

EFFECT OF FOREIGN REMITTANCES ON SELECTED MACROECONOMIC VARIABLES IN EAST AFRICA COMMUNITY

Penuel Nyaanga Ondieng'a 

Department of Economic Planning, Kisii County Government, Kenya

penuelondienga@gmail.com

Alphonse Juma Odondo

Department of Economics, Maseno University, Kenya

alphonceodondo@gmail.com,

Benjamin Owuor Ombok

Department of Accounting and Finance, Maseno University, Kenya

owuorok@gmail.com

Abstract

Over the years, remittances in East Africa Community (EAC) have grown remarkably becoming the second largest capital flow after Official Development Assistance (ODA). However, most of the studies conducted on its effects are non EAC specific and have not expanded the analysis beyond output to other macroeconomic variables like consumption, investment and imports. This study therefore, sought to empirically test the link between remittances and its effect at macro level in EAC. The study was anchored on the Keynesian model of Economic growth and was guided by correlational research design. Panel data set for the period 1985-2014 from the World Bank database for the five EAC countries consisting of Kenya, Uganda, Tanzania, Rwanda and Burundi were used. The study used Two Stage Least Square (TSLS) method of estimation and established that foreign remittances have positive effects in EAC, an increase of remittances by one dollar, through impact and dynamic multiplier effects increased consumption, investment, import and output. However, the impact is in the first year and wears out in the subsequent years with exception of Rwanda where it reduces gradually over a four-year period. The study concludes that foreign remittances have significant positive effects on

consumption, investment, import and output. Macroeconomic policies should therefore, focus on its sustainability to promote economic growth. At the end, study makes implications for policy and further research.

Keywords: Remittances, consumption, investment, imports and output, macroeconomic variables

INTRODUCTION

Over time, remittances have grown to become one of the largest sources of external financing in developing countries. It constitutes the second-largest financial inflows to developing countries after Official Development Assistance (World Bank, 2006) and (Ratha, 2005). Remittances have become popular in EAC because they are less volatile hence more dependable source of funding than other private capital flows as they do not create any future liabilities such as debt servicing or profit transfers (Ankara, 2006). Studies have generally indicated that remittances are effective as compared to development aid since they are sent directly to the recipients hence, making them less vulnerable to administrative challenges and corruption. Receivers are able to identify their own greatest needs and allocate the remittance income accordingly.

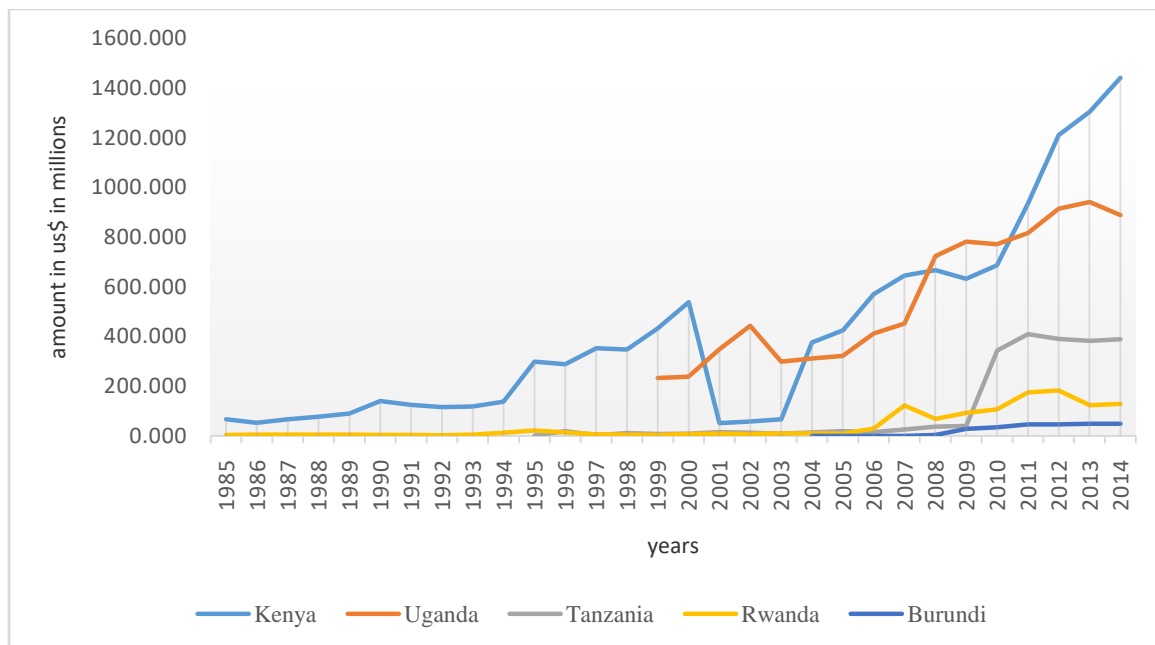
In times of crisis, migrant investors are expected to be more loyal than other foreign investors that lack personal ties to the country, and the former may be especially interested in financing infrastructure, housing, health, and education projects (Ratha, 2013). They do not decline even in conditions of instability and poor governance. This was witnessed in Rwanda during the 1994 genocides where remittances increased from US\$ 4 in 1993 to US\$ 13 and US\$21 in 1994 and 1995 respectively. In Kenya during the post-election violence, it increased from US\$ 570 in 2006 to US\$ 645 and US\$ 667 in 2007 and 2008 respectively. Both the genocide in Rwanda and the post-election violence in Kenya resulted to massive death, destruction of properties and displacement. This, therefore, demonstrates that remittances are remitted to assist family members and friends in times of hardship and not necessarily for investments.

With the steady increase in volume across the EAC region, knowledge about their effects on macroeconomics is vital as the region aspires to form a trading block with a single currency by 2024 (IMF, 2016). According to available records, foreign remittances to developing countries have remarkably grown to US\$ 2.9 billion in 2014 from US\$ 790 million in 2000 (World Bank, 2015). In Kenya, Uganda, Tanzania, Rwanda and Burundi as indicated in Figure 1.1, remittances rose from US\$ 538 million, US\$ 238 million, US\$ 8 million, US\$ 6 million and US\$

1million in the year 2000 to US\$ 1,441 million, US\$ 887 million, US\$ 389 million, US\$ 128 million and US\$ 49 million in the year 2014 respectively. Actual figures could be higher than this, because unrecorded remittances in cash or kind are often brought by migrants themselves or sent through third parties, and not declared when entering the country. According to Spatafora (2005), an estimated 35 to 75 percent of remittances world wide are sent through informal channels which are not represented in official statistics.

According to IOM (2015) remittances in Sub-Saharan Africa represent about 5 percent of GDP or 27 percent of export receipts. In the year 2014, remittances represented 2.3 percent, 3.3 percent, 1.0 percent, 1.6 percent and 1.6 percent of GDPs in Kenya, Uganda, Tanzania, Rwanda and Burundi respectively. In 1995, it represented 55 percent of the proportion of exports in Rwanda and in the year 2000, it represented 20 percent and 36 percent of the proportion of exports in Kenya and Uganda respectively. In 2014, it represented 22 percent of the proportion of export for Burundi.

Figure 1: Remittances to EAC economies between 1985 and 2014



Source: The authors using data from World Bank Development indicators (2017)

The macroeconomic effect of foreign remittances in developing countries remains a subject of contrast. Some scholars present a positive perspective while others present a negative result (Iqbal & Abdus, 2005). As part of money supply in the economy, remittances are expected to produce a substantial growth in the output through investments as more domestic credit is available, plus the multiplier stimulus effects from extra spending. They influence private

consumption which could lead to economic growth as consumption creates investment demand through multiplier effect (Najid et al., 2013), (Gupta et al.,2007), (Barajas et al.,2009) and (Ramocan, 2010). In most cases, individuals with little wealth like in the case of EAC, forgo possibly profitable investment prospects and consumers consume below their desired levels (Salahuddin & Gow, 2015) and (Stern & Akkoyunlu, 2012), therefore, remittances fills this gap. In economies where access to credit is limited, individuals might use remittances to relax constraints. This relaxation would in turn get reflected in higher growth as the interest rate declines, real sector activity may pick up driven by higher investment financed by remittances (Ahmed et al., 2013).

On the contrary, the inflow of foreign exchange and the corresponding rise in demand for local currency can cause pressure on the exchange rate towards its appreciation thus fuelling inflation. This can lead to negative growth effect if tradable goods production informs external benefits such as economies of scale resulting to Dutch disease (Acosta et al.,2009), (Stratan et al, 2013). Inflow of remittances also determines an increase in the household income which leads to rise of aggregate demand which implies rise of inflation (demand-pull) which impacts the economy negatively. Since a high percentage of remittances are used in consumption, the increase in consumption shifts the demand which creates an inflationary pressure in the economy (Baldera & Nath, 2008). In addition, foreign remittances may be subject to a severe moral risk problem as recipients may divert funds from the intended use like for investment to consumption of leisure, therefore, reducing labour force participation consequently reducing economic growth and development (Barajas et al., 2009) and (Chami et al., 2003). With increased investment and consumption helping growth, and appreciation of currency hampering it, the outcome is ambiguous.

Most of the studies are non EAC specific and have not expanded the analysis beyond output to other macroeconomic variables like consumption, investment and imports. In EAC, most of the available literatures concentrates on its impact on poverty reduction at household levels; making its effect on the critical macroeconomic variables unknown (Kenneth, 2014), (Simiyu C. N., 2013), (Jena, 2015) and (Andy & Priya, 2014).

LITERATURE REVIEW

A study by Giuliono & Arranz (2009), established that remittances boosts growth in countries with less developed financial systems by providing an alternative way to finance investment and helping countries overcome liquidity constraints. The study used panel data covering 100 developing countries over the period 1975-2002. The results contradicts findings by Kiyalbek & Budaichieva (2012). The study by Kiyalbel and Budaicheva investigated the impact of

remittances on macroeconomic indicators of the Kyrgyz republic using data for period 2000-2010 and used a linear correlation method in a Keynesian model. The study established that great portion of remittance was directed into consumption rather than to investment. Moreover, remittance spending was channeled into consumption of imported goods, thus raising the trade deficit of the economy. Therefore, given the low propensity to invest, they finance consumption and cause high consumption ratio with respect to investment ration, thus leading to reduction of effectiveness.

Adela & Dietmar (2013), established positive impact of remittances on the growth of the GDP per capita. The authors examined the impact of remittances on economic growth in 21 developing countries. The study used a panel data for the period from 1992 to 2012. The study found out that in Albania a 1 percent increase in remittances lead to a 0.14 percent increase in GDP per capita income. The study indicates that migrant transfers in the form of remittances eases the immediate budget constraints of families by bolstering crucial spending needs on food, health care, and schooling expenses for their relatives. However, the study did not demonstrate on how other variables like consumption and imports are affected by the remittances, owing the fact that they influence the final output of the economy. In Moldova, Stratan et al., (2013) found an ambiguous relation between remittances and growth. The authors established that the relationship between growth, investment and remittances proved not sustainable in medium to long term. This is largely due to lack of a well performing financial sector. On the contrary, Blouchoutzi & Christos (2014) established that remittances had positive effect on consumption, investment, import and income in Albania and Moldova. Similar findings were established in Bangladesh by Abu et al, (2010).

A study by Ahmed, et al. (2013) in Pakistan acknowledges that remittances contribute positively to economic growth. The study used secondary time series data for the period 1978 to 2011 and established that an increase of foreign remittances by 1 percent raised the GDP by 0.25 percent. Simon et al., (2013) concurs that remittances contribute positively to GDP growth. The study focused on those countries classified as Small Island Developing States (SIDS) in which data for 136 developing countries, including 25 SIDS for the period 1971 to 2010 was analysed. It was established that these countries grew on average by 0.94 percent, without remittances, they could have registered an average growth of -0.74 percent during this period. Similarly, Azam & Khan (2011) established that one unit change in remittances would lead to 0.4 unit change in economic growth in Azerbaijan.

Acosta et al.(2009) established a negative impact in El Salvador economy. The study concludes that remittance inflows cause real exchange rate to appreciate (Dutch Disease) which impairs growth. The study established that remittance inflow result in a decrease in labour

supply, leading to an increase in production costs of non-tradable sector, which is relatively labour intensive. Similarly, Stratan et al. (2013) observes that a large inflow of remittance is responsible for appreciation of exchange rate and rising of price level. The authors examined development and side effects of remittances in the Republic of Moldova and found out that remittances determine an increase in the household income which leads to rise of aggregate demand which implies rise of prices leading to inflation.

Hrushikesh (2012) examined the impact of remittances on private investment in India and found out that remittances crowds out private investment with high percentage of remittances going towards consumption expenditure. The increase in consumption will shift demand which creates an inflationary pressure in the economy. Aggregate demand may also increase if remittances increase investment and result in demand-pull inflation (Baldera & Nath, 2008). On the contrary, Javid et al. (2012) established that remittances affect economic growth positively and significantly in Pakistan. The study used time series data for the period 1973-2010. Similarly, Iqbal & Abdus (2005) established a positive result in Pakistan. The authors used time series data for the period 1972-73 to 2002-03. Multiple regression frameworks were used to separate out the effects of workers' remittances and some other selected macroeconomic factors on real GDP growth. The study found out that in the GDP growth was positively related to workers' remittances during the period under study.

Tansel & Yasar (2010) established that remittances increased income through multiplier process in Turkey. The study established that remittances induced output growth rate throughout the study period 1968-2003. During this period, the remittances financed the imports of machinery and other intermediate goods which increased domestic production. On the contrary, Kadir (2013) established a negative impact on growth in Turkey. The study used time series data for the period from 1970 to 2005. In Nigeria, Akano et al. (2013) established a positive relationship between remittances and growth. The study used annual data for the period from 1991 to 2011 from World Bank and Central Bank of Nigeria. However, the positive effect is contested by Akonji & Wakili (2013). The authors investigated the impact of net migrant remittances on economic growth in Nigeria using a time series data for the period 1985 to 2010 and established a negative impact.

According to Fayissa & Nsiah (2010), remittances can boost growth in countries with less developed financial system as it provides an alternative way to finance investment and reduce liquidity constraints. The study used unbalanced panel data for 37 African countries spanning from 1980 to 2004. The authors established that a 10 percent increase in remittances lead to a 0.3 percent increase in the GDP per capita income. On the contrary, Chami et al., (2003) found that remittances had a negative effect on growth. The authors argue that when

families receive remittances, they decrease their own productivity which translates into a reduction in the labour supply for the developing country. The study covered 113 countries across the world and used a panel data between 1970 and 1998. This contradicts findings by Glytsos (2005) in Egypt and Morocco where an increase in remittances increased private consumption by 0.33 percent and 0.56 percent respectively. The study also established that an increase in remittances by 1 percent, increased investment by 0.39 percent in Morocco, increased import by 0.24 percent in Egypt. In overall, Glytsos (2005) established that an increase in remittances by 1 percent increased income (output) by 0.95 percent and 2.80 percent in Egypt and Morocco respectively through multiplier effects in the first year and reduced gradually over the years.

In Kenya, Kiiro et al. (2014) established that there is positive and highly significant relationship between workers' remittances and real GDP per capita. The authors used data for the period 1970-2010. Similar results were obtained by Mwangi & Mwenda (2015). The authors established that remittances indicators are significant factors influencing the economic growth in Kenya. They used data from the World Bank's Development Indicators for the period 1993-2013, however, the studies did not cover specific variables that have a bearing on growth: namely; consumption, investment and imports.

From the foregoing, it is obvious that there is a dearth of literature in EAC on this subject. Given the importance attached to remittances in this region and in light of ambiguity in terms of its effect on output, private investment, consumption and imports. It is important, therefore, to examine its effect on these variables so as to facilitate effective policy oversight. This study, therefore, sought to contribute to the existing knowledge by making the following contributions: most studies in the literature tend to conduct panel studies in either Africa as a whole, developing countries or SSA. This particular study is EAC specific and sought to demonstrate the role played by remittances on economic growth in respect to its contribution to output, private investment, consumption and imports.

METHODOLOGY

The aim of the study was to estimate effects of foreign remittances on certain macroeconomic variables that have a bearing on economic growth. For this purpose, a linear Keynesian macroeconomic model with a dynamic outlook is adopted. The model consists of three behavioural functions: namely, a consumption function, an investment function and import function together with a national income identity through which foreign remittances are introduced as an exogenous variable into the proposed model. The objective of the model is to establish the effects of an exogenous shock of foreign remittances on the endogenous variables

(consumption, investment, import and output), which determines the short-run effects and eventually trace their long-run impact. The direct effect of foreign remittances is an increase in aggregate demand defined in this case as gross national disposable income. Unlike aid which works into the economy through the official accounts, foreign remittances, as private inflows, initially only affect private consumption, investment and imports at micro level.

The study used secondary annual time series data on individual member countries in EAC from the World Bank database available on the website. The data constituted one-year period over the past 30 years for the period 1985 to 2014. This period was chosen because remittances to EAC had increased significantly.

The model adopted is a modification proposed by Glytsos (2005). It is a linear, simultaneous equation and a dynamic macro econometric model to establish the effects of foreign remittances on private consumption (C), investment (I), imports (M) and output (Y). This type of model allows determination of an exogenous shock of foreign remittances on the selected macroeconomic variables. The structure of the model is as follows:

Consumption function

Two major hypotheses, with some variant expressions in each case have been tested.

$$C_{it}=a_0+a_1 Y_{t-1}+a_2 C_{i,t-1}+\varepsilon_{it} \dots \dots \dots (3.1)$$

Where, C= Private Consumption, Y=GDP+ Remittances, subscript t stands for time, a_i's parameters to be estimated and ε_{it} is the error term. It includes the effects of omitted factors at time t.

This is a dynamic long run consumption equation that is based on two different distributed lag hypothesis: an adaptive expectations model and partial adjustment model. The equation can produce estimates of short and long-run effects of income on consumption. It satisfies the criterion for a model suitable for developing countries like in EAC, where various uncertainties are present concerning income changes and with the component of remittances generating considerable income fluctuations.

Investment function

According to many theoretical views, there is some desired stock of capital toward which businessmen orient their investment activities. This implies that gross investment is generally inhibited by the existing capital stock. Investment, however, is positively correlated with business profits, property income and capital output, whereas, profits are positively related to national income (Modigliani & Miller, 1958). Accordingly, in our model, profits are assumed to be a positive function of income (Y_t), which enters as argument in our investment equation, along

with lagged capital stock ($K_{(t-1)}$), which allows some time for investment to adjust to the stocks. Thus, the expected signs are positive and negative respectively.

$$I_t = b_0 + b_1 Y_t + b_2 K_{(t-1)} + \varepsilon_t \dots \dots \dots (3.2)$$

Where, capital stock is approximated by cumulative investment, which in linear model like in (3.2) do not have any bearing on the capital coefficient. The b_i are parameters to be estimated.

Import function

The import equation comes straight from the life-cycle hypothesis as developed for consumption by Ando & Modigliani(1963), incorporating the influence of income and wealth.

$$M_t = \delta_0 + \delta_1 Y_t + \delta_2 Y_{(t-1)} + \delta_3 M_{(t-1)} + \varepsilon_t \dots \dots \dots (3.3)$$

This theoretical approach for import which performed well when tested in most of the countries under study can be justified by the great need for imported goods in the EAC economies. Variable $M_{(t-1)}$ carries the effect of past incomes on current imports indicating adaptive expectations. The lagged income will affect imports positively or negatively if the MPM with respect to current wealth is higher or low than the MPM with respect to current income (Y_t). The lagged imports coefficient will be positive (Romer,1996).

Output

The identity function is given as:

$$Y_t = C_t + I_t + G_t + X_t - M_t + R_t + \varepsilon_t \dots \dots \dots (3.4)$$

Where, C_t =Private Consumption, Y_t = GDP+ Remittances, C_t is Private Consumption in the domestic market at time t, $C_{(t-1)}$ = is the gagged private consumption, I_t = Private investment at time t, $K_{(t-1)}$ = Cumulative gross capital formation at time t, G_t = Total government expenditure at time t, Y_t is the Income/Output at time t, $Y_{(t-1)}$ is the lagged income, R_t is the remittances at time t, M_t = the imports at time t, $M_{(t-1)}$ is the lagged imports, X_t = the export at time t, t is periods (time); (1985, 1986...,2014), $[a_t, \delta_t b]_t, \pi_t$ are coefficients, $a_{(0)}, b_{(0)}, \delta_{(0)}, \pi_0$ are constants and ε_t is the error term that includes the effects of omitted factors at time t.

Dynamic nature

The dynamic nature of the model develops by introducing lagged endogenous variables into the system. The relationship between any endogenous variable and all the predetermined variables of the system of equations, i.e. the reduced form of the expression of the structural equations (3.1) -(3.4) is given in the form summarized in Table1 as proposed by (Tansel & Yasar, 2010).

The dynamic effects of shocks in the exogenous variables are on the endogenous variables are captured by the formular in Table1 which expresses the endogenous variables as a function of pre-determined variables in the model.

Table1: Impact and Dynamic Multipliers for the Effect of a percentage change in Remittances.

	Impact Multipliers		Dynamic Multipliers	
	Year 1	Year 2	Year 3	Year 4
Consumption	α_1/A	$P(\alpha_1/A)$	$P^2(\alpha_1/A)$	$P^3(\alpha_1/A)$
Investment	b_1/A	$M(b_1/A)$	$M^2(b_1/A)$	$M^3(b_1/A)$
Imports	δ_1/A	$N(\delta_1/A)$	$N^2(\delta_1/A)$	$N^3(\delta_1/A)$
Income	$((\alpha_1 + b_1 - \delta_1)/A)$	$M=b_2(1-\alpha_1 + \delta_1)/A$	$N=\delta_2(1 - \alpha_1 - b_1)/A$	$P=\alpha_2(1 - b_1 + \delta_1)/A$

Source: Tansel and Yasar (2010)

All variables are in US\$ in millions. Remittances (R) is the variable of interest. Government expenditure and exports are control variables. The model has the following endogenous variables (C, I, M, Y) and exogenous variables: K=cumulative gross domestic investment, G, X, and R.

RESULTS AND DISCUSSION

Unit root test

Generally, performing a regression with non-stationary series leads to a spurious regression. Regressing a non-stationary time series variables, often give a very high R²(in excess of 0.9) even though there is no meaningful relationship between the variables (Gujarati & Porter C, 2009). Therefore, to ensure that the series is stationary, stationarity tests were performed on all-time series data in the study using the unit root test. The study tested the (null) hypothesis that $\rho=1$, with the alternative hypothesis being that $\rho<1$. If $\rho=1$, we have a unit root, meaning the time series under consideration is nonstationary. The study employed the Dickey-Fuller (DF) test approach and the results are summarized in Tables 2.

Table 2 reveals that, the estimated test statistics (τ) at level values in absolute terms for data of the five economies (Kenya, Uganda, Tanzania, Rwanda and Burundi) in the study are less than the critical τ values at 5% significance level. Given in absolute terms, the estimated values are less than critical τ values, our conclusion is that the data is not stationary. Therefore, the null hypothesis that the data has a unit root could not be rejected. However, after taking the first order difference, the data is found to be stationary in all the five economies. The estimated τ

values in absolute terms are greater than critical τ value at 5 percent significance level. The null hypothesis, therefore, that each series has a unit root is rejected in the first difference for all data and hold the null hypothesis that each series is integrated of order one for Kenya, Uganda, Tanzania, Rwanda and Burundi data under study.

Table 2: Dickey-Fuller (DF) unit root test for Kenya, Rwanda, Burundi, Tanzania and Uganda variables in the study

Variables	1% critical value	5% critical value	10% critical value	Kenya		Rwanda		Burundi		Tanzania		Uganda	
				Estimated test Statistics (τ)		Estimated test Statistics (τ)		Estimated test Statistics (τ)		Estimated test Statistics (τ)		Estimated test Statistics (τ)	
				I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Y	-3.77	-3.19	-2.89	-0.8351	-3.626	-2.028	-4.7594	-3.886	-4.286	-0.652	-5.132	-1.371	-3.914
$Y_{(t-1)}$	-3.77	-3.19	-2.89	-1.0909	-3.612	-1.922	-4.688	-3.743	-4.440	-0.435	-4.902	-1.091	-3.197
PC	-3.77	-3.19	-2.89	-0.9931	-3.342	-0.924	-4.3487	-0.266	-6.820	-1.432	-4.185	-1.712	-3.190
$PC_{(t-1)}$	-3.77	-3.19	-2.89	-0.9678	-3.288	-1.088	-4.130	-0.581	-6.979	-0.629	-3.314	-2.516	-3.361
I	-3.77	-3.19	-2.89	-0.2941	-5.209	-0.924	-4.597	-1.525	-7.767	-1.114	-5.433	-1.830	-4.032
$K_{(t-1)}$	-3.77	-3.19	-2.89	-1.0541	-4.284	-0.715	-4.902	-1.944	-7.682	-0.907	-5.546	-2.055	-4.525
M	-3.77	-3.19	-2.89	-0.1605	-5.192	-2.724	-4.524	-0.686	-5.930	-3.671	-5.296	-2.752	-3.221
$M_{(t-1)}$	-3.77	-3.19	-2.89	-1.0877	-4.641	-2.654	-4.365	-0.786	-5.590	-2.787	-5.296	-2.751	-3.981

Source: E-Views Output

Empirical Outcome

The TSLS is applied on the EAC on individual countries for comparison purposes and the results are presented in Tables 3 to 5. Annual data for the period 1985-2014 are used except for Tanzania which covered for the period 1990-2014 due to unavailability of data from the earlier years. All figures are in US dollars and in millions.

Consumption

The coefficients of MPC in the individual economies in EAC are summarized in Table 3 and the t-Statistics are given in brackets. The information reveals that Uganda has the highest MPC of 0.92 in the region followed by, Burundi, Kenya, Tanzania and Rwanda at 0.84, 0.71, 0.71 and 0.66 respectively. This implies that an increase of income by one dollar will increase consumption by 92, 84, 71, 71 and 66 cents in Uganda, Burundi, Tanzania, Kenya and Rwanda respectively. The coefficients are of the right signs and statistically significant as demonstrated by the high t-Statistics in all the economies in the region. The null hypothesis that the increase of income does not increase private consumption in the EAC region is, therefore, rejected and the alternative hypothesis is accepted, implying that increase of remittances increases private consumption in the EAC region.

Table 3: Structural Regression coefficients (TSLs) Estimates: Consumption (C)

	Constant	Y_t	C_{t-1}	Adjusted R^2	DW
Kenya	51.83197 (0.543035)	0.714949 (19.46025)	0.090988 (1.831842)	0.964411	2.376059
Uganda	-91.02782 (-1.317078)	0.917545 (18.93375)	-0.182440 (-3.303046)	0.933283	1.873554
Tanzania	-106.6044 (-0.566903)	0.714629 (8.769858)	-0.062182 (-0.062182)	0.814826	1.915455
Rwanda	3.682778 (0.162045)	0.658382 (13.95616)	0.047168 (0.704175)	0.892729	2.574836
Burundi	-3.252060 (-0.143563)	0.840826 (5.652055)	-0.221602 (-1.513007)	0.525875	2.738176
Expected sign		+	+		

Source: E-Views Output

As demonstrated in Table 3, the model performs well for all the five countries in EAC as theoretically expected. In all the economies, MPC ratios are <1 . This agrees with Keynes' (1936) argument that the MPC is positive but <1 . The findings are in agreement with Kiyalbek & Budaichieva (2012)'s findings in Kyrgyzstan where an increase in remittances by 1 unit increased consumption by 0.70 units, Aitymbetor (2006) also established that an increase of remittance by 1 unit increased consumption by 0.68 units in the same economy. Nisar et. al (2013) established that one percent increase in the average annual amount of remittances in Pakistan, increased consumption by 0.95 percent. However, this is contrary to Glytsos (2005) findings in Egypt and Morocco where a percent increase in remittance resulted to 0.33 percent and 0.56 percent increase in consumption respectively. Tansel & Yasar (2010) estimated that an increase of remittance by 1 percent increase in Turkey, increased consumption by 0.35 percent.

Generally, higher values of MPC ratio in the region are signaling that higher spending in the current year generates a higher new demand that may induce more output (or more imports or inflation), it also means a lower additional savings in the current period with possible dampening effects on output on the supply side. Since remittances are part of disposable income, their influence on the economy is reflected in this behaviour. The high MPC could be the reason of low investments in the region leading to inconsistent economic growth and subsequently low creation of employment opportunities.

The coefficients of the lagged consumption for Kenya and Rwanda have the correct sign as theoretically expected while that of Uganda, Tanzania and Burundi have a negative sign. The positive sign of lagged consumption for Kenya and Rwanda is consistent with the permanent income hypothesis by Friedman (1957). The theory states that consumption in any given period

is not determined by income in that period, but income over his or her entire life time. This means that households accustomed to a certain standard of living do not adjust immediately with change in income. This means that households are able to save and spend in future. On the other hand, the negative sign of the coefficient of the lagged consumption for Uganda, Tanzania and Burundi implies that consumption demands on the current income rather than past savings. This is supported by the high MPC values for these economies which are 0.92, 0.71 and 0.84 for Uganda, Tanzania and Burundi respectively. The higher MPCs imply that very little is saved for future consumption.

As demonstrated by the high adjusted R^2 values in Table 3 the model fits the regression well in all the five economies in EAC. This leads to rejection of the null hypothesis that all coefficients are equal to zero. It implies that 96 percent, 93 percent, 81 percent, 89 percent and 53 percent of the variation in consumption are explained by changes in income in Kenya, Uganda, Tanzania, Rwanda and Burundi respectively. The coefficients of the lagged income are statistically insignificant implying that lagged consumption do not have influence in the current consumption.

Some elements of multicollinearity were detected in the regression as the coefficients of lagged consumption in four out of the five economies were found to be statistically insignificant and the R^2 values are in excess of 0.9 except for Burundi which is 0.53. However, since, the objective is to estimate linear combination of these coefficients this can be done even in the presence of perfect multicollinearity (Gujarati & Porter C, 2009). In this case, we choose "Do Nothing" approach of dealing with multicollinearity as expressed by Kennedy (1998), this is because multicollinearity is a data deficiency problem which we have no choice over, besides, not all the coefficients in the regression model are statistically insignificant. Moreover, even if we cannot estimate one or more regression coefficients with greater precision, a linear combination of them can be estimated relatively efficiently.

The output in Table 3 reveals that consumption function in the five economies does not suffer from autocorrelation. For 28 observations and two explanatory variables, the upper 5 percent critical Durbin Watson (d) value is 1.560. Since the observed d values 2.376, 1.874, 1.915, 2.575 and 2.738 for Kenya, Uganda, Tanzania, Rwanda and Burundi respectively are above the upper limit, there is no evidence of positive autocorrelation. We, therefore, reject the null hypothesis that there is serial correlation in the residuals in the five economies individually.

Investment

The model performed quite well in all the five economies as theoretically expected, the value of the MPI < 1 , this is because part of income is consumed and not all that is saved is invested.

The coefficients of marginal propensity to invest (MPI) are summarized in Table 4 and the t-statistics are given in brackets. The estimated MPI for Kenya, Uganda, Tanzania, Rwanda and Burundi are 0.31, 0.19, 0.32, 0.25 and 0.38 respectively. This implies that an increase of income by 1 dollar increases investment by 31, 19, 32, 25 and 38 cents in Kenya, Uganda, Tanzania, Rwanda and Burundi respectively. The MPIs have the right sign as per the priori expectation and are all statistically significant as demonstrated by the high t-statistics values presented in Table 4. The null hypothesis that the increase of remittances does not increase investment in the region is, therefore, rejected and the alternative hypothesis is accepted. The low investment ratios, especially in Uganda could be attributed to low savings as a result of high consumption ratio.

These findings are similar to the ones established by Glytsos (2005). Glytsos established that an increase in remittances by 1 unit, increased investments in Greece, Jordan, Morocco and Portugal by 0.13, 0.36, 0.39 and 0.29 units respectively. Tansel & Yasar (2010) established that a percent increase in remittances increased investments by 0.33 percent in Turkey. An increase in income by 1 percent was established to increase investment by 0.1 percent in Bangladesh (Abu et.al, 2010) and in Palestine, increase of income by one 1 percent was established to have increased investment by 0.27 percent (Saad, 2015). Aitymbetor (2006) established that an increase in income by 1 unit increased investment by 0.17 units in Kyrgyzstan. Similar results were established by Blouchoutzi & Christos (2014) in Albania and Moldova where a 1 percent increase in remittances increased investment by 0.14 percent and 0.38 percent respectively.

Table 4: Structural Regression coefficients (TSLS) Estimates): Investment (I)

	Constant	Y_t	K_{t-1}	Adjusted R^2	DW
Kenya	-40.89589 (-0.274757)	0.314222 (5.662715)	-0.430232 (-1.741496)	0.556014	2.132014
Uganda	53.04023 (1.107520)	0.189848 (5.337077)	0.166009 (1.302081)	0.651870	2.610204
Tanzania	81.41543 (0.277983)	0.318903 (2.464606)	-0.117686 (-0.485470)	0.180	2.074366
Rwanda	0.043986 (0.003108)	0.253979 (8.811515)	0.178654 (-0.242188)	0.779731	1.911818
Burundi	10.49468 (1.046746)	0.378655 (5.101847)	-0.462137 (-2.795174)	0.471200	1.962166
Expected sign		+	-		

Source: E-Views Output

The lagged capital accumulation coefficients have the right signs (negative) except for Uganda and Rwanda. The positive sign of the coefficient of the lagged capital accumulation in Uganda and Rwanda could be attributed to low MPI as compared to other economies in the region. This implies that there are no adequate incentives to attract investors in these economies. Therefore, there is imperfection in investment. The model fairly fits well in the economies as demonstrated by high value of adjusted R^2 . Rwanda has the highest adjusted R^2 value of 0.78, while Kenya, Uganda, Tanzania and Burundi have 0.56, 0.65, 0.18 and 0.47 respectively. It, therefore, implies that in Kenya, 56 percent of variation in investments are explained by the regressor (income and lagged capital accumulation) while 65 percent, 18 percent, 78 percent and 47 percent changes in investment are explained by the regressors (income and lagged capital accumulation) in Uganda, Tanzania, Rwanda and Burundi respectively.

The relatively low values of adjusted R^2 is an indication of no multicollinearity problem in the data under study across the countries and the MPI across the region have correct signs and are statistically significant, however, some coefficients of lagged capital accumulation are statistically insignificant at 5 percent significance level implying that there are some elements of collinearity in some data. However, since, the objective is to estimate linear combination of these coefficients this can be done even in the presence of perfect multicollinearity (Gujarati & Porter C, 2009). In this case, we choose "Do Nothing" approach of dealing with multicollinearity as expressed by Kennedy (1998), this is because multicollinearity is a data deficiency problem which we have no choice over, besides, not all the coefficients in the regression model are statistically insignificant. Moreover, even if we cannot estimate one or more regression coefficients with greater precision, a linear combination of them can be estimated relatively efficiently.

The output in Table 4, further reveals that investment function in the five economies does not suffer from autocorrelation. For 28 observations and two explanatory variables, the upper 5 percent critical Durbin Watson (d) value is 1.560. Since the observed d values 2.132, 2.610, 2.074, 1.912 and 1.962 for Kenya, Uganda, Tanzania, Rwanda and Burundi respectively are above the upper limit, there is no evidence of positive autocorrelation. We, therefore, reject the null hypothesis that there is serial correlation in the residuals in the five economies.

Import

The model performed well in all the economies as theoretically expected. The coefficient of marginal propensity to import (MPM) presented in Table 5 are all less than one and less than MPC. The information in Table 5 reveals that the estimated marginal propensity to import (MPM) for Kenya which is the highest in the region is 0.30 while the one for Rwanda which is

the lowest is 0.11. The MPM for Uganda, Tanzania and Burundi are 0.14, 0.29 and 0.26 respectively. The coefficients have the correct sign and are all statistically significant. This implies that an increase in income (Y) by 1 dollar, increases imports by 30, 14, 29, 11 and 26 cents in Kenya, Uganda, Tanzania, Rwanda and Burundi respectively. The null hypothesis that remittances do not have effect on importation in the EAC region is, therefore, rejected and the alternative hypothesis is accepted. The MPM coefficients are almost identical, demonstrating the uniform spending behaviour across the region.

Table 5: Structural Regression Coefficient (TSLS) Estimates: Imports (M)

	Constant	Y_t	Y_{t-1}	M_{t-1}	Adjusted R^2	DW
Kenya	160.4343 (0.867819)	0.301182 (4.040552)	0.037852 (0.461852)	-0.261396 (-1.193868)	0.4529885	2.153359
Uganda	58.99216 (0.924746)	0.141035 (2.665939)	-0.009232 (-0.15595)	0.322526 (1.417440)	0.468076	1.867117
Tanzania	141.2323 (0.555853)	0.291684 (2.333599)	-0.078209 (-0.66392)	-0.005911 (-0.023074)	0.177074	1.945135
Rwanda	20.83798 (1.034665)	0.107495 (2.414727)	0.143482 (3.094620)	0.001161 (0.006382)	0.485201	2.248483
Burundi	4.9600900 (0.357466)	0.260375 (2.3311359)	0.175172 (1.166450)	-0.227860 (-1.105673)	0.335488	1.950346
Expected sign		+	+/-	+		

Source: E-Views Output

The study findings in Table 5 are similar to the one established by Tansel & Yasar (2010) (2010) in Turkey where MPM was estimated at 0.16. Glytsos (2005) estimated MPM for Egypt, Greece, Jordan and Portugal 0.24, 0.14, 0.40 and 0.16 respectively. Similarly, Aitymbetor (2006) estimated MPM for Kyrgyzstan at 0.29. Estimation shows that EAC economies experiences low marginal propensity to import. This suggests that the immediate concern of consumers in the region is to raise their consumption (that naturally includes imported goods).

The coefficients of the lagged imports ($M_{(t-1)}$) have correct signs except for Kenya, Tanzania and Burundi. This is in contrary with the priori expectation. Accordingly, the large positive coefficient of lagged imports in Uganda and Rwanda is an indication of a strong influence adaption expectations in the purchase of imports. On the other hand, the negative sign of the lagged imports in Kenya, Tanzania and Rwanda implies that importation is based on the current income but not saving, hence, the permanent income hypothesis does not apply, importation is for immediate use. This is clearly indicated by the high MPM in the region of 0.30, 0.29, 0.26 for Kenya, Tanzania and Burundi respectively as compared to 0.14 and 0.11 in

Uganda and Rwanda respectively who have positive sign of the coefficient of lagged import. This implies that imports for Uganda and Burundi are spread over time. The high MPM ratios in Kenya, Tanzania and Burundi have a negative effect on the output.

The negative sign of lagged income in the import equation for Uganda and Tanzania demonstrates a hesitation to liquidate assets for buying imports. While, the positive sign for lagged income in Kenya, Rwanda and Burundi would be an indication of asset liquidation, but such a possibility is negligible and statistically insignificant except for Rwanda. Import, generally, reduces output, the higher MPM ratios for Kenya, Tanzania and Burundi at 0.30, 0.29 and 0.26 respectively is a clear indication that increase in income (remittances) could have a negative effect on the economy unless the imports are for investment purposes. These ratios are almost equal to MPI in these economies signaling negative effect.

The output in Table 5 reveals that the data used in the import function in the five economies do not suffer from autocorrelation. For 28 observations and two explanatory variables, the upper 5 percent critical Durbin Watson (d) value is 1.560. Since the observed d values 2.153, 1.867, 1.945, 2.248 and 1.950 for Kenya, Uganda, Tanzania, Rwanda and Burundi respectively are above the upper limit, there is no evidence of positive autocorrelation. We, therefore, reject the null hypothesis that there is serial correlation in the residuals in the five economies.

Impact and Dynamic Multiplier for the Effect of change in Remittances by one dollar

The reduced form equations express the endogenous variables as a function of all the predetermined variables in the model. They are also used to find the short-run or impact multipliers. The dynamic or impact multipliers can be derived from the final form equations for the endogenous variables which are obtained by making substitutions for the dynamic terms.

Table 6 presents information on the effects of a percentage change in remittances on endogenous variables. The information reveals that an increase in remittances by 1 dollar would increase consumption in Kenya through dynamic multiplier effects by 2.536, 0.8159, 0.2625 and 0.0845 dollars in the first, second, third and fourth year respectively. In Rwanda, an increase of remittances by 1 dollar would increase consumption by 3.3, 0.667, 0.1345 and 0.027 dollars in the first, second, third and fourth year respectively. In Uganda, Tanzania and Burundi, an increase of remittances by 1 dollar would increase consumption by 30.667, 2.73077 and 21 dollars respectively in the first year and wear out in the second year. It is, therefore, clear that a unit increase in remittance, have a long run positive effect in Kenya and Rwanda and negative in Tanzania, Uganda and Burundi. The negative long run effects in these other economies could largely be attributed to high MPC ratios which leave very little savings for subsequent usage.

An increase in remittances by one dollar would increase investments by 1.107, 6.333, 1.23077 and 9.5 dollars in Kenya, Uganda, Tanzania and Burundi and wears out in the second year. However, in Rwanda, it increases investment by 1.25, 0.503, 0.2028 and 0.082 in first, second, third and fourth year respectively. Imports would increase by 1.071, 4.667, 1.115, 0.55 and 6.5 dollars in Kenya, Uganda, Tanzania, Rwanda and Burundi and wear out in the second year except in Rwanda where it gradually reduces in the second year. It is, therefore clear that remittances have effect in EAC leading to the rejection of the null hypotheses that foreign remittance do not have any effect on investment and import in the EAC. Output would increase by 2.571, 32.333, 2.846 and 24 dollars in Kenya, Uganda, Tanzania and Burundi respectively and wear out in the second year. However, in Rwanda, it would increase by 4.0, 1.135, 0.337 and 0.109 in the first, second, third and fourth year respectively.

As expected, the impact and dynamic multipliers for imports are smaller than those for consumption in all the five economies. Changes in consumption, investment and imports is a reflection of changes in output brought about by changes in remittances. The dynamic multipliers for output are obtained by adding the multipliers for consumption and investment and subtracting that for imports. The effect on output is generally high across the five EAC economies.

Table 6: Time Distribution of the Effects of a percentage Change in Remittances on Endogenous variables (Impact and Dynamic Multipliers)

Countries and Variables	Impact Multipliers		Dynamic Multipliers	
	Year 1	Year 2	Year 3	Year 4
Kenya				
Consumption	2.536	0.8159	0.2625	0.0845
Investment	1.107	-1.003	0.9088	-0.8235
Imports	1.071	-0.00289	0.0000	0.0000
Income	2.571	-0.1899	1.1713	0.739
Uganda				
Consumption	30.6667	-176.7424	1019.674	-5879.8402
Investment	6.333	-8.452844	11.2818	-15.05712
Imports	4.6667	0.154	0.00508	0.000167
Income	32.3333	-185.041244	1030.95	-5894.897
Tanzania				
Consumption	2.73077	-0.16423	0.0099	-0.006
Investment	1.23077	-0.32948	0.0882	-0.0236
Imports	1.115385	0.0026	0.0000	0.0000
Income	2.846155	-0.49631	0.0981	-0.0296
Rwanda				
Consumption	3.3	0.667	0.1345	0.027
Investment	1.25	0.503	0.2028	0.082

Imports	0.55	0.0354	0	0
Income	4	1.1346	0.3373	0.109
Burundi				
Consumption	21	-102.564	500.922	-2446.505
Investment	9.5	-45.3435	216.4245	-1032.994
Imports	6.5	-6.25625	6.02164	-5.7958
Income	24	-141.65125	711.324	-3473.7032

Table 6...

The positive impact and dynamic effect of remittances on consumption and investment is consistent with altruism and self-interest theory (Lucas & Stark ,1985). The theory highlights that migrants remit money back home in concern of the welfare of the remaining family members especially during economic hardships and also as motive for investment. Essentially, remittances motivated by self-interest will tend to flow as a disguised capital into the receiving economy. The overall assumption is that remittances flow responds to real investment opportunities in the migrant's country of origin. With these empirical findings and the hypothesis of the study, we reject the null hypotheses (H_0) to the extent of Private Consumption, Investment, Imports, Output and accept the alternative hypotheses (H_1) for the same for Kenya, Uganda, Tanzania, Rwanda and Burundi.

Table 6 reveals that the dynamic multipliers effect of a unit change in remittances are in the first year but wears out in the subsequent years when all other predetermined variables are held constant except for Rwanda that decreases gradually over a period of four years. It is, therefore, clear that the impact of remittances on consumption, investment, imports and income are all positive in short run, however, in the long run, all are negative except for Rwanda. It is also clear that, the dynamic multipliers are smaller than the impact multipliers. As theoretically expected, the impact of remittance on investment wears out in the second year for Kenya, Uganda, Tanzania and Burundi while that of Rwanda reduces gradually. The impact of consumption reduces gradually for Kenya and Rwanda while that one of Uganda, Tanzania and Burundi wears out in the second year. The gradual decline for Kenya and Rwanda is in line with the Permanent Income Hypothesis which outlines the importance of life-time income spending distributed over time. This is evident from the positive coefficient of the lagged consumption in the two economies meaning that consumption in the current year is positively influenced by consumption in the previous year.

Tansel & Yasar (2010), established similar results in Turkey where a percentage increase in remittances increased consumption, investment, import and output by 0.728 percent, 0.684 percent, 0.333 percent and 2.079 percent respectively. However, unlike in Uganda, Tanzania and Burundi; consumption, import and output reduced gradually over the years up to the fourth year. Glytsos (2005) established similar, but lower values in Egypt,

Greece, Jordan, Morocco and Portugal where a percentage increase in remittances resulted to increase in output by 0.95 percent, 1.72 percent, 1.25 percent, 2.80 percent and 1.86 percent respectively in the first year and declined gradually over the years till the sixth year. In Kyrgyzstan economy, Aitymbetor (2006) established that an increase in remittances by 1 percent increased income by 2.3 percent. In EAC economies, the impact in income is only in the first year and wears out in the second year with exception to Rwanda. This is contrary to Glytsos (2005), Tansel & Yasar (2010) findings where consumption, import and output reduces gradually over time. The gradual decline in variables over time is largely attributed to low MPCs and positive sign of the lagged private consumption coefficient in those economies. Glytsos estimated MPC for Portugal, Egypt, Greece and Jordan at 0.325, 0.334, 0.383 and 0.241 respectively. Tansel & Yasar (2010) estimated MPC in Turkey at 0.350. Therefore, for remittances to have positive long run impact in the region, the respective governments should encourage savings. Rwanda is able to spread the dynamic impact over four year because, it has the lowest MPC in the region at 0.66 meaning that it has the highest MPS.

CONCLUSIONS AND RECOMMENDATIONS

The overall objective of the study was to investigate the effect of foreign remittances on private consumption, investment, import and output in EAC. Evidence provided in this study reveals that foreign remittances have a positive effect on macroeconomic variables in EAC region. The study reveals that, increase in remittances by one dollar would increase consumption, investment, import and output through dynamic multiplier effects in four out of the five countries and wears out in the second year. This is not good for the economy, hence for sustainable growth, there is need to reduce MPC in the short-run perhaps by encouraging savings. Generally, savings tend to encourage investment which has good multiplier effects. For remittances to have a long term effect in the region, the study recommends that households to be encouraged to save more. Savings could encourage spending over one's life time as well as investment. Rwanda is able to achieve higher effect of remittances on investment due to high marginal propensity to save (MPS) in the region. The study estimates MPS for Rwanda at 0.34 which is the highest in the region. The EAC governments to encourage the diaspora to invest in the region even when the host countries might give high rates or profits. This can be achieved through floating a diaspora bonds and through provision of good infrastructure in the domestic market. To achieve this, the respective governments should encourage remittances through removal of barriers associated with the formal channels of remitting back. This will go a long way to discourage remittances through informal channels that does not have data records and

which does not encourage saving. The major barrier is the cost of remitting money through financial intermediaries (World Bank, 2011).

Lastly, the positive effect of foreign remittances on consumption, investment and imports in EAC in the short run, could have effects on inflation levels and exchange rates. The study, therefore, proposes further studies to focus on its effects on inflation and exchange rates in the region.

REFERENCES

- Abu, S., Selvanathan, E., & Sorofa, S. (2010). Remittances and Economic Growth: Empirical Evidence from Bangladesh, India and Sri Lanka. The University of Western Australia: Discussion Paper 10.27, 1-24.
- Acosta, A., Lartey, K., & Federico, S. (2009). Remittance and Dutch Disease. *Journal of International Economics* 79(1), 102-116.
- Adela, S., & Dietmar, M. (2013). Remittances and their impact on Economic Growth. *Social and Management Sciences*, 3-19.
- Ahmed, N., Arslan, A., & Hayat, M. (2013). Foreign Remittances and Economic Growth in Pakistan: An empirical investigation. *Journal of Basic and Applied Scientific Research* , 813-819.
- Aitymbetov, S. (2006). Emigrant Remittances: Impact on Economic Development of Kyrgyzstan. The Economic Policy Institute: working paper (31), 1-41.
- Akano, A., Jamiu, O., Bada, O., & Sunday, O. (2013). Effects of Remittance Inflows on Economic Growth of Nigeria. *Internal Institute for Science, Technology and Education*, 113-122.
- Akonji, D., & Wakili, A. (2013). The Impact of Net Migrant Remittance on Economic Growth: Evidence from Nigeria. *International Journal of Humanities and Social Science* Vol.3 No.8, 303-315.
- Ando, A & Modigliani, F. (1963). The "Life Cycle" Hypothesis of saving: Aggregate Implications and Tests. *The American Economic Review* 53(1), 55-84
- Andy, M., & Priya, D. (2014). Internal Remittances and Poverty: Further Evidence from Africa and Asia. United Kingdom: Migrating out of Poverty (Research Programme Consortiun).
- Ankara. (2006). *Global Economic Prospects: Economic Implications of Remittances and Migration*. Washington, DC: World Bank.
- Aysit, T., & Pinar, Y. (2010). Macroeconomic Impact of Remittances on Output Growth: Evidence from Turkey. IZA Discussion Paper Series Number 5376.
- Azam, M., & Khan. (2011). Workers'Remittances and Economic Growth: Evidence from Azerbaijan and Armenia. *Global Journal of Human Social Science*.
- Baldera, J., & Nath, H. (2008). Inflation and relative Price Variability in Maexico: The role of remittances. *Applied Economics Letters* 15, 181-185.
- Barajas, A., Chami, R., Fullenkamp, C., Gapen, M., & Montiel, P. (2009). Do Workers'Remittances Promote Growth? Washington, DC: IMF working paper 09/153.
- Blouchoutzi, A., & Christos, N. (2014). Emigrants' remittances and economic growth in small transtition economies: The cases of Moldova and Albania. *East-West Journal of Economics and Business*,XVII(2), 97-117.
- Chami, R., Fullenkamp, C., & Jahjah, S. (2003). Are Immigrant Remittances Flows a Source of Capital for Development? IMF Working Paper 03/189.

- Fayissa, B., & Nsiah, C. (2010). The Impact of remittances on economic growth and development in africa. *American Economist* Vol.55, 92-103.
- Frankel, M. (1962). The Production function in allocation and growth: a synthesis. *American Economic Review* 52, 995-1022.
- Friedman, M. (1957). *A Theory of the Consumption function*. Princeton,NJ: Princeton University Press.
- Giuliono, P., & Arranz, M. (2009). Remittances,Financial Development and Growth. *Journal of Development Economics* 90, 144-152.
- Glytsos, N. (2005). The Contribution of Remittances to growth: A dynamic Approach and Empirical Analysis. *Journal of Economic Studies* 32(6), 468-496.
- Gujarati, N., & Porter C, D. (2009). *Basic Econometric Fifth Edition*. New York: Douglas Reiner.
- Gupta, S., Pattillo, C., & Wagh, S. (2007). *Impact of Remittances on Poverty and Financial Development in Sub-Saharan Africa*. Washington, DC: International Monetary Fund (IMF).
- Hrushikesh, m. (2012). Inflow of remittances and private investment in India. *Singapore Econ. Rev* 57.
- IMF. (2005). *World Economic Outlook 2005*. Washington, DC: International Monetary Fund.
- IMF. (2008). *Macroeconomic Consequences of Remittances*. Occasional Paper 259. Washington, DC: International Monetary Fund.
- IMF. (2016, 12 19). IMF. Retrieved from IMF web site: <https://www.imf.org/en/News/Articles/2016/12/19/AFR191216-EAC-Monetary-Union>
- Intriligator, M., Bodkin, R., & Hsiao, C. (1996). *Econometric Models, Techniques and Application, Second edition*. New Jersey: Prentice-Hall.
- IOM. (2015). *Migration in Kenya: A Country Profile 2015*. Nairobi.
- Iqbal, Z., & Abdus, S. (2005). *The Contribution of Workers'Remittances to Economic Growth in PaKistan*. Pakistan Institute of Development Economics.
- Javid, M., Arif, U., & Qayyum, A. (2012). *Impact of Remittances on Economic Growth and Poverty*. *Academic Research International*, 433-447.
- Jena, F. (2015). *Do Migrant Remittances Affect Households Purchases of Physical Investments and Durable Goods?Evidence for Kenya*. University of Sussex, Working Paper Series No.79, 1-30.
- Kadir, K. (2013). *Workers'Remittances and Economic Growth: Evidence from Turkey*. *Journal of Yasar University* 4 (13), 1891-1908.
- Kennedy, P. (1998). *A Guide to Econometrics, 4th ed*. London: MIT Press, Cambridge.
- Kenneth, A. (2014). *Worker's remittances and household capital accumulation boon in Uganda*. Kampala: Bank of Uganda.
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. London: Macmillan.
- Kiio, J., Buigut, K., & Soi, N. (2014). *The Impact of Workers'remittances on Economic Growth: Evidence from Kenya*. *Journal of Economics and Sustainable Development* Vol.5, No 26, 83-96.
- Kiyalbek, A., & Budaichieva, A. (2012). *The Impact of Remittances on Kyrgyzstan Economy*. *International Conference on Eurasia Economies*, 6-12.
- Lucas, R., & Stark, O. (1985). *Motivation to remit: Evidence from Botswana*. *Journal of political Economy* 93, 901-918.
- Modigliani, F., & Miller, H. M. (1958). *The Cost of Capital, Corporation finance and the Thoery of Investment*. *The American Economic Review* XLVIII (3), 261-280.
- Mwangi, N., & Mwenda, N. (2015). *The Effect of International Remittances on Economic Growth in Kenya*. *Microeconomics and Macroeconomics*, 15-24.

- Najid, A., Arslan, A., & Muhammad, F. (2013). Foreign Remittances and Economic Growth in Pakistan: An empirical investigation. *Journal of Basic and Applied Scientific Research*, 813-819.
- Nisar, A., Zahid, U., & Muhammed, A. (2013). Econometric Analysis of Income, Consumption and Remittances in Pakistan: Two Stage Least Square Method. *The Journal of Commerce* 5(4), 1-10.
- Ramocan, E. (2010). *Remittances to Jamaica: Findings from a National Survey of Remittances Recipients*. Kingston: Bank of Jamaica.
- Ratha, D. (2005). *Workers' Remittances: An Important and Stable Sources of External Development finance*. Economics Seminar Series Paper 9.
- Ratha, D. (2013). *The Impact of Remittances on Economic Growth and Poverty Reduction*. Washington, DC: World Bank.
- Romer, D. (1996). *Advanced Macroeconomics* Fourth edition. New York: McGraw-Hill.
- Saad, A. (2015). *The Impact of Remittances on Key Macroeconomic Variables: The Case of Palestine*. Jerusalem: Palestine Economic Policy Research Institute.
- Salahuddin, M., & Gow, J. (2015). The relationship between Economic Growth and Remittances in the presence of cross-sectional dependence. *The Journal of Developing Areas* Vol.49.
- Simiyu, C. N. (2013). Remittances and Household Expenditure in Kenya. *Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB)* (2),(3), 718-728.
- Simon, F., Sasi, I., & Mark, M. (2013). *Remittances and Economic Growth: Larger Impacts in Smaller Countries*. Alfred Deakin Research Institute.
- Spatafora, N. (2005, December). *Workers' Remittances*. IMF Research Bulletin, p. 1.
- Stern, M., & Akkoyunlu, S. (2012). *An Emperical Analysis of Diaspora Bonds*. Global Migration Research Papers.
- Stratan, A., Chistruga, M., Clipa, V., Fala, A., & Septelici, V. (2013). *Development and side effects of remittances in the CIS countries: the case of Repulic of Moldova*. Consortium for Applied Research on International Migration Research Report 2013/25.
- Tansel, A & Yasar, P. (2010). *Macroeconomic Impact of Remittances on Output Growth: Evidence from Turkey*. Economic Research Centre, 1-22.
- Udah, E. (2011). *Remittances, Human Capital and Economic performance in Nigeria*. *Journal of Sustainable Development in Africa*, 300-318.
- World Bank. (2006). *Economic Implication of Remittances and Migration*. Washington, DC.
- World Bank. (2011). *The Migration and Remittances Factbook*. Washington, DC.