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Remittances and Economic Growth Nexus: Empirical Evidence from Kenya

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Abstract

Remittances inflow is one of the major sources of capital flows in the world. Though developing countries and especially Sub-Saharan Africa does not have a bigger share of this capital flow, remittances is noted to be very useful in promoting household welfare and health in developing countries. The main objective of this study is to determinate the effect of international remittances on economic growth in Kenya. The study also investigated the causality between international remittances and economic growth. The data used was sourced from World Bank's Development Indicators for the period 1993 to 2014. The study used Granger Causality to investigate the causality between international remittances on economic growth in Kenya. The (ARDL) estimation method was used to determine this effect. The results show that the international remittances indicators are significant factors influencing the economic growth in Kenya. Thus it can be concluded that economic growth in the Kenya is largely driven by international remittances.

Keywords: Granger Causality, International remittances, Economic growth, Kenya.

1- Introduction

Globally, there has been a steady rise in the number of migrants. The number of migrants increased rapidly between 2000 and 2010. According to the International Migration Report (2013), between 2000 and 2010 there were 4.6 million new migrants annually, compared with an average of 2 million per annum between 1990 and 2000 and 3.6 million per annum from 2010 to 2013. Migration has positive and negative impacts on 'home' and 'host' countries, but one generally positive benefit of migration is financial remittances.

Over the past decade, remittances to developing countries from their nationals living abroad have grown steadily, reaching an estimated US$404 billion in 2013 and out-performing official development assistance (World Bank, 2014). This figure excludes the money transferred through informal channels which cannot be captured and hence is not recorded. Migrants'

remittances currently rank as the second largest source of external inflows to developing countries (World Bank, 2014).

Remittances to Sub-Saharan Africa (SSA) are estimated to have increased by 2.2 percent (to $32.9 billion) in 2014, after a sluggish 0.9 percent growth in 2013. Nigeria alone accounts for around two-thirds of total remittance inflows to the region, but its remittances are estimated to have remained flat, at roughly $21 billion in 2014. The regional growth in remittances in 2014 largely reflected strong growth in Kenya (10.7 percent), South Africa (7 percent) and Uganda (6.7 percent). The growth of remittance flows to the region is projected to slow to 0.9percent in 2015, and then recover to 3.4 and 3.8 percent in 2016 and 2017 (World bank 2015)

The trend of mounting international remittances in Kenya is likely to continue as more and more Kenyans are still seeking for work and study opportunities in different locations both national and international. Remittances rose from US$ 7,260,000 in 1970 to US$ 89, 099,998 in 1989.by 2009, remittances were US$ 609,156 million (Central Bank of Kenya 2011).Remittances inflow remained resilient in the 12 months to august 2014, with the cumulative flow having increased by 12.4 percent in 2013.The 12 month average flow during the same period sustained an upward trend to peak as US$ 115.3 million from an average of US$ 102.6 million (Central Bank of Kenya 2014.)

The steady rise in remittances is attributed to the rise of the number of Kenyans in the Diaspora. The Kenyan Embassy in Washington D. C. indicated that by July, 2011 there were three million Kenyans in the Diaspora and in the USA alone, there were about 400,000 Kenyans. The passing of the new constitution in 2010 which allowed for dual citizenship has made those Kenyans who would wish to invest both in the countries they live and at home to increase remittances (Official law Reports of The Republic of Kenya 2010). Lastly, there has been an aggressive campaign by the Kenya Government to involve the Kenyan Diaspora in the development agenda of the country. Government's ratification of the amendment to the African Union (AU) Constitutive Act Article 3(q) that invites and encourages the full participation of the African Diaspora as an important part of African continent's building
(The Constitutive Act. 2000).

An increasing interest in the topic of international remittances has developed over the past few years on the part of academics, donors, international financial institutions, commercial banks, money transfer operators, microfinance institutions and policy makers. Some scholars believe that international remittances have positive growth effects in recipient economies (Fayissa, B., & Nsiah, C. , 2010)., while other scholars highlight the negative growth effects of remittances (Karagoz, k. , 2009). The latter argue that remittances do not result in positive economic growth since the two variables are negatively correlated. There are also scholars who claim that remittances have no impact on economic growth of recipient countries (Rao, B., & Hassan, G. ,2011). For these scholars, there is no causal relationship between remittances and economic growth of developing countries. Some countries receiving large amounts of remittances (e.g. the Philippines, Ecuador and Yemen) have performed rather poorly and yet

some others with large remittances inflows for example (China, India and Thailand) have performed rather well (ILO. ,2004).

Examination of the role of international remittances in economies still faces a challenge of the quality and coverage of data in several countries. There is no universal agreement on how to measure the impact of international remittances to developing countries. These data limitations are attributed to improper procedure of capturing remittance statistics. Also variables of economic growth are also not agreeing for many researchers. All these give the need to keenly analyze and understand the possible effect of international remittance on the economic growth in Kenya which is The main objective of this study. But The specific objectives are:

- **i.** To examine the effect of international remittances on economic growth in Kenya.
- **ii.** To test the causal relationship between international remittances and economic growth in Kenya.
- **iii.** To draw policy recommendations based on (i) and (ii) above

The remainder of the paper is organized as follows: section 2 highlights the literature review. Sections 3 presents Model specification, section 4 deals with Data Compilation, Analysis and Presentation, section 5 contains Conclusions and Policy Implications.

2- literature Review :

There are only few empirical studies that have analyzed the relation between remittances and growth. The empirical studies show that remittances can stimulate economic activity and motivate entrepreneurial communities. Remittances help households move out of poverty and increase educational and housing spending . Ang, A. (2007). investigated whether remittances haves purred growth in Philippines. The study used data for the period 1988-2004 and with OLS estimation found that remittances have a positive effect on economic growth. Barajas *et al.* (2009) investigated the relationship between remittances and economic growth for a sample of 84 recipient countries for the period 1970-2004. The study carried out a panel growth estimation regression for the full sample and for emerging economies. This study found that remittances have no impact on economic growth.

In their work, Siddique *et al.* (2010) investigated the relationship between remittances and economic growth for Bangladesh, India and Sri Lanka, for the period 1975- 2006. The authors employed a Granger Causality test under the Vector Auto Regression (VAR) framework. They found that there was no causal relationship between economic growth and remittances in India, that there was a two-way relationship between remittances and economic growth in Sri Lanka, and that remittances did not lead to economic growth in Bangladesh.

Another study undertaken on ECOWAS countries by Koyameh-Marsh (2012) found that remittances do not lead to economic growth in all the ten ECOWAS countries studied. He also realized that in Benin, the remittance reduce output of labor. Marwan et al. (2013) in a time series study for Sudan used Johansen Co integration technique to investigate the link between

export, aid, remittances and growth and found that there is a long-run positive relationship between growth, export and remittance.

Richard et al. (2013) uses time series co integration technique for Ghana to investigate the relationship between remittances and poverty reduction and investment on education, housing and health. His findings support strong role of remittances in reducing poverty and enhancing investment in health, education and housing.

Adarkwa,M. (2015) examines the impact of remittances on economic growth in four selected West African countries: Cameroon, Cape Verde, Nigeria and Senegal. Using a linear regression that was run on time series data from the World Bank database for the period 2000–2010. After a critical analysis of the impact of remittances on economic growth in these four countries, it was found that inflow of remittances to Senegal and Nigeria has a positive effect on these countries' gross domestic product whereas for Cape Verde and Cameroon it had a negative effect. Cameroon benefitted the least from remittances and Nigeria benefitted the most within the period. Imai *et al* (2011) examined the effect of remittances and its volatility on economic growth by using the panel
data of 24 Asian and Pacific countries from the period of 1980 to 2009. They found a positive relationship between workers' remittances and economic growth but the volatility of workers' remittances was found harmful for economic growth. However they got a significant negative relationship of workers' remittances with poverty. Kennedy Ocharo (2015) studies the effect of remittances on economic growth in Kenya during the period (1970-2010) using OLS estimation technique, he found that the coefficient of remittances as a ratio of gross domestic product was positive and significant.

From the above literature survey, it is clear that most of the empirical studies were mainly focused on emerging economies and they are cross-country studies. This study is different in that it is country-specific and focuses on the effects of remittances on economic growth in Kenya , one of the most African countries receiving remittances .

3- Model specification:

Since the main objective of the study is to analyze the impact of international remittances on economic growth in Kenya, this was achieved through the (ARDL) bounds testing Approach .The (ARDL) included other determinants of economic growth. These variables were selected on the basis that they have been identified in the literature as determinants of economic growth. The effect of international remittance on economic growth in Kenya was captured by using the following equations**:**

$$Y = F(pop, I, Enrol, Inf l, Net Exp, Govn, Rem) \quad (1)$$

$$Yt = \beta 0 + \beta_1 ln\, pop_t + \beta_2 ln\, I_t + \beta_3 ln\, Enrol_t + \beta_4 ln\, Infl_t + \beta_5 ln\, Open_t + \beta_6 ln\, Govn_t + \beta_7 ln\, Rem_t + e_t \quad (2)$$

Y is the dependent variable, economic growth. β0 is the constant. β1, β2, ------, β7 are the regression coefficients which determines the contribution of the independent variables. (Pop) is the population growth, (I) is investment, (Enrl) represents human capital, percentage in gross secondary education enrolment was used as a proxy for human capital. (Infl) is inflation, (Open) is openness, expressed as the percentage of the total value of export plus imports as a share of GDP.(Govt) is government consumption which was expressed using data for general government final consumption expenditure as a percentage of GDP. (Rem) is the international remittances and (e) = error (or residual) value. Growth of real per capita GDP was used as a measure for economic growth and the gross fixed capital formation divided by GDP as a measure of investment.

The second objective was to determine the causality between international remittances and economic growth, hence granger causality test was used. Granger Causality is a statistical hypothesis test for determining whether one time series is useful in forecasting another. That is a time series X is said to Granger cause Y if it can be shown that X values provide statistically significant information about future values of Y. If a time series is stationary, then the test is performed using the level values of two (or more) variables. The log of the series was I(1), thus the following set of equations was estimated:

$$lnGDP_t = \alpha_0 + \sum_1^n \alpha_i\, lnGDP_{t-i} + \sum_1^n B_j\, lnREM_{i-j} + e_t \quad \textbf{(3)}$$

$$lnREM_t = \lambda_0 + \sum_1^n \lambda_i\, lnREM_{t-i} + \sum_1^n \delta_j\, lnGDP_{t-j} + e_t \quad \textbf{(4)}$$

where n is the maximum number of lagged observations included in the model, α's, β's, λ's and δ's are parameters, and lnGDP is the log of GDP growth. lnREM is the log of international remittances. Equation (3) Postulates that current economic growth is related to past values of itself as well as those of for international remittances. Similarly, equation (4) postulates that international remittances are related to their past values as well as those of economic growth.

The Research Hypothesis are

H_O1: International remittances have no significant effect on economic growth.

H_O2: There is no significant causal relationship between international remittances and economic growth.

4- **Data Compilation, Analysis and Presentation:**

First, a descriptive statistics was used to view the overall structure of the variables in question. The unit root tests are conducted in order to identify the time series characteristics of the variables and finally the (ARDL) method was used to test the significance relationship between the variables for our model and Granger causality test performed on the variables aforementioned. The summary statistics for international

remittances, inflation, economic openness, investment, secondary enrollment, population growth, government expenditure and GDP are given in table (1). figure (1) shows a time series trend of the study variables during the period (1993-2014):

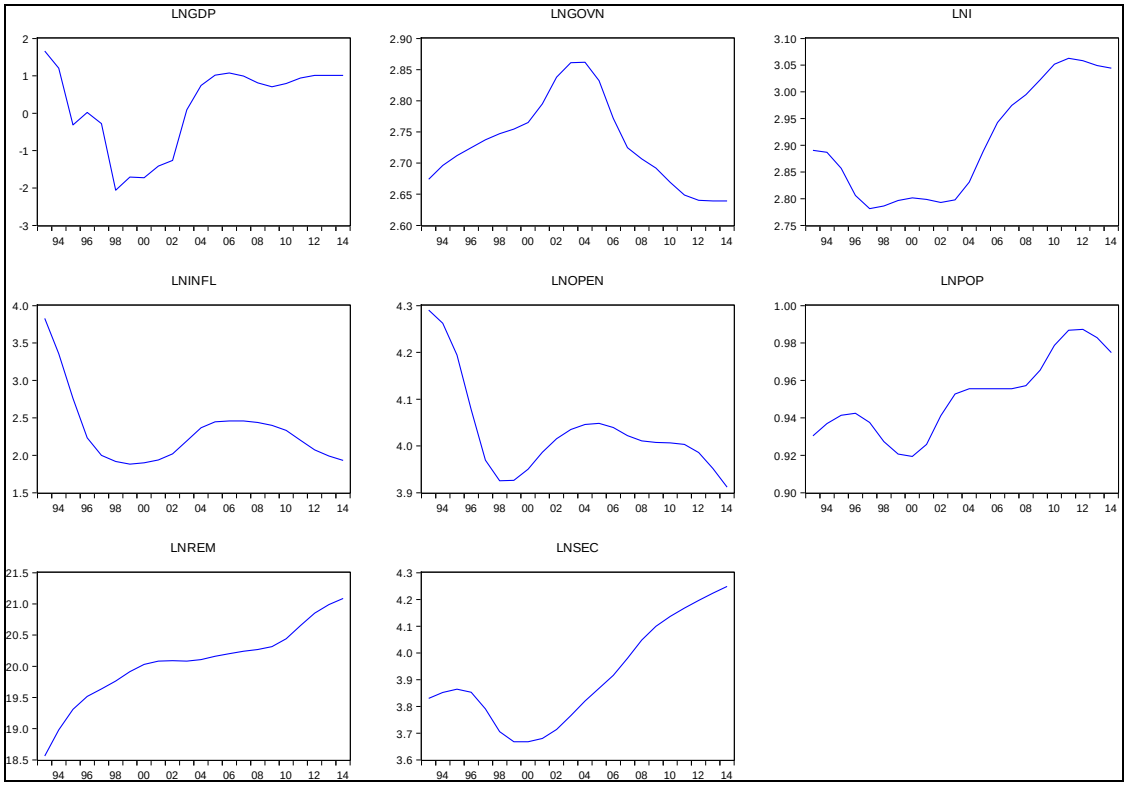
Table (1)

Summary Statistics, Using the Observations (1993 – 2014)

Variable	LNGDP	LNGOVN	LNI	LNINFL	LNOPEN	LNPOP	LNREM	LNSEC
Mean	0.197537	2.733239	2.905315	2.323782	4.030344	0.951420	20.05806	3.913317
Median	0.767398	2.724682	2.887872	2.217046	4.009106	0.954157	20.09872	3.858895
Maximum	1.661062	2.861754	3.062953	3.828641	4.290459	0.987315	21.08850	4.248495
Minimum	-2.057802	2.639057	2.781339	1.881610	3.912023	0.919411	18.56093	3.667305
Std. Dev.	1.128368	0.071093	0.107828	0.480704	0.099970	0.021230	0.608908	0.193138
Skewness	-0.825333	0.404317	0.297220	1.815780	1.427882	0.242340	-0.558326	0.409035
Kurtosis	2.251149	2.134836	1.461295	6.063615	4.370372	1.994520	3.357955	1.832440
Jarque-Bera	3.011685	1.285533	2.494225	20.69280	9.197200	1.142078	1.260458	1.863064
Probability	0.221830	0.525836	0.287333	0.000032	0.010066	0.564938	0.532470	0.393950
Sum	4.345816	60.13126	63.91692	51.12319	88.66756	20.93123	441.2774	86.09298
Sum Sq. Dev.	26.73751	0.106139	0.244166	4.852613	0.209873	0.009465	7.786158	0.783346

Figure (1)

Time Series Trend of the Variables



We have taken the natural log of all variables and in order to avoid the possibility of biased results emanating from a likely existence of unit roots in the variables under study, the researcher performed stationary test using the ADF (Augmented Dickey Fuller) test procedure. The ADF assumes that the error terms are independently and identically distributed. We found that all the variables were non stationary as shown in table (2).

Table (2)

Stationary Test

Variable	P-value	Nature
GDP	0.4814	Non stationary
Inflation	0.2842	Non stationary
Gov.exp	0.4279	Non stationary
Sec enroll	0.9370	Non stationary
Pop Growth	0.9311	Non stationary
International Remittances	0.9996	Non stationary
Investment	0.1198	Non stationary
Openess	0.9996	Non stationary

So we have taken the first difference for GDP , government expenditure ,inflation , openness , and secondary enrollment . But the second difference was taken for investment and remittances. All the variables became stationary because the ADF (p-value) were less 5 percent

level of significance. Hence there was no presence of a unit root on the log form of variables as shown in table (3) .

Table (3)

Augmented Dickey-Fuller (ADF) Test

Variable	P-value	Nature
GDP	0.0005	Stationary
Inflation	0.0313	Stationary
Gov.exp	0.0102	Stationary
Sec enroll	0.0091	Stationary
Pop Growth	0.0017	Stationary
International Remittances	0.0402	Stationary
Investment	0.0000	Stationary
Openess	0.0042	Stationary

Results from the regression analysis using (ARDL) (Table 4) indicate that the variables of trade openness (open) , population growth (pop) , and secondary school enrollment (sec enroll) were significant at confidence level 95% , but the rest of variables were significant at confidence level 99% . The probability F - statistic is 0.000 (<0.05), indicates that the explanatory variables are jointly significant in explaining the model and therefore a good model. the R ^2 = 0.997 shows that our model fits the data well and explains over 99% of the variation.

Table (4)

Results of Bounds Test Approach to Co- integration

	Coefficient	Std error	t-ratios	P-value
LNGDP(-1)	-0.800381	0.151535	-5.281826	0.0032
LNGOVN	93.44932	22.39046	4.173622	0.0087
LNGOVN(-1)	56.17225	14.94002	3.75985	0.0132
LNI	-2.884878	14.604	-0.19754	0.8512
LNI(-1)	157.9358	40.3499	3.914156	0.0112
LNINFL	25.92044	3.774928	6.866473	0.0010
LNINFL(-1)	-40.42846	6.470928	-6.247707	0.0015
LNOPEN	-30.91346	10.1756	-3.037998	0.0288
LNOPEN(-1)	96.52895	13.20176	7.311821	0.0007
LNPOP	-338.3617	68.50176	-4.93946	0.0043
LNPOP(-1)	-94.42981	25.96621	-3.636642	0.0150
LNREM	33.19334	6.168833	5.380813	0.0030
LNREM(-1)	40.41986	7.744768	-5.218989	0.0034
LNSEC	-36.21908	10.82689	-3.345289	0.0204
LNSEC(-1)	68.07693	16.29524	4.17772	0.0087
Constant	-658.5267	118.3754	-5.563037	0.0026
R-squared	0.997	R-squared adj	0.989	
F-statistic	132.951	Prob	0.000	

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Log likelihood	31.493	Akaike criterion	-1.476	
Schwarz criterion	-0.68	Hannan-Quinn	-1.303	
		Durbin-Watson	3.426	

Granger causality test was carried out at 5% level of significance. The null hypothesis of no Granger causality is rejected when the p-value is less than the fixed level of significance. From table (5) it's apparent that there is significant bi-directional causal relationship between GDP and remittances. This implies that a movement in GDP will cause a corresponding movement in remittances which also has the same effect on GDP.

Table (5)
Granger Causality Test

Null Hypothesis:	F-Statistic	Prob.
LNGOVN does not Granger Cause LNGDP	1.61666	0.2197
LNGDP does not Granger Cause LNGOVN	13.7786	0.0016
LNI does not Granger Cause LNGDP	1.68476	0.2107
LNGDP does not Granger Cause LNI	0.84677	0.3696
LNINFL does not Granger Cause LNGDP	0.91313	0.3519
LNGDP does not Granger Cause LNINFL	0.67023	0.4237
LNOPEN does not Granger Cause LNGDP	0.58302	0.4550
LNGDP does not Granger Cause LNOPEN	0.22601	0.6402
LNPOP does not Granger Cause LNGDP	4.80187	0.0418
LNGDP does not Granger Cause LNPOP	0.07895	0.7819
LNREM does not Granger Cause LNGDP	**4.49955**	**0.0480**
LNGDP does not Granger Cause LNREM	**5.80649**	**0.0269**
LNSEC does not Granger Cause LNGDP	1.05820	0.3173
LNGDP does not Granger Cause LNSEC	1.64304	0.2162

5- **Conclusions and Policy Implications** :

This study analyzed the relationship between international remittances and other factors to economic growth. Specifically, the study investigated the effect of international remittances on economic growth. Secondly the study investigated causality between international remittances and economic growth. The study used Granger Causality to investigate the relationship between international remittances and economic growth. The (ARDL) estimation was used to determine the effects of international remittances on economic growth. The study included other determinants

of economic growth. Time series data was sourced from the World Bank's development indicators for the period 1993 to 2014.
The coefficient of international remittances was positive and statistically significant. This suggests that remittances inflow plays an important role in Kenya's economic growth. The Granger causality test shows that There is a Bi-directional causality from international remittances to economic growth and economic growth to international remittances. Consistent with existing literature.

The Government of Kenya should work towards an environment that attracts international remittances. This is in line with this study's findings that international remittances as a ratio of GDP granger cause economic growth and that, international remittances as a ratio of GDP has a positive and statistically significant coefficient. The establishment of the International Jobs and Diaspora Office in the Ministry of Foreign Affairs is a good step in the right direction in boosting remittances. But the Office should work with the Ministry of Interior and Coordination of National Government to tap into new markets for the Kenyan labor especially in the East African Community and the Middle East so as to increase the remittances in the future. In addition, the Government should put in place institutions to help recipients of remittances to make the most use of these funds and provide information to the Kenyan Diaspora on the investible opportunities available so that the remittances can be put into productive use.

The Government of Kenya should continue to pursue a high and sustainable economic growth rate to attract remittances inflow. This is in line with findings of the study that economic growth granger cause remittances inflows. Remittances are likely to have a positive growth effect for a particular country when they are used to acquire locally produced products. Therefore there is a need for policies that protect local industries as far as remittances are concerned.
There are a number of areas that require further research. The study sought to investigate the impact of Diaspora remittances on the economic growth. However the variables used in the study were not exhaustive. Future research could incorporate macroeconomic variables such as, exchange rates and interest rates. A study of what are the determinants of remittances will assist the Government to work on areas that will enhance the same. This study did not investigate the interaction between International remittances inflows and the other variables: for example, remittances and investment, remittances and openness, remittances and school enrollment as explanatory variables in the estimation of the effect of international remittances on Kenya's economic growth as explanatory variables. A study that will include the interaction of these variables as explanatory variables of economic growth will complement this study. This will inform policy makers in deciding whether they need to pursue joint or separate policies regarding the variables which determine economic growth.

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