047ECTt-1 - 0.287Dgdppctt-1 + 4.420Dnfl_imft-1 + 21.059..... (2)$$

At increasing point of 4.727 the previous year's period's deviation from long-run will be corrected at a speed in the current period as an adjustment speed. A percentage change in the

Relationship between GDPPCT and REMIT

$$Dgdppctt = - 0.025ECTt-1 + 0.075Dgdppctt-1 + 31.484Dremitt-1 + 17.197..... (1)$$

$$Dgdppctt = - 0.02ECTt-1 - 0.206Dgdppctt-1 - 3.110Dremitt-1 + 17.197..... (2)$$

The previous year's period's deviation from long-run equilibrium is corrected at a speed in the current period as an adjustment speed of 2.482 at a decreasing point. A percentage change in the variable is associated or related with an increase

Table 3: Panel Co-integration Test

VARIABLES	Hypothesized No. of CE(s)	Fisher Stat.* (from trace test)	Prob.	Fisher Stat.* (from maxeigen test)	Prob.
GDPPCT	None	344.5	0.0000	235.1	0.0000
NFL_IMF	At most 1	144.6	0.0000	111.5	0.0000
REMIT	At most 2	57.31	0.0019	53.18	0.0057
PLRMER	At most 3	22.92	0.8187	13.08	0.9969
TRO	At most 4	28.37	0.5508	28.37	0.5508

Source; Author's Compilation

In the table, we can see that at None, At Most 1 and At Most 2 there is no Co-integration in the Trace and Max-eigen test, this means that the variables are not Co-integrated at this points also, both test can reject the Null Hypothesis. On the other hand, At Most 3 and At Most 4 show that there is a Co-integration among the variables, which means the Null Hypothesis cannot be rejected. In summary, we can say that the selected variables are Co-integrated, meaning the Panel Vector Error Correction Model (VECM) will be introduced to check for the association of long run among the selected variables.

Vector Error Correction Model (VECM)

Considering the Vector Error Correction Model displayed in **Table 4** which we took two lags having GDPpct as the target and the dependent variable and NFL_IMF and REMIT as the independent variable. To calculate the PSTATISTIC we divided error correction terms with standard error. In other to have a clear explanation base on our result, we will concentrate on the first line model under D(GDPpct).

Table 4: VECM Result

	FIRST RE-	
GDPPCT		1.000
NFL_IMF		-3.840
C		-275.714
SECOND RE-		
GDPPCT		1.000
REMIT		259.836
C		-1469.386

ECTt-1 = [Yt-1 - njXt-1 - Em Rt-1].....
(Equation)

ECTt-1= [1.000gdppct-1 - 3.840nfl_imft-1 - 275.714..... **(First Result)**

ECTt-1 = [1.000gdppctt-1 + 259.836remitt-1 - 1469.386..... **(Second Result)**

Sources: Author's Compilation

Estimation Method Least Squares between GDPPCT and NFL_IMF

The least square method was initiated just to display probability value, since the vector error correction model did not show it in the result. The sample size for this estimation started from 1973 to 2017, while we have about 675 observations with a total system balanced observation of 1350. Estimation between GDPPCT as our dependent variable and NFL_IMF as the independent variable with a coefficient (C1) of 0.047266 and a probability value of 0.0000, this means as our coefficient is positive and significant, then we can summaries by saying there is no long-run causality running from independent variable and dependent variable.

We hereby see it as important to identify if there is a short-run causality relationship running among the two variables, we then introduced Wald Test, and the result shows that the Chi-square is with a value of 327.4710 with a degree of freedom of 2 and a 0.0000 Probability which appeared to be too small, because of the small probability we can reject the Null Hypothesis. The result shows that there is short-run causality running from our independent variable to dependent variable.

Estimation Method Least Squares between GDPPCT and REMIT

The reason behind the adoption of the least square method has been stated clearly above, for this estimation the sample size begins from 1977 to 2017, with included observation of 615 and a total system balanced observation of 1230. This estimation is among GDPPCT as a dependent variable and REMIT as an independent variable with a coefficient (C1) of -0.024819 and a probability of 0.0013, to interpret this, we can say as the coefficient is negative with a significant probability there exist a long-run causality running from independent variable and dependent variable.

There is also a need to check if short-run causality exists among the variables, to do so we decided to introduce Weld Test. The result shows that the Chi-square value is about 191.5703 with a degree of freedom of 2 and a 0.0000 Probability that appeared to be too small, as a result of the probability we can reject the Null Hypothesis. In our result we can say there is short-run causality running from our independent variable and dependent variable.

Table 5; Correction Term Equation between GDPPCT and Other Variables

COINTEGRATING EQ:	COINTEQ1
GDPPCT	1.000
NFL_IMF	7.739
REMIT	-37.555
PLRMER	-4269.345
TRO	-24.478
C	2499.010

Source; Author's Compilation

$$ECT_{t-1} = [Y_{t-1} - n_j X_{t-1} - E_m R_{t-1}] \dots\dots \text{(Equation)}$$

$$ECT_{t-1} = [1.000gdppct_{-1} + 7.739nfl_imft_{-1} - 37.555remitt_{-1} - 4269.345plrmert_{-1} - 24.478trot_{-1} + 2499.010$$

Panel Vector Error Correction Model

Adopting the Vector Error Correction Model with a result shown above, in this particular analysis we included all the remaining variables so to have a more solid result, we considered one lag with GDPpct as our target also the dependent variable and all the independent variables in total of four. The T-Statistic can be calculated by dividing error correction terms with standard error. Based on our result we found it very necessary to concentrate our analysis on just the first line which is D(GDPpct) just remain clear and simple, it is shown on our table above.

Table 6; ERROR CORRECTION

ERROR CORRECTION	D(GDPPCT)
COINTEQ1	0.278963 (0.01543) [18.0797]
D(GDPPCT)	-0.437123 (0.13308) [-3.28455]
D(NFL_IMF)	-2.23E-06 (2.4E-07) [-9.30123]
D(REMIT)	16.87439 (3.01322) [5.60012]
D(PLRMER)	715.3655 (209.422) [3.41591]
D(TRO)	6.063986 (0.58146) [10.4290]
C	20.11837 (3.21193) [6.26363]

Source; Author's Compilation

Relationship between GDPPCT and Other Variables

$$Dgdppct_t = + 0.279ECT_{t-1} - 0.437Dgdppct_{t-1} - 2.229Dnfl_imf_{t-1} + 16.874Dremitt_{t-1} + 715.366Dplrmer_{t-1} + 6.064Dtrot_{t-1} + 20.118$$

The long-run equilibrium of the previous year's period's deviation is corrected at a speed in the current period as an adjustment speed of 2.790 at an increasing point. A percentage change in the variable D(nfl_imf) will be associated with a decrease in D(GDPpct) on an average ceteris-paribus in the short-run. A change in percentage in the variable D(remitt) will be related with an increase in D(GDPpct) on an average ceteris-paribus in the short-run. The percentage change in the variable D(plrmer) is associated with an increase in D(GDPpct) on an average in the shortrun. With a percentage change in D(tro) there is an increase associated with D(GDPpct) on an average ceterisparibus in the short-run.

Estimation Method Least Squares between GDPPCT and Other Variables

The sample size for this estimation started from 1992 to 2017, included observation of 390 and a total system balanced observation of 1950. This estimation is between GDPPCT and rests our variables in total of four independent variables unlike our previous estimations where we only examined one independent variable and dependent variable. The analysis is based on GDPPCT as our target variable and NFL_IMF, REMIT, PLRMER, TRO as our independent variables with a coefficient (C1) of 0.278963 and a probability of 0.0000. We can interpret this by saying, as the coefficient is positive with a significant probability there is no long-run causality running from independent variables and dependent variable. There is also a need to check if short-run causality exists among the variables, to do so we decided to introduce Weld Test. The result shows that the Chi-square value is about 370.0482 with a degree of freedom of 2 and a 0.0000 Probability that appeared to be too small,

because of the probability we can reject the Null Hypothesis. In our result we can say there is short-run causality running from our independent variables and dependent variable¹.

¹*This method was estimated by using Eviews 7. Other related studies such as (Sohail and Hussain, 2015; Obi, Obida Wafure & Menson, 2012) with many other researchers adopted similar method in their studies. One of the main motivators for the use of Vector error correction model is Harvey (2016) and Lensink and Toxopeus (2007). They both have developing nations in Africa as their focus countries. But in our study we focused on only the 15 ECOWAS countries. Seen as an adjustment in decreasing point of 2.482. The results mean that in both the long and short run, if remittances are wrongly decreased by government in these nations there will be a follow up of reduction in economic growth come*

Research Conclusion

As described earlier in the findings, the first analysis that was done was Vector Error Correction Model to find the long run relationship between the variables. Before undergoing this test, the researched has stated a hypothesis that on account that co-integration was found in the study, VECM will be used but if not, the researcher would have opted for VAR model of analysis. Preliminary results of Johansen co-integration test showed presence of co-integration, thereby this been the reason for our selection of VECM. The need for testing the long run relationship was brought about by the need to detect the kind of relationship as well as the significance or insignificance of it. In VECM, each model was tested directly to economic growth to detect such relationship. For this reason, we see there were two results offered. The first to reveal the relationship between GDP per capita which is the variable of economic growth and Net Financial Flow-IMF Concessional while the second revealed the relationship between GDP per capita and Remittances measured in remittances, percentage of GDP. In order to achieve this, the first model was used. From the first result of the study I.e. GDP per capita and Net financial flow, an increase in the independent variable will lead to an increase in GDP per capita.

This result also been significant offers a point of advice for government of this ECOWAS countries and well as policy makers, that by looking for means of increasing her NET financial flow and right execution of the funds there will tend to be existence of long run increase in these nations economic growth. Also, by observing the results, one can realize that the same goes for the short run. The relationship does not mean in every situation there will be positive effect. It also means that on account that these nations record a low financial inclusion, there will be a decline in their economic growth. Regarding the results of the relationship between economic growth and remittances, the same regression was undergone using VECM and results showed a deviation from the long run which at a speed in current period was seen as an adjustment in decreasing point of 2.482. The results mean that in both the long and short run, if remittances are wrongly decreased by government in these nations there will be a follow up of reduction in economic growth come the next period. By reference to results, it is to be understood that this pair's move in the same direction and drop in the independent variable leads to a drop in the dependent variable. But as it is known by researchers, it is one thing to such direction to exist it is another for this to be significant. In the line of significance, one cannot determine this without the existence of the probability value for estimation. Therefore, to find out the probability level or value, Least Square estimation was undergone as the VECM results by means of EVIEWS did not show it. The results of the probability in regard to the relationship between economic growth and remittances, even if negative was seen to be significant at a probability value of 0.0013.

This revealing more proof of the need to take the result of this estimation with enough care in the long run. Furthermore, the significance in the short run has to be tested. This which was done by use of Weld test. Results of, this gave the need to reject the null hypothesis. The rejection means that there is short-run causality running from our independent variable and dependent variable. Estimation of this least square was also done for the relationship between the variables of economic growth and financial inclusion. Due to a probability value of 0.0000 at a 95% significance level, there was also a rejection of the null hypothesis. This additionally is proof to government officials and policy makers that remittances should be taken seriously in regards top economic growth as the relationship is not only negative but very significant.

More relatable independent variables were added to the study on the bases that they can be undetected factors that boost the relationship between financial inclusion, remittances and economic growth. A total of four variables namely; net financial flow imf concessional, remittances as a percentage of GDP, trade openness, price level were brought into the model. In this new model it was found out that a percentage change in the variable $D(nfl_imf)$ will be associated with a decrease in $D(GDPpct)$ on an average ceteris-paribus in the short-run. Also, A change in percentage in the variable $D(remit)$ will be related with an increase in $D(GDPpct)$ on an average ceteris-paribus in the short-run. The percentage change in the variable $D(plrmer)$ is associated with an increase in $D(GDPpct)$ on an average in the short-run. Furthermore, we went on to do an estimation of the least square amongst GDP per capita and the rest variables as done with the earlier variables in order to reveal the probability value and it turn return a result of significance or insignificance. The analysis which was based on GDPPCT as our target variable and NFL_IMF, REMIT, PLRMER, TRO as our

independent variables with a coefficient (C1) of 0.278963 and a probability of 0.0000. This confirmed to positive significant result but a lack of long run casualty amongst dependent and independent variables. Weld test was finally done on this also to prove the rejection area and likewise procure a result. The null hypothesis was rejected showing presence of short run casualty.

From this conclusion of our study, we draw the recommendations which will be stated in the next section and likewise the limitations to the study in which other research groups can decide to use if treating similar or related cases.

Research Recommendation

We have uncovered the finding and conclusion of our exploration and a research is beside fragmented without the offering of suggestion for policy makers and government and furthermore different researchers both on a macro and micro level. Suggestions for the government of these ECOWAS nations include:

1. Innovative plans of action that can help the financial stream in these countries ought to be upheld both by the administration and private people. By doing this, critical development in the net financial flow will happen and in a long run foster economic growth.
2. Inclusion of disregarded sector in the economy I.e. shadow economy ought to be encouraged. This consequently won't just lift financial inclusion yet additionally remittances, having a twofold development impact on economic growth.
3. Preliminary observations additionally uncovered that disabled and others with little

insufficiencies are by and large monetarily barred in these nations. The incorporations of this individuals could likewise have a decent beneficial outcome on economic growth.

4. Additionally, monetary controllers ought to advance interoperability of stages or even common foundation to decrease operational costs, increment financial and network access, encourage rivalry and economies of scale - Technologies to help financial inclusion is no uncertainty on great ascent in these countries and therefore this proposal is for the utilization of this technological advances in boosting flow of remittances.
5. Also, connecting remittances with financial inclusion, together with versatile models of venture, may boost directing these assets to profitable exercises, social administrations, and framework .
6. Financial instruction/guiding could help directing remittances to beneficial exercises, social administrations, and foundation.
7. It is realized that dominant part of this countries has their high populace in favour of informal economy, a significant number of whom dread the banks and their charges. Additionally, outsiders like to execute with their very own currencies. Be that as it may, in a situation where exchange expenses are diminished, there will be more acknowledgment by the economy and consequently an expansion in remittances followed by a lift in their economic growth.

Research Limitation

One of the main limitations of this research is the inability to include other indicators of financial inclusion and knowing that there are multiple .

important variables that could influence economic growth, not just the ones we used for this research This study also failed to capture other relevant parts of Africa. So, we recommend interested researchers to take into consideration as they further this research.

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