

THE IMPACT OF REMITTANCES ON ECONOMIC GROWTH IN ETHIOPIA

Tassew Dufera Tolcha,

Lecturer,
Department of Economics,
Hawassa University, Hawassa, Ethiopia.

Dr. P. Nandeeswar Rao ,

Assistant Professor
Department of Economics,
Hawassa University, Hawassa, Ethiopia.

ABSTRACT

Nowadays, remittance has risen in a significant way in developing countries. But different scholars in different countries differently characterize its impact on economic growth. Depending on this debate of remittance, two separate views or school of thoughts was created; optimist and pessimist views. The optimists agreed in that remittances have a positive effect on the remit receiving country through reducing poverty and stimulating the economic growth. However, according to the pessimists view, remittance shouldn't encourage the economic growth, rather it retard the economy through increasing dependency on the foreign by remit receiving countries and making the extreme consumption. Given such important literature this study was undertaken to add on existing literature by assessing the impact of remittances on Ethiopian economic growth over the period 1981 – 2012. ARDL model is used for time series estimation. An empirical result from the study reveals that there is a short run significant impact of remittances on economic growth while it affect the economy negatively in the long run.

Keywords: ARDL, Remittance, Economic growth.

Introduction:

Nowadays, remittance has risen in a significant way in developing countries. Its inflow was increased from USD 96.5 billion to USD 160 billion, which shows a 65% higher in 2004 than 2001; this figure again increased to USD 300 billion in 2007, USD 372 billion in 2011 and USD 401 billion in 2012 growing by 5.3 percent compared to 2011 and it is expected to grow at an average of 8.8 percent annual rate during 2013-2015 to about \$515 billion in 2015 (World Bank, 2013).

As the report of UNCTAD (2012) Afghanistan, Yemen, Sudan, Lao People's Democratic Republic, Ethiopia and Cambodia, each of which have more than 50,000 high-skilled people living abroad. Taken together, these nine countries account for almost two-thirds of the LDC brain drain.

Currently significance of remittance in developing countries become a source of finance and brings an economic growth and development through reducing household poverty and increasing their consumption and further in building investment in both human and physical capital which results in less vulnerability

from natural and economic shock (African Banker, 2013).

Money that is sent from the citizens living abroad to their home country presents a different picture and it has surged over the past decade, and annual inflow to Africa are estimated to reach \$60 billion by 2014, from \$11.4 billion in 2000. Therefore, despite the malaise in the developed countries their major source and the impact on migrants' jobs, remittances present an opportunity for many African countries raise external capital (United Nation Economic Commission for Africa, 2013).

Since, Ethiopia is a member state of the Africa Union and therefore a participant of the Joint Africa EU Declaration on Migration and Development, it declares that parties will "Commit to a partnership between countries of origin, transit and destination to better manage migration in a comprehensive, holistic and balanced manner, in a spirit of shared responsibility and cooperation". The country's law also provides for freedom of movement within the country, abroad travel, emigration, and deportation. The government is working with UNHCR, the UNDP,

the IOM, other humanitarian organizations, UN agencies, government of resettlement countries, Embassies and NGO's on migration policy and development to assist refugees and returning citizens (Solomon, 2012).

As Kanu and Ozurumba (2013) quotes from the report of the United Nation Development Program, between 1980 and 1991 more than 75% of Ethiopians skilled workforce migrates to other countries. For numerous developing countries, including Ethiopia the inflow of remittance becomes an increasing and important growing fund to their economy. According to data of the World Bank, from the total remittance the country received in the past three decades, more than 87 % of remittance inflow was gained in the last two decades. Currently where the emerging economies increased while the overall inflow of FDI declined the inflow of remittance remained increasing and supporting the people's livelihood in reducing poverty and meeting their demands (United Nation Economic Commission for Africa, 2013, African Banker, 2013).

In the proposed title I want to assess the impact of remittance on economic growth of the country Ethiopia. The short run and the long run relationship between remittance and economic growth in the country also be studied in this proposed title.

Statement of the Problem:

There are different conflicting perspectives regarding the impact of remittance on economic growth. These are optimists (remittances have a positive effect on economic growth through subsequent increase in investment and human capital) and pessimists (remittances negatively affect economic growth through inflation and moral hazards resulting from reduced labor supply) (Haas, 2007). Different papers present the impact of remittance on economic growth in different ways; Kanu and Ozurumba (2013) finds that a significant positive effect of remittance on economic growth in South Africa, Ghana and Nigeria. On the other hand Davis and Carr (2010) found a negative relationship in Nepal.

Despite the increasing importance of remittances in total international capital flows, however, the direct or indirect relationship between remittances and economic growth has not been adequately studied in our country, rather it have been studied from reducing poverty and inequality point of view.

For instance, Aredo (2005) try to study the Migrant remittances, Shocks and Poverty in Urban Ethiopia at micro level using panel data between 1994 and 2000 by taking seven cities. He found strong evidence of risk-sharing hypothesis. The regression analysis concisely demonstrates that the likelihood of obtaining access to remittances is greater with those households (such as female-headed households) which more exposed to shocks than those insulated against shocks

through self-insurance mechanisms. As Beyene (2011) works on the Effect of International Remittances on Poverty and Inequality in Ethiopia using household survey for the year 2004 even though poverty decreased significantly because the remittance receiving households mainly come from the bottom consumption distribution and the amount they received is big but Inequality increased with in negligible magnitude. Andersson (2012) also studies the Migration, Remittances and Household Welfare in Rural Ethiopia By using information before and after the households started receiving remittances this study sheds light on the change in welfare that households experience after starting receiving remittances and finally examined that remittances have a significant impact on a welfare variable that has previously not received much attention in the migration literature.

Regarding the impact of remittance on Ethiopian Economic growth, Asaminew et al. (2011) in their study of International Migration, Remittances and Poverty Alleviation in Ethiopia uses Vector Autoregressive (VAR) Model and conducted both survey at micro level and macroeconomic data for computation. Again Tewodros Mekonnen et al. (2011) analyse the Impact of Remittance on the Ethiopian Economy using Computable General Equilibrium (CGE).

Most of these studies are done at micro level based on survey data using different models to show the increase of remittance on the level of household income and expenditure. Moreover, other studies made at macro level used different models such as Computable General Equilibrium (CGE).

This study explores the aggregate impact of remittances on economic growth using Autoregressive Distributive Lag (ARDL) estimation technique within the endogenous growth framework based on time series secondary data collected from governmental and non-governmental organizations ranging from 1981 up to 2011. To the best of my knowledge, the model and the control variables that are used in this paper is different from other papers done at a macro level in the country.

Objective of the Study:

The general objective of the study is to analyse the impact of remittance on economic growth of Ethiopia. Based on this the specific objective addressed in this paper are:

- To analyse the impact of remittances on economic growth.
- To assess the short run and the long run relationship between remittance and economic growth of Ethiopia

The Study address the Following Research Questions

The study examined and addressed the following research questions

- Does remittance have an impact on Ethiopian economic growth?
- Is there a short run and long run relationship between remittance and economic growth in Ethiopia?

Literature Review:

Theoretical Review:

What is Economic Migrants' Remittance?

Workers' remittance is the money that is sent by migrants to their home country for their family (Isaacs et al., 2012, Englama, 2009, Ratha, 2005). For many developing countries this money comes to be the second largest inflow in their economy and it has an impact on their economic growth, changing the livelihoods of the people and it also encourage the access for financial service (Kanu and Ozurumba, 2013).

Economic Theories on Remittance and Economic Growth:

Depending on this debate of remittance, two separate views or school of thoughts was created; optimist and pessimist views. The optimists agreed in that remittances have a positive effect on the remit receiving country through reducing poverty and stimulating the economic growth. However, according to the pessimists view, remittance shouldn't encourage the economic growth, rather it retard the economy through increasing dependency on the foreign by remit receiving countries and making extreme consumption (Englama, 2009). Both views help for the theory of remittance and lead the economic concept of remittance to be linked to the theory of migration.

According to Haas (2008) and Englama (2009) the theories of migration related to economic growth is discussed as follows.

Classical theory (1950s and 1960s):

According to classical theory the inflow of huge capital and industrialization will foster their economic growth and increase modernization. In developing countries migrants are seen as the agent of change and they actively promote migration because, it accelerates investment and it accelerates exposure of rational, democratic ideas, modern knowledge and education.

Neoclassical Theory:

As Neoclassical, unconstrained labour migration would lead to scarcity of labour, resulting in a higher marginal productivity of labour and increasing wage levels in migrant sending societies. Capital flows, including remittances are expected to go in exactly the

opposite direction as labour migration, thus developmental role of migration is entirely realized.

Structural and Dependency Theories:

They stated that migration would result in dependency on the global political economic systems dominated by the powerful (Western) states. Migration was seen as having ruined traditional peasant societies by undermining their economies and uprooting their populations. Migration is detrimental to the economies of underdeveloped countries, but also as the very cause of the "development of underdevelopment".

Neo-Marxist Theory:

According to Neo-Marxist migration and remittance reinforce the capitalist system and exacerbate inequality in one country. Migration and remittance were seen as harmful as exposure to the prosperity of migrant families which leads to increase the demand for foreign products.

New Economics of Labour Migration (NELM) and livelihood approaches (a pluralist perspectives) pioneered by Stark (1991) and, Stark and Bloom (1985)

In this approach migration seen as the risk-sharing behaviour of households. Individuals and households seem able to diversify resources such as labour in order to minimize income risks. Family members are stated to implicitly enter into a co-insurance agreement whereby the family invests in members to allow them to migrate, but expect a return on this investment from the migrants through repayment of the cost incurred by the migration and assistance they may require. Migration plays a vital role in providing a potential source of investment capital, which is especially important in the context of the imperfect credit (capital) and risk (insurance) markets that prevail in most developing countries.

Social Network Theory:

In this theory, the remitters are conscious to social relation besides the economic considerations to send money. Accordingly, they remit based on the following: first, transfer may be reciprocally as the migrant is accumulating social obligation from the people to whom they remit in the form of child care, transfer of goods with traditional or sentimental value. Second, the migrant remitting maybe conforming to moral values learn as being a member of the group. Finally, Remitters increase their social visibility in the sending and receiving countries, in addition to avoiding the sanctions by the social group if they do not remit.

Theory of Pure Altruism:

According to this theory because of the migrants take care of their families wellbeing simply they remit the

money to them. Unless the income of remitter is below subsistence level as their income increase the amount of money they remit to their family also increase through time.

Theory of Self Interest:

In the case of pure self-interest migrants send their money in order to compensate their family for the past expenditures their families spend on them for education and for the cost related to the migration process. They also remit money to purchase durable commodities, invest in housing, land and other fixed asset business activities.

Portfolio Diversification Theory:

The decision to remit is sometimes influenced by the offer of a risk-return option to be weighed against local sources of income. One of the determinants of the return is the rate of interest that the remitter will receive on funds e.g. positive real interest rate. Consideration of interest rate differential on comparable deposit account offered in host and home countries, black market exchange premium, the return on real estate in the home country, inflation rates and other returns.

Relationship between Remittance and Economic Growth:

The debate of whether remittances have a significant impact on the economy or not is the continuing debate among many economists. For those who say remittance have no significant impact on the economy, they argue that the money sent was spent for consumption purpose rather than spending on productive assets (Stahl and Arnold, 1986). Remittances even distort rather than promoting economic growth and structural change, because they may point government policies in the wrong direction away from measures of improving structural changes and rendering competitive the remittance recipient countries (Glytsos, 2002). On the other hand, those supporting the idea that remittance has a positive impact on the economy reason out through the development of financial institutions Fayissa (2008), it's used as foreign exchange Ratha (2005), reduce its citizens debt, and smoothening consumption (Stahl and Arnold, 1986). In countries of high emigration, remittances may induce structural transformation that has both economic and social implications on poverty, income distribution and economic welfare, which are impacting on consumption patterns and savings with ultimate effects on growth and trade (Glytsos, 2002). Workers' remittance has a significant impact on the economy regardless of whether it's used for consumption or investment. As Ratha (2005) stated that the inflow of remittance to developing countries were the largest share of GDP and often the

improvements in policies and relaxation of foreign exchange control encourages the use of remittance for investment in the 1990s.

This paper tries to shed some light on the debates on whether remittances have a significant effect on economic growth or not as of in our country.

Empirical Review:

There are a lot of empirical literatures that explain the relationships between remittance and economic growth. As the World Bank (2005) worked by Dilip Ratha the impact of remittance for the economy is more significant for low income countries rather than other developing countries. In 2003, remittances inflow to low-income countries was 3.3 percent of GDP and 18.5 percent of imports; in the upper middle-income countries they were 1.3 percent of GDP and 4 percent of imports. According to Sami Ben Mim and Ali (2012)'s work on the relation between remittance and economic growth using panel data for MENA countries over the period 1980-2009, the study shows that remittance can enhance the economic growth by encouraging human capital when the remitted income is invested. In a similar way, the finding studied by Pablo A. Garcia-Fuentes and Kennedy (2009) using panel data for a sample of 14 Latin American and Caribbean (LAC) countries during the period 1975-2000, remittance have a positive significant impact on economic growth.

The relationship between remittance and economic growth has also been studied by Learnmore Muchemwa (2012) using twenty nine SSA countries over the period 1980-2008. According to his finding there is statistically positive significant effect of remittance in SSA. Najid Ahmad et al. (2013) also founds that foreign remittances have positive and significant relation to GDP of Pakistan while inflation and exchange rate has a negative effect on economic growth. Foreign direct investment has positive but insignificant relation with GDP of Pakistan.

A Current study by Shimul (2013) is that as he attempted at finding the relationship between remittance flow and economic development using time series data of 1976-2007. He used the two modern time series econometric approaches bound testing Autoregressive Distributed Lag Models or Unrestricted Error Correction Model and Engle-Granger two step procedure for co-integration test - were executed and this study finds that the remittance is not a significant contributing factor for the GDP per capita both in the short and long run for Bangladesh.

The studies of time series analysis held in China and Korea by Jawaid and Raza (2012) from 1980 to 2009 results in a positive significant long run and short run relationship between remittance and economic growth in Korea, even though a significant negative relationship in the long run and the short run exist between remittance and economic growth in China.

Again, according to the work of Karagoz (2009), time series regression for the period of 1970 to 2005 in Turkey, remittance have statistically meaningful but negative impact on economic growth.

As Kyophilavong et al. (2013) work indicates they examine the causal relations between remittance, financial development, and economic growth in developing countries during the period of 1971–2010. They apply new methods based on simulations. ARDL-ECM estimation results reveal that the relations between remittance, financial development, and economic growth are country specific. Long-run bidirectional causality exists between remittance and economic growth in Bangladesh. The short-run unidirectional causality between economic growth and remittance exists in India. Reverse causality exists in Mexico and the Philippines.

In addition to the above findings, there are also different literatures related to the negative impact of remittance on the economic growth of remit receiving countries. Edwards (2010) tries to answer the question “Do Remittances Promote More Economic Growth than Foreign Aid in Latin American and Caribbean Countries?” For his study, he selected 22 LAC for the period of 1979 – 2008 for panel estimation; the analysis suggests that remittances and foreign aid inflow are negatively associated with LAC’s economic growth. This finding contradicts with Pablo A. Garcia-Fuentes and Kennedy (2009) for the same LAC economies, even though the number of countries selected for panel estimation the proxies used are different.

According to different scholars (Kapur, 2004; Aldaba, 2004 and Abdih et al. 2008), the reason given behind the negative impact of remittances to economic growth is that remittances create a *moral hazard problem* where some governments in developing countries are negligent and careless to impose necessary economic reforms when remittances deteriorate the economy. Remittance also deteriorates the economy if the money spent for the purpose of destabilizing and helping the conflict making groups in the country (Sorensen et al., 2002; Van Hear, 2003 and Ghosh, 2006). The financial flow or funds are diverted from development activities to achieve an opposite repressive, political and ideological objective at home. Remittances are also an important mechanism to support terrorism, civil wars and liberation struggles (Kapur, 2004; Collier, 2000; Fair, 2007; Skrbis, 2007; Sheffer, 2007; and Bamyeh, 2007).

As Chami, et al, (2003) remittances have also an adverse impact on the economic growth in that it may reduce the labor market or supply in home country and this could be more associated with adverse labor market development if the emigrant peoples are the educated ones.

Large and the persistence inflow of remittances also causes an appreciation of the real exchange rate and this appreciation of exchange rate in the long run on economic growth depends on the structural economic

shift and the extent to which it affects remittances, savings, investments, and productivity. An appreciation in real exchange rate will hamper economic growth in the long run (a Dutch disease effect) (Amuedo-Dorantes and Pozo, 2004).

An Overview of Ethiopian Economic Growth and Remittances:

It has been a short time since 1970’s Ethiopians started to leave their homeland and migrate to various countries due to political, economic and social reasons. Ethiopia has also been known as the destination country for Jews, Armenians, Arabs, Greeks, Turkish, etc. Migrant’s documents indicate that during the emperor’s time and following the expansion of modern education in the country, Ethiopians used to come back and serve their country after they completed their education in Europe and North America.

Ethiopia is among the countries whose people migrate at a very high rate. Currently it is estimated that not less than 2 million Ethiopian Diaspora are residing in North America, Europe, the Middle East, Australia and Africa. It is understood that Diaspora in North America and Europe have better income and educational status (FDRE, 2013). The World Bank reported that an annual growth rate of emigrant from Ethiopia is 0.6% of the population in 2005.

Migration can be viewed differently from the angle of the source and the destination country. There is a tendency to consider migration as completely harmful as it drains educated manpower of the source countries, while on the other hand it is believed that the Diaspora could contribute to the development of their home countries through remittance, knowledge and technology transfer, investment, etc.

Remittances to developing countries are estimated at \$404 billion in 2013, up 3.5 percent compared with 2012. Growth in remittance flows to developing countries is expected to accelerate to an annual average of 8.4 percent over the next three years, raising flows to \$436 billion in 2014 and \$516 billion in 2016.

As shown in Figure 2 below the inflow of remittances to the country reaches above \$352 million in 2012 with an annual average growth rate of 50%. From the figure the growth rate of remittances has an irregular shape and it has no consistency, but when we look its trend somehow it shows an increasing which shown by dotted line in the figure.

An emerging risk in the 5 months since November 2013, consideration affecting migration flows from and remittance flows to SSA is an increase in deportations in receiving countries. Around 144,000 Ethiopians have returned home, deported from Saudi Arabia, which began a crackdown on undocumented foreign workers in 2012. The Government of Ethiopia is expecting 30,000 more migrants to return from Saudi Arabia (World Bank, 2014).

Ethiopians spend their remittance earnings on consumer goods and alleviating family hardships. Remittance expenditures on consumption goods, particularly imports, therefore, is believed to have played their own roles in exacerbating the high cost of living in the country and widening its trade deficit, in addition to raising the Birr's real exchange rate and escalating real estate prices.

According to the report of IFAD (2007), the typical amount of money a remittance sender sends to developing countries is \$100-\$300 per month. Approximately 80 to 90% of remittances go towards consumption, while 10 to 20 % are used for formal or informal savings and investments. World Bank (2010) household surveys in Ethiopia on remittances also shows that, about 57% of the money used for daily expenses, 29% is used for university education, 9% for small business, 4% for saving account and 1% for housing purposes.

The overall economic growth of the country, there is an increasing trend in real gross domestic product. The Ethiopia Economic update notes that in the past decade, the country has had high economic growth, averaging 10.7% per year. In 2012, Ethiopia was the 12th fastest growing economy in the world, and if this historic growth continues, it could become a middle income country in just 12 years which is depicted in Figure 1 (World Bank, 2014).

Figure 3.1 Growth Rate of Ethiopian GDP

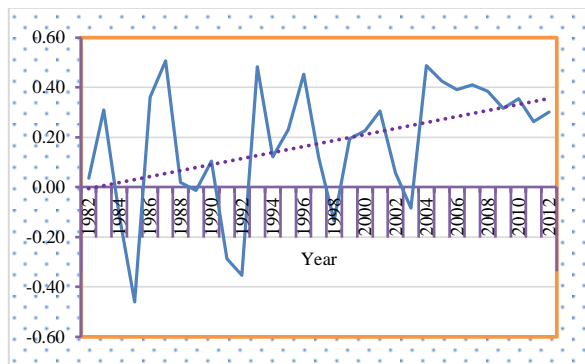
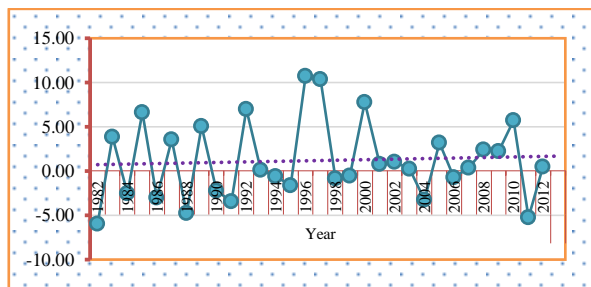


Figure 3.2 Growth Rate of Remittances

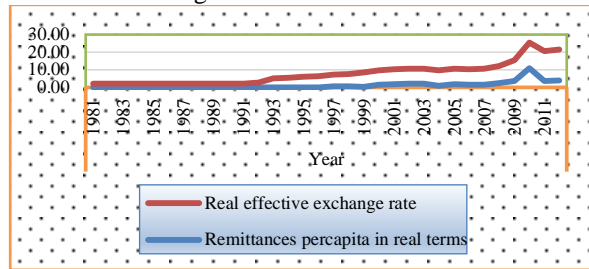


Remittances and Real Effective Exchange Rate:

The following Figure 3 shows that remittances per capita and real effective exchange rate seem to be positively connected over the period over the period

1981 – 2012. This could be due to the fact that in our case the real exchange rate is managed exchange rate.

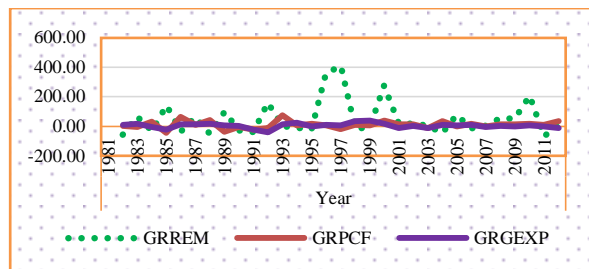
Figure 3.3 Remittances Per Capita and the Real Effective Exchange Rate



Remittances, Fixed Investment and Total Government Consumption Expenditure:

Figure 4 clearly shows that even though the growth rate of remittance is irregular, the growth rate of remittances and gross rate of gross fixed investment in Ethiopia seem to be negatively connected over the period 1982 - 2006. This implies that as more the inflow of remittances increase in the country the less will be the level of fixed investment. An increase in the flow of funds in the form of remittances may be spent on non-productive (household or personal consumption of goods and services) activities.

Figure 3.4 Remittances, Fixed Investment and Total Government Consumption Expenditure



Methodology:

Econometricians and other scholars have developed several methods to conduct time series analysis. The two-step residual based Engle-Granger (1987) test and the maximum likelihood based Johansen (1991, 1995) and Johansen-Juselius (1990) tests are the most commonly used methods of time series analysis. Engle-Granger Approach is a residual based test of co-integration and requires the integration of the same order for all variables in the model. Once the variables are found to have the same order of integration, it takes two steps. The first step is estimating the co-integrating test through OLS. In this step, residual calculated from the estimated equation and then its stationarity is tested. If the residuals are stationary, it implies that the variables are co-integrated (Gujarati, 2004). Estimation of the error correction model is the

second step of Engle-Granger approach, where the error correction term is the residual from the co-integrating relationship, lagged once.

However, using Engle-Granger method has some weaknesses. For instance, if we have more than two variables, there may be more than one co-integrating vectors. But it can find out only one co-integrating vector. Second, a co-integration test may depend on the direction of the variable put in the left side of the co-integration. That means, the method does not allow the variables in the right hand side to be potentially endogenous (Enders, 1996). In addition, since Engle-Granger's method is a two-step estimation procedure, any error introduced in the first step may carry over into the second step, making the results unreliable.

Johansen (1990), maximum Likelihood co-integration method is developed to solve the shortcomings of Engle-Granger procedure. Basically, it can estimate more than one co-integration relationship, if the data set contains two or more time series. It relies heavily on the relationship between the rank of a matrix and its characteristic roots.

However, since Johansen co-integration technique require that all the variables in the system have the same order of integration, the application of the Johansen technique will fail when the underlying regressors have a different order of integration (Pesaran *et al.*, 2001). That means the trace and maximum Eigen-value tests may lead to erroneous co-integrating relations with other variables in the model when integrate of order variables are present in the system (Harris, 1999).

Due to the presence of shortcomings and pre-request that all the variables are of the same degree of integration in the above approaches, the recently developed autoregressive distributed lag (ARDL) approach has become popular method to test the existence of the long - run relationship between variables.

The ARDL model has mainly an advantage of flexibility to apply it when the variables are of a different order of integration. The standard Wald or F-statistics used in the bounds test has a non-standard distribution under the null hypothesis of no co integration relationship between the examined variables, irrespective of whether the underlying variables are integrated of order zero I(0), integrated of order one I(1) or mutually integrated but it is still pre-requisite that the dependent variable is of I(1) in levels and none of the explanatory variables is I(2) or higher order (Pesaran and Pesaran 1997). In addition, the model takes sufficient numbers of lags to capture the data generating process in a general-to-specific model. Moreover, it can be applied to a small sample size study (Pesaran *et al.*, 2001). It also provides unbiased estimates of the long-run model and valid t-statistic even when some of the regressors are endogenous (Harris and Sollis, 2003). Furthermore, a dynamic Error Correction Model (ECM) can be derived from ARDL

through a simple linear transformation (Pesaran *et al.*, 2001). The ECM integrates the short-run dynamics with the long-run equilibrium without losing long-run information. It is also argued that using the ARDL approach avoids problems resulting from non-stationary time series data.

The paper utilized log-linear modelling specification. This paper used the natural logarithm of all variables because many economic series such as GDP show growth in approximately exponential terms, so the logarithm of the series grows approximately linearly. Standard deviation of many economic time series is approximately proportion to its level and standard deviation of the logarithm of the series is approximately constant. In either case it will be useful to transform the series so that changes in the transformed series are proportional changes in the original series.

The annual time series data on remittance (REMI), secondary school enrollment (ENR), gross fixed capital formation (PCF), total government expenditure (GEXP), and economic growth (GDP) during 1981 to 2012 was taken from the World Development Indicators (WDI). All of their values are in real term. As the objective of the study is to show the impact of remittance on economic growth, the dependent variable of the model is GDP per capita while remittance (REM_t) is independent variable along with the traditional sources of economic growth, such as investment in physical capital formation (PCF_t) and human capital formation (ENR_t), and total government expenditure (GEXP) is used as a control variable as done in many literatures.

Hence, in this study, the ARDL approach is adopted to test the interrelationship between Economic growth and remittance.

Equation for given variables:

$$y_t = \beta_0 + \beta_1 X_t + u_t \dots (3.1)$$

Where y represents the dependent variables, X represents the vector of explanatory variables, β_0 presents the omitted variable coefficient or constant, β_1 represent coefficients with explanatory variables and u is the error term.

Based on the above equation, the theoretical equation set as follows for this specific study with a simple log-linear Cobb-Douglass production function is:

$$GDP = f(REM, PCF, ENR, GEXP, \varepsilon) \dots (3.2)$$

$$\ln GDP_t = \beta_0 + \beta_1 \ln REM_t + \beta_2 \ln PCF_t + \beta_3 \ln ENR_t + \beta_4 \ln GEXP_t + \varepsilon_t \dots (3.3)$$

Where:

✓ $\beta_0, \dots \beta_5$ are the parameters,

✓ $\ln GDP_t$ is the natural log of real GDP per capita.

Gross domestic product is the market value of all final goods and services produced within an economy in a given period of time is used as a proxy to measure economic growth (as the dependent variable).

- ✓ $\ln REM_t$ is a log of remittances per capita. Like (Karagoz, 2009; Edwards, 2010; Learnmore Muchemwa, 2012; and Shimul, 2013) total remittance inflow is taken to measure the amount of money countries received from their citizen living abroad and therefore it have an impact on economic growth of the country regardless of its direction.
- ✓ $\ln PCF_t$ is the log of gross physical capital formation used as a proxy for investment in physical capital. A physical capital formation which is also termed as ‘investment’ is an important macroeconomic variable in any economy and it has a positive impact on economic growth.
- ✓ $\ln ENR_t$ is log of secondary school enrollment used as a measure of investment in human capital, which has a positive effect on the economic growth of developing countries (Schultz, 1980, Romer, 1986, Lucas, 1988, Barro, 1990). Consequently, for high labor productivity, investment in human capital is termed as endogenous factor that enhance the accumulation of physical capital through knowledge, skills, attitudes and health status of the people who participate in the economic process.
- ✓ The log of total government expenditure ($\ln GEXP$) used as to capture the countries expenditure which have also a positive impact on the economy.
- ✓ To examine the existence of short run and the long run relationship the general version of ARDL (p, q) model for above equation can be written as follows:

$$\begin{aligned} \ln GDP_t = & \alpha_0 + \gamma_0 \ln GDP_{t-1} + \dots + \gamma_p \ln GDP_{t-p} + \\ & \rho_{10} \ln REM_t + \dots + \rho_{1q} \ln REM_{t-q} + \rho_{20} \ln PCF_t + \dots + \\ & \rho_{2q} \ln PCF_{t-q} + \rho_{30} \ln ENR_t + \dots + \rho_{3q} \ln ENR_{t-q} + \\ & \rho_{40} \ln GEXP_t + \dots + \rho_{4q} \ln GEXP_{t-q} + \\ & u_t \dots \dots \dots (3.4) \end{aligned}$$

The above model is said “autoregressive” since it includes *p* lags of the dependent variable and it is also a “distributed lag” model because it includes *q* lags of explanatory variables. This equation can be summarized as follows by taking some mathematical techniques.

$$\begin{aligned} \Delta \ln CRGDP_t = & \alpha_0 + \sum_{i=1}^p \delta_i \Delta \ln GDP_{t-i} \\ & + \sum_{i=0}^q \beta_{1i} \Delta \ln REM_{t-i} \\ & + \sum_{i=0}^q \beta_{2i} \Delta \ln PCF_{t-i} \\ & + \sum_{i=0}^q \beta_{3i} \Delta \ln ENR_{t-i} \\ & + \sum_{i=0}^q \beta_{4i} \Delta \ln GEXP_{t-i} + \lambda_1 \ln GDP_{t-1} \\ & + \lambda_2 \ln REM_{t-1} + \lambda_3 \ln PCF_{t-1} \\ & + \lambda_4 \ln ENR_{t-1} + \lambda_5 \ln GEXP_{t-1} \\ & + u_t \dots \dots \dots (3.5) \end{aligned}$$

In the above equations, the terms with the summation signs represent the error correction dynamics and α_0 ,

$\delta_i, \beta_1, \beta_2, \beta_3,$ and β_4 are coefficients that measure the short-run relationship while $\lambda_1, \lambda_2, \lambda_3, \lambda_4, \lambda_5$ are coefficients that measure long-run relationship.

This equation takes three steps in examining the relationship

1st: Test for non-existence of I(2) or above for regressors and test for existence of long-run relationship

2nd: Examining the long-run relationship

3rd: ECM estimation

Even if the ARDL approach does not require the integration of the same order for all regressors in the equation, it pre-requisites for test of non-existence of all regressors with integration of order two, I(2), or above to avoid the possibility of spurious regression and invalid F-statistics computed (Pesaran, et al., 2001).

If the variables found I (0), I (1) or mutually integrated, the first step in ARDL approach is to test whether there is a long run relationship between the variables exist or not. Bounds test for co-integration carried out as proposed by Pesaran and Shin (1999) and Pesaran, et al., (2001).

The hypotheses are shown below:

H₀: $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$ there is no long run relationship among the variables.

H₁: $\lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 \neq 0$ there is a long run relationship among the variables.

These hypotheses are tested by non-standard F-statistics. The critical values of the F-statistics for this test are available in Pesaran et al., (2001). On the other hand, Narayan (2005) also estimated his own critical values by arguing that the critical values provided by Pesaran et al., (2001) are appropriate for relatively large sample sizes. He said that using such critical values for small sample size may produce misleading results. As a result, Narayan (2005) has generated a new set of critical values for small sample sizes ranging from 30 to 80 observations based on similar GAUSS code¹ which was employed by Pesaran et al., (2001). They provide two sets of critical values, namely the upper bound values and the lower bound values.

If the F-test statistic exceeds the upper critical value, the null hypothesis of no long-run relationship can be rejected regardless of whether the underlying orders of integration of the variables are I(0) or I(1). Similarly, if the F-test statistic falls below the lower critical value, the null hypothesis is not rejected. However, if the sample F-test statistic falls between these two bounds, the result is inconclusive. When the order of integration of the variables is known and all the variables are I(1), the decision is made based on the

¹GAUSS is a programming language designed for matrix-based operations and manipulations, suitable for high level statistical and econometric computation.

upper bounds. Similarly, if all the variables are I(0), then the decision is made based on the lower bound.

Once the co-integration is confirmed, the second stage in ARDL is an estimation of long-run coefficients and the conditional ARDL long-run model can be estimated as:

$$\begin{aligned} \ln CRGDP_t = & \alpha_0 + \sum_{i=1}^p \delta_i \ln GDP_{t-i} \\ & + \sum_{i=0}^q \beta_{1i} \ln REM_{t-i} \\ & + \sum_{i=0}^q \beta_{2i} \ln PCF_{t-i} \\ & + \sum_{i=0}^q \beta_{3i} \ln ENR_{t-i} \\ & + \sum_{i=0}^q \beta_{4i} \ln GEXP_{t-i} \\ & + u_t \dots \dots \dots (3.6) \end{aligned}$$

The third stage entails the estimation of the error correction equation using the differences of the variables and the lagged long-run solution, and determines the speed of adjustment of returns to equilibrium.

$$\begin{aligned} \Delta \ln CRGDP_t = & \alpha_0 + \sum_{i=1}^p \delta_i \Delta \ln GDP_{t-i} \\ & + \sum_{i=0}^q \beta_{1i} \Delta \ln REM_{t-i} \\ & + \sum_{i=0}^q \beta_{2i} \Delta \ln PCF_{t-i} \\ & + \sum_{i=0}^q \beta_{3i} \Delta \ln ENR_{t-i} \\ & + \sum_{i=0}^q \beta_{4i} \Delta \ln GEXP_{t-i} + \partial ECM_{t-1} \\ & + u_t \dots \dots \dots (3.7) \end{aligned}$$

Where ∂ is the speed of adjustment parameter and ECM_{t-1} is an error correction term lagged by one period. The term ECM is derived as the error term from the corresponding long run model whose coefficients are obtained by normalizing the equation. Finally, other diagnostic tests are applied to detect serial correlation, Heteroscedasticity, conflict to normality. Stability of short-run and long-run coefficients is also tested by employing cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) tests. The CUSUM and CUSUMSQ statistics are updated recursively and plotted against the break points. If the plots of CUSUM and CUSUMSQ statistics stay within the critical bonds of 5 percent level of significance, the null hypothesis of all coefficients in the given regression are stable and cannot be rejected.

Data Sources and Measurement of Variables:

The study has used 32 years annual data from 1981-2012. Most of the data is collected from World Bank (WB) CD-ROM. Some of the data is also collected from National Bank of Ethiopia (NBE). The detailed sources of data for each variable are described in table 1.

Table 4.1 Types of variables and their sources

Types of Variables	Unit/Proxy	Source of Data
Real GDP	Total real GDP	World Bank
Remittance	Total remittance inflow	World Bank
Physical capital formation	Real gross capital formation	World Bank
Human capital	Total secondary school enrolment	World Bank
Total government expenditure	Total government expenditure (recurrent and capital)	National Bank of Ethiopia

Note: All of the variables are included in the model in real terms

Result and Discussion:

Unit Root Test:

Before testing of co-integration, all the series are tested for stationarity. Augmented Dickey Fuller (ADF) test is employed, which is based on the regression equation with the inclusion of a constant but, no trend and regression equation with both constant and first difference. Unit root test results are presented in Table 2 below.

Table 5.1 Augmented Dickey Fuller Unit Root test

Variables (At level and 1 st difference)	t-statistics (with intercept but no trend)	t-statistics (with intercept and trend)
LnRGDP	0.060108	-0.053190
Δ LnRGDP	-0.771545***	-1.803475**
LnREM	-0.024790	-0.398552
Δ LnREM	-1.223228***	-1.224918***
LnCAPF	0.004201	-0.172710
Δ LnCAPF	-1.917320***	-2.259191***
LnHCAP	0.013859	-0.236507
Δ LnHCAP	-1.342980***	-1.357109***
LnGEXP	0.027705	-0.154901
Δ LnGEXP	-0.868262***	-0.926046***

Source: own computation using *Eviews7*.

Note: The rejection of the null hypothesis is based on MacKinnon (1996) critical values. Schwarz

information criterion (SC) is used to determine the lag length while testing the stationarity of all variables. The ***, ** and * sign indicates the rejection of the null hypothesis of non-stationary at 1%, 5% and 10% significant level respectively.

The unit root test result in the Table 2 confirms that all of the variables are stationary in their first difference at one percent significance level, including intercept and trend and/or no trend except real GDP which is stationary at the five percent significance level with intercept and trend. This shows that the null of non-stationarity is not rejected for all variables because they are stationary in their first difference. Therefore, nothing restricts us from using the ARDL approach (bounds test approach of co-integration) developed by Pesaran *et al.*, (2001). This result also ensures that none of the variables are integrated of order two or above.

Long Run ARDL Bounds Tests for Co-integration:

The next step is to test for the existence of long-run relationships among the variables in equation 3.6. The Schwarz-Bayesian criterion (SBC) is used to determine the optimal number of lags to be included in the conditional ARDL model. So, a Schwarz-Bayesian criterion was taken as a guide and a maximum appropriate lag order of two was chosen in determining the conditional ARDL model. The Bound test for co-integration is run to check the joint significant of the coefficients in the specified conditional ARDL model. The Wald test is conducted for this equation by imposing restrictions on the estimated long run coefficients of all lagged level variables in equation 3.6 and the F-statistic found 17.18607 as shown in Table 3.

Table 5.2 Bound test and Critical value

Test statistic	Value	Bound critical values				
		Statistically significance Level	Based on Pesaran et al. value*		Based on Narayan value**	
			I(0)	I(1)	I(0)	I(1)
F-statistic	17.18607	1%	3.29	4.37	4.28	5.84
		5%	2.56	3.49	3.058	4.223
		10%	2.20	3.09	2.525	3.56

Source: Wald test is own computation by *Eviews7.0*
NB:*source from Pesaran et al., (2001) critical values for Bound test (case CI (ii))
 ** Source from Narayan (2005) critical values for bound test (case II)
 Calculated *F*-statistic (*F*-statistic = 17.18607) presented together with critical value, which based on critical value suggested by Pesaran *et al.*, (2001) and Narayan (2005), in the above table is higher than the upper bound critical value at 1 percent of significance level in both cases, using restricted intercept and no trend. This implies that the null hypothesis of no co-integration can be rejected at 1 percent statistically significant level and therefore, there is an evidence for

a long run relationship among Economic growth and variables in the model.

Long-Run Model Estimation:

After confirming the existence of the long-run relationship between variables, the next step in ARDL is to estimate the long-run coefficients. In doing so, the Schwarz-Bayesian criteria is chosen with two maximum lag order and found the ARDL (1, 2, 0, 2, 0) equation. The estimated long-run relationships between the variables are estimated and the estimated coefficients are reported in Table 4.

The R-squared value of the estimated model reveals that 99.41 percent of the variation in GDP is substantially explained by the variables included in the model. The F-statistic also indicates that the model is statistically significant as a whole. Since the Durbin Watson statistic is also near to two and greater than the upper critical value of DW-test, there is no spurious relationship between the variables (there is no serial autocorrelation).

Table 5.3: Estimated Long Run coefficients using the ARDL approach

ARDL (1,2,0,2,0) selected based on Schwarz Bayesian Criterion
 Dependent variable is GDP
 30 observations used for estimation from 1983 to 2012

Regressors	Coefficient	Standard Error	T-Ratio	[Prob]
REM	-0.057257	0.025580	-2.2384	[0.037] **
CAPF	0.36608	0.10298	3.5548	[0.002] ***
ENRL	0.16612	0.066633	2.4931	[0.022] **
GEXP	0.30553	0.080085	3.8151	[0.001] ***
C	13.2407	1.8067	7.3287	[0.000]***
T	-0.0092328	0.0078635	-1.1741	[0.255]
R-Squared	.99418	R-Bar-Squared	.99112	
S.E. of Regression	.040944	F-stat.	F(10, 19) 324.6642	[.000]
Mean of Dependent Variable	26.1023	S.D. of Dependent Variable	.43449	
Residual Sum of Squares	.031852	Equation Log-likelihood	60.1496	
Akaike Info. Criterion	49.1496	Schwarz Bayesian Criterion	41.4430	
DW-statistic	1.9014	Durbin's h-statistic	.43543	[.663]

Source: own computation by Microfit4.1

*, ** and *** indicates that the series are significant at 10, 5 and 1 percent, respectively.

As it is shown in Table 4, the estimated coefficients of real capital formation, secondary school enrollment and total government expenditure have an expected positive sign while remittance has negative sign. In addition to their signs remittances, capital formation, secondary school enrollment and total government expenditure are statistically significant.

➤The estimated coefficient of the long-run relationship shows that REM, the central variable of this study, has negative and statistically significant impact on the economic growth in the long run over GDP at 5 percent.

A one percent increase in REM holding other things constant leads to approximately 0.057 percent decrease in GDP in long-run. This result is consistent with different theoretical arguments and empirical studies (Chami et al. 2003; Kapur, 2004; Aldaba 2004; Abdih et al. 2008; Jawaid and Raza, 2012; Dilip

Ratha, 2007; and Edwards, 2010). There are different arguments regarding the negative impact of remittance on economic growth in the long run. One is that, remittance can create a moral hazard in a place where government fails to solve the deteriorating economy due to trade deficit or higher unemployment as it anticipates receiving money transfers from migrant workers and it reduce the quality of governance by acting buffer between government and its citizen, in this regard government divert this resource from productive activities to their own purpose. In the long run expecting remittances from abroad by remittance receiving societies also give rise moral hazard problem. Which means that, the productive families before receiving remittances may turn to be unproductive and even they immersed into indebtedness by expecting money from their relatives living abroad and even it reduce the labor market in the home country by creating more leisure with the performance of less work. The other justification for the negative impact of remittance on the economic growth is that the inflow of funds can result in changes in the exchange rate which is called ‘the Dutch disease’. The real appreciation of currency will have an adverse effect on the economy through appreciating real exchange rate and result in deterioration of the balance of trade by stimulation of import and reduce the export level.

This result is also consistent with the result of descriptive statistics, which reveals that remittances have a negatively correlated with fixed investment in Ethiopia. A more increase in remittances will result in a decrease in fixed investment. This may be that the money received in the form of remittances spent in educating their child, used for daily expense on consumption of goods and services and help the society in reducing poverty rather than building a fixed investment (Dejene, 2005; World Bank, 2010; Beyene, 2011; and Diliph, 2013).

➤ The long run results reported in Table 3 shows that the physical capital formation is the key determinant to GDP. The coefficient of CAPF is found 0.366 and statistically significant at one percent.

This result revealed that an increase in growth of real CAPF leads to an increase in economic growth in the long-run. The coefficient 0.366 indicates that holding other things remain constant a one percent change in CAPF brought a 0.366 percent change in GDP.

➤ Secondary school enrolment (proxy to measure human capital) is the other most influential variable in this study that is found to be positive and statistically significant at five percent probability level and with positive impact on economic growth.

Holding other things remain constant a one percent increase in secondary school enrollment has resulted in 0.5096 percent change in real GDP.

➤ Total government expenditure is the other statistically significant variable that found positive

impact on economic growth in the long-run at the one percent level of significance.

Holding other things remain constant a one percent increase in total government expenditure has resulted in 0.3055 percent change in real GDP.

Long- Run Diagnostic Test:

To check the validity of the estimated long-run model, some diagnostic test is undertaken. The results reported in Table 4 indicate that there are no error autocorrelation and Heteroscedasticity, and the errors are normally distributed. The Ramsey functional form test confirms that the model is specified well. Hence, the relationship between the variables is valid.

Table 5.4 Long-run diagnostic test

Test Statistics	LM Version	F Version
Serial Correlation test	CHSQ(1)= 0.34173[0.559]	F(1, 18)= 0.20740[0.654]
Functional Form test	CHSQ(1)= 0.056381[0.812]	F(1, 18)= 0.033892[0.856]
Normality test	CHSQ(2)= 2.7965[0.247]	Not applicable
Heteroscedasticity test	CHSQ(1)= 0.87101[0.351]	F(1, 28)= 0.83725[0.368]

Source: Author’s Calculations using *Microfit* 4.1.

Note: The test for serial correlation is the LM test for autocorrelation, the test for functional form is Ramsey’s RESET test, the test for normality is based on a test of skewness and kurtosis of residuals, the test for Heteroscedasticity is based on the regression of squared residuals on squared fitted values.

In addition to the above diagnostic tests, the stability of long-run estimates has been tested by applying the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) test. Such tests are recommended by Pesaran and Shin (1999).

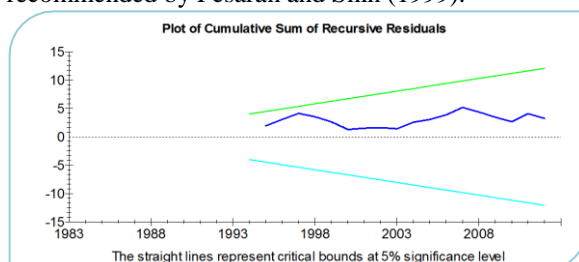


Figure 5.1 Plot of Cumulative Sum of Recursive Residuals

Since the test statistics of this stability test can be graphed, we can identify not only their significance, but also at what point of time a possible instability (structural break) occurred. If the plot of CUSUM and CUSUMSQ statistic moves between the critical bounds (at 5% significance level), then estimated coefficients are said to be stable.

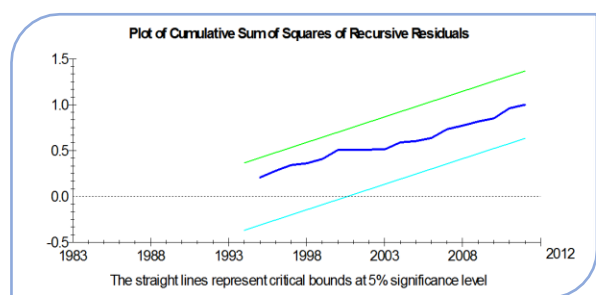


Figure 5.2 Plot of Cumulative Sum of Squares of Recursive Residuals

The results of both CUSUM and CUSUMSQ test are reported in Figures 5 and 6. As can be seen from the first figure, the plot of the CUSUM test did not cross the critical limits. Similarly, the CUSUMSQ test shows that the graphs do not cross the lower and upper critical limits. So, we can conclude that long and short runs estimates are stable and there is no any structural break. Hence the results of the estimated model are reliable and efficient.

Short-run Error Correction Estimates:

After confirming for the existence of long-run relationship and estimation of long-run coefficients in the ARDL equation, the short-run ECM is estimated. The coefficient of determination (R-squared) explains that about 75.95% of variation in GDP is attributed to variations in the explanatory variables in the short-run model. In addition, the DW statistic does not suggest autocorrelation and the F-statistic is quite robust.

Table 5.5 Error Correction Representation for the Selected ARDL Model

ARDL(1,2,0,2,0) selected based on Schwarz Bayesian Criterion				
Dependent variable is ΔGDP				
30 observations used for estimation from 1983 to 2012				
Regressors	Coefficient	Standard Error	T-Ratio	[Prob]
ΔREM	0.033197	0.016045	2.0690	[0.051] [*]
ΔREM ₁	0.024068	0.014344	1.6779	[0.108]
ΔCAPF	0.22062	0.043669	5.0521	[0.000] ^{***}
ΔENRL	-0.0096568	0.056968	-0.16951	[0.867]
ΔENRL ₁	-0.15537	0.063918	-2.4308	[0.024] ^{**}
ΔGEXP	0.18413	0.074408	2.4746	[0.022] ^{**}
ΔC	7.9797	2.7464	2.9055	[0.008] ^{***}
ΔT	-0.0055643	0.0052995	-1.0500	[0.306]
ECM(-1)	-0.60266	0.14321	-4.2082	[0.000] ^{***}
ECM = Y + .057257*X1 - .36608*X3 - .16612*X4 - .30553*X5 - 13.2407*C + .0092328*T				
R-Squared	.75959	R-Bar-Squared	.63306	
S.E. of Regression	.040944	F-stat.	F(8, 21) 7.5040[.000]	
Mean of Dependent Variable	.047020	S.D. of Dependent Variable	.067592	
Residual Sum of Squares	.031852	Equation Log-likelihood	60.1496	
Akaike Info. Criterion	49.1496	Schwarz Bayesian Criterion	41.4430	
DW-statistic	1.9014			

Source: own computation by Microfit4.1

*, ** and *** indicates that the series are significant at 10, 5 and 1 percent, respectively.

The coefficient of the lagged error-correction term is significant at 1% significant level with the expected sign (i.e., Negative), which confirms the result of the bounds test for co-integration. Its value is

found -0.60266 which implies that the speed of adjustment to equilibrium after a shock is high. Approximately 60.1 % of disequilibria of the previous year's shock converge back to the long-run equilibrium in the current year. Such highly significant Error correction term is another proof for the existence of a stable, long-run relationship among the variables (Banerjee et al., 1993).

Most of the results are similar in both long-run and short-run. However, some difference exists in short-run that remittance the central variable of the model have a positive impact and significant relationship with economic growth in the short-run at ten percent significance level while it is found negative and significant at one percent in long-run. Holding other things constant a one percent change in remittances has a 3.32 percent change in economic growth of the country.

Fixed capital formation has a significant impact on economic growth with expected sign in the short run at one percent significance level. This shows that, holding other things remain constant a one percent increase in fixed capital formation has a twenty two percent increase in economic growth. Total government expenditure has also a significant impact on economic growth with expected sign in the short run at the five percent significance level. This reveals that, holding other things remain constant a one percent increase in total government expenditure has eighteen percent increase in economic growth.

Secondary school enrollment has no significant impact in the short run on the economy. Even its one period lagged value has a significant negative impact on the economy which is unexpected sign. The sign may contradict with economic growth theories and it's difficult to justify the exact reason with this research, in my opinion, this could be due to the reason that in the short run the expenditure that the government spent on education to construct schools, to publish books and salary payment for teachers is higher than the return expected from education. The other reason could be that those educated students may not engage on productive works or they may not get a job in the short run. This implies that the return from education have an impact on economic growth in the long run. Furthermore, detailed research should be done to identify the reason behind such result (unexpected sign of ENRL).

Conclusion:

The main purpose of this thesis is to investigate the impact of remittances on Ethiopian economic growth by employing time series data from 1981 – 2012 from the World Bank and National Bank of Ethiopia. Both theoretical and empirical scholarly articles (literatures) are reviewed on the impact of remittances on economic growth. Based on these there are different arguments regarding its impacts and there is no single

conclusion towards the direction of its effect on economic growth; in some countries, remittances have a positive effect on economic growth, while in some other countries there is an inverse relationship and there are also countries where remittances have no any impact on economic growth.

To this end, an econometric procedure is taken to regress the variables those have an impact on Ethiopian economic growth (namely, gross domestic product, remittances, fixed capital formation, secondary school enrollment and total government expenditure). Auto regressive distributive lag model is used to analyze the relationship between remittances and economic growth.

The augmented dickey fuller test was undertaken to stationary test and all the variables are stationary at first difference AR (1). The result of bounds testing (Wald test) also shows that there is a long run co-integration between dependent and independent variables. In the long run fixed capital formation, secondary school enrollment and total government expenditure have a positive and significant impact on economic growth, whereas remittances have a significant and negative effect on GDP in the long run. According to Chami et al. (2003) the moral hazard problem created by remittances can be severe enough to reduce economic activities. From the descriptive part of the study, the negative correlation between remittances and fixed investment supports the econometric results and in the long run as the flow of funds increase, due to the moral hazard problem the working people diverted to be unproductive and most of the remittances spent on consumable goods and services.

In the short run, all the variables have a significant impact on economic growth except secondary school enrollment, which is its one period lag is significant and negative. The negative magnitude of the error correction term implies that 60 percent of the deviations caused by previous year's shocks converge back to the long-run equilibrium in the current year. The different diagnostic tests conducted to test the estimated ARDL model evidences of serial correlation, functional model misspecification, heteroscedasticity effects were not found in the disturbances. The model also passes the normality test, the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) stability tests.

Policy Implication:

As long as the findings of this paper is concerned, the main factors contribute to the negative impact of remittances for economic growth in the long run are, problems related to moral hazard and a large share of remittance spent for daily consumption purposes. Based on the findings dealt with this paper, the following policy implication is suggested.

The government should have to make awareness to overcome the information gap which leads to moral

hazard problem through different channels (media) for both remittances receipt families and for remittance senders regarding the usage of money in order to increase high saving and small business which in turn increase the fixed investment in the long run.

References:

- [1] Abdih Y., Chami R., Dagher J. and Montiel P. (2008). Remittances and Institutions: Are Remittances a Curse? IMF working paper No: 29. International Monetary Fund, Washington DC.
- [2] Aldaba, F. (2004): "The Economics and Politics of Overseas Migration in the Philippines". Paper presented at the forum titled: Overseas Filipinos and the 2004 Elections. OFW: Journalism Consortium and the Friedrich Ebert Stiftung, Manila
- [3] Andersson, L. (2012). Migration, Remittances and Household Welfare in Ethiopia.
- [4] Aredo, D. (2005). Migrant Remittances, Shocks and Poverties in Urban Ethiopia: an Analysis of Micro Level Panel Data.
- [5] Barro, R. J. (1990). Government Spending in a Simple Model of Endogenous Growth. *Journal of Political Economy*, 98 103-25.
- [6] Bentzen, J. & Engsted, T. (2001). A Revival of the Autoregressive Distributed Lag Model in Estimating Energy Demand Relationships. *Energy Policy*, 26(1), 45–55.
- [7] Beyene, B. M. (2011). The Effect of International Remittances on Poverty and Inequality in Ethiopia.
- [8] Boone, P. (1994). The Impact of Foreign Aid on Savings and Growth. Center Economic Performance. London School of Economics.
- [9] Chami, R, Fullenkamp, C and Jahjah, S. (2003), "Are Immigrant Remittance Flows a Source of Capital for Development?" IMF Working Paper No. 03-189.
- [10] Chenery, H. B. & A. Strout (1966). Foreign Assistance and Economic Development. *American Economic Review*, 56, 679-733.
- [11] Collier, Paul. (2000). Economic Causes of Civil Conflict and their Implications for Policy. World Bank, Washington, D.C.
- [12] Davis, J. & Carr, D. L. (2010). The Effects of Migrant Remittances on Consumption in Highland Guatemala.
- [13] Dejene Aredo (2005): Migrant remittances, shocks And poverty in urban ethiopia: An analysis of Micro Level Panel Data. Addis Ababa University, Ethiopia.
- [14] Edwards, T. (2010). Do Remittances Promote More Economic Growth than Foreign Aid in Latin American and Caribbean Countries? . 40.
- [15] Enders, W. (1996). *Applied Econometric Time Series*. Iowa State University: John Wiley and Sons, Inc.

- [16] Fayissa, B. (2008). The Impact of Remittances on Economic Growth and Development in Africa.
- [17] FDRE, (2013). Diaspora Policy. Addis Ababa Ethiopia.
- [18] Gujarati, D. (2004). Basic Econometrics. Fourth Edition. McGraw-Hill Companies.
- [19] Haas, H. D. (2007). Remittances, Migration and Social Development. United Nations Research Institute for Social Development, 34.
- [20] Johansen, S. (1991). Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian vector Autoregressive Models. *Econometrica*, 1551-1580.
- [21] Kapur, D. (2004) "Remittances: The New Development Mantra?" in: UN Conference on Trade and Development, United Nations, Geneva.
- [22] Karagoz, K. (2009). Workers' Remittances and Economic Growth: Evidence from Turkey Yasar University, 4(13).
- [23] Learnmore Muchemwa (2012). The Effects of Remittance on Economic Growth of Sub-Saharan Africa. 99.
- [24] Levy, V. (1987). Aid and Economic Growth in the Sub-Saharan: Africa: The Recent Experience. *European Economic Review*, 32, 1777-1795.
- [25] Lucas, R. E. (1988). On Mechanics of Economic Growth. *Journal of*
- [26] Narayan, P. K. (2005). The Saving and Investment Nexus for China: Evidence from Cointegration tests. *Applied Economics*, 37(17), 1979-1990.
- [27] Odhiambo, N. M. (2009). Energy Consumption and Economic Growth in Tanzania: An ARDL Bounds Testing Approach. *Energy Policy*, 37(2), 617-622.
- [28] Papanek, G. (1973). Aid, Foreign Private Investment, Savings, and Growth in Less Developing Countries. *Journal of Political Economy*, 81, 120-130.
- [29] Pesaran, M. H. (1997). The Role of Economic Theory in Modeling the Long Run. *The Economics Journal*, 107, 178-191.
- [30] Pesaran, M. H., Y. Shin & Smith, R. J. (2001). Bounds Testing Approaches to The Analysis of Level Relationships. *Journal of Applied Econometrics*, 16, 289-326.
- [31] Ratha, D. (2005). Workers' Remittances: An Important and Stable Source of External Development Finance. 9, 20.
- [32] Ratha, Dilip (2007): Leveraging Remittances for Development. Policy Brief, June. Migration Policy Institute. Washington D.C.
- [33] Ratha, dilip (2013): The Impact of Remittances on Economic Growth and Poverty Reduction. Migration Policy Institute. Washington, DC.
- [34] Romer, P. (1986). Increasing Returns and Long-Run Growth. *Journal of*
- [35] Schultz, T. W. (1980). The Economics of Being Poor. *Journal of political Economy*, 639-651.
- [36] Solomon, J. (2012). Ethiopia Migration Profile. School of Global Affairs and Public Policy Center for Migration and Refugee Studies, 9.
- [37] Sørensen, N.N., Van Hear, N., and Engberg-Pederson, P. (2002). The Migration Development Nexus: Evidence and Policy Options, Geneva, IOM.
- [38] Stahl, C. W. & Arnold, F. (1986). Overseas Workers' Remittances in Asian Development. *International Migration Review*, 20, 899-925.
- [39] World Bank (2005). Remittances. Washington, DC, The World Bank, 1818 H Street, NW, Washington, DC 20433.
- [40] World Bank 2013. Migration and Development Brief. *In: Migration and Remittances Unit*, D. P. G. (ed.). USA Washington DC.
- [41] World Bank (2014). Migration and Development Brief. *In: Migration and Remittances Unit*, D. P. G. (ed.). USA Washington DC.

APPENDIX

